

STATE OF MICHIGAN  
 DEPARTMENT OF TECHNOLOGY MANAGEMENT AND BUDGET      October 21, 2010  
 PURCHASING OPERATIONS  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

**CHANGE NOTICE NO. 7**  
**TO**  
**CONTRACT NO. 071B7200082**  
**between**  
**THE STATE OF MICHIGAN**  
**and**

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>  <a href="mailto:Brian.smith@compuware.com">Brian.smith@compuware.com</a>	TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
	VENDOR NUMBER/MAIL CODE
	BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>	
CONTRACT PERIOD:      From: <b>November 27, 2006</b> To: <b>November 26, 2011</b>	
TERMS <p style="text-align: center;"><b>N/A</b></p>	SHIPMENT <p style="text-align: center;"><b>N/A</b></p>
F.O.B. <p style="text-align: center;"><b>N/A</b></p>	SHIPPED FROM <p style="text-align: center;"><b>N/A</b></p>
MINIMUM DELIVERY REQUIREMENTS <p style="text-align: center;"><b>N/A</b></p>	
MISCELLANEOUS INFORMATION:	

**NATURE OF CHANGE(S):**

**Effective immediately, this contract is hereby EXTENDED through November 26, 2011.  
 All other rates, terms, conditions and pricing remain the same.**

**AUTHORITY/REASON(S):**

**Per agency and DTMB agreement.**

**TOTAL ESTIMATED CONTRACT VALUE REMAINS:      \$5,232,440.00**

STATE OF MICHIGAN  
DEPARTMENT OF MANAGEMENT AND BUDGET  
PURCHASING OPERATIONS  
P.O. BOX 30026, LANSING, MI 48909  
OR  
530 W. ALLEGAN, LANSING, MI 48933

November 16, 2009

CHANGE NOTICE NO. 6  
TO  
CONTRACT NO. 071B7200082  
between  
THE STATE OF MICHIGAN  
and

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>  <a href="mailto:Brian.smith@compuware.com">Brian.smith@compuware.com</a>	TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
	VENDOR NUMBER/MAIL CODE
	BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>	
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2010</b>	
TERMS <b>N/A</b>	SHIPMENT <b>N/A</b>
F.O.B. <b>N/A</b>	SHIPPED FROM <b>N/A</b>
MINIMUM DELIVERY REQUIREMENTS <b>N/A</b>	
MISCELLANEOUS INFORMATION:	

**NATURE OF CHANGE(S):**

Per Executive Directive 2009-3, the vendor has offered the following price concessions to the State of Michigan:

Two (2) resources were reduced from this contract in September of 2009 with another one (1) resource being reduced in December of 2009 for a total cost avoidance of \$511,000.00 for the term of this contract. Contract is also EXTENDED through 11/26/2010.

**AUTHORITY/REASON(S):**

Per agency and DMB agreement.

**TOTAL ESTIMATED CONTRACT VALUE REMAINS: \$5,232,440.00**

STATE OF MICHIGAN  
 DEPARTMENT OF MANAGEMENT AND BUDGET  
 PURCHASING OPERATIONS  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

February 18, 2009

**CHANGE NOTICE NO. 5**  
**TO**  
**CONTRACT NO. 071B7200082**  
**between**  
**THE STATE OF MICHIGAN**  
**and**

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>  <a href="mailto:Brian.smith@compuware.com">Brian.smith@compuware.com</a>	TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
	VENDOR NUMBER/MAIL CODE
	BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>	
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2009</b>	
TERMS <p style="text-align: center;"><b>N/A</b></p>	SHIPMENT <p style="text-align: center;"><b>N/A</b></p>
F.O.B. <p style="text-align: center;"><b>N/A</b></p>	SHIPPED FROM <p style="text-align: center;"><b>N/A</b></p>
MINIMUM DELIVERY REQUIREMENTS <p style="text-align: center;"><b>N/A</b></p>	
MISCELLANEOUS INFORMATION:	

**NATURE OF CHANGE(S):**

**Per agency request, please change project from fixed deliverables base to time and materials based for remainder of the contract terms.**

**AUTHORITY/REASON(S):**

**Per agency and DMB agreement.**

**TOTAL ESTIMATED CONTRACT VALUE REMAINS: \$5,232,440.00**

**State of Michigan  
EEM/SDS Project  
Change Control Request**

**A. General Information**

*Information to be provided in this section is general in nature and provides the necessary information about the organization of the project and project participants.*

<b>Project ID/Acronym:</b>	<u>EEM/SDS Project</u>	<b>Date:</b>	<u>11/10/2008</u>
<b>Controlling Agency:</b>	<u>CEPI/DIT</u>	<b>Modification Date:</b>	<u>01/21/2009</u>
<b>Prepared by:</b>	<u>Compuware</u>	<b>Control Number (From Control Log)</b>	<u>SDS013</u>

**B. Requestor Information**

**Proposed Change Description and References:**

Reconciliation of Compuware compensation for EEM and SDS Phase 1 projects under the fixed price, deliverables based model.

Refer to the Project Issue #003 document submitted to the State by Compuware and the associated response from the State for a detailed explanation of issues necessitating this Change Control Request.

Summary: Due to unexpected events and increases in the complexity (as defined by detailed requirements and design, after the contract signing), the SDS project has required more time and effort than originally estimated. As a result, Compuware Corporation requested an additional payment of \$530,720 for SDS Phase 1. As is outlined in the State's response to Issue document 003, the State believes the additional effort and time required to deliver the Phase 1 SDS project is the shared responsibility of both the State and Compuware. As a result, the State and Compuware have agreed to a payment of \$265,360 (or 1/2 of Compuware's request).

CCR #SDS016 details the modified work and compensation structure for SDS Phase 2.

The chart below details payments invoiced to the State as of January 14, 2009 for work completed and approved by the State.

Activity	Invoiced/Paid	Open/Yet to be invoiced
Milestone 1 (both EEM and SDS)	\$ 52,365.00	
Milestone 2 (80% payment)	\$ 48,026.00	
Milestone 3 – EEM	\$ 147,234.00	
Milestone 3 – SDS	\$ 161,730.00	
Milestone 4 Iteration 1 – EEM	\$ 269,415.00	
Milestone 4 Iteration 2 – EEM	\$ 269,415.00	
Milestone 5 – EEM	\$ 110,830.00	
Milestone 4 – SDS Phase 1	\$ 560,729.50	
EEM CCR #EEM 007	\$ 8,960.00	
EEM CCRs as shown below:		
EEM001 \$ 2,560.00		
EEM002 \$ 1,280.00		
EEM011 \$ 720.00	\$ 15,120.00	
EEM014 \$ 1,200.00		
EEM018 \$ 1,040.00		
EEM portion of CCR Project002 \$ 8,320.00		
EEM CCR #EEM024	\$ 1,440.00	
Milestone 6 – Oct., Nov., Dec 2008	\$ 11,250.00	

maintenance support		
Delivery of Hardware/Software (associated with Milestone 4)	\$ 25,520.00	
<b>TOTAL</b>	<b>\$ 1,682,034.50</b>	

The chart below details all remaining payments associated with the EEM and SDS, Phase 1 projects as well as the mutually agreed-to payment resulting from Project Issue Document #3:

Activity	Invoiced/Paid	Open/Yet to be invoiced
Milestone 2 (EEM and SDS) (20% payment) <sup>2</sup>		\$ 12,006.00
Milestone 4 Iteration 3 - EEM <sup>2</sup>		\$ 396,207.00
Milestone 5 – SDS Phase 1 <sup>2</sup>		\$ 82,658.50
SDS CCR's <sup>2</sup> as shown below:		
SDS005 \$ 48,800.00		\$ 55,160.00
SDS011 \$ 5,880.00		
SDS Phase 1 portion of CCR Project002 \$ 480.00		
SDS CCR #SDS006 (WBT) <sup>2</sup>		\$ 22,880.00
Milestone 6 – Jan through Sept 2009 maintenance support <sup>3</sup>		\$ 78,750.00
SDS Phase 1 Issue Document 003 Adjustment <sup>1,4</sup>		\$ 265,360.00
SDS Phase 2 Design/Development work performed prior to the approval of this CCR <sup>1,4</sup>		\$ 56,000.00
<b>TOTAL</b>		<b>\$ 969,019.50</b>

<sup>1</sup> The SDS Phase 1 Scope Adjustment and SDS Phase 2 Design/Development work dollars detailed above were developed jointly by Compuware and the State PM/ SDS Business Lead as appropriate compensation for work completed over and above existing SDS Phase 1 contractual milestones.

**Invoicing**

<sup>2</sup> Compuware will invoice the State for the remaining open amounts upon receipt of State approval for Milestone 2, Milestone 4 Iteration 3 – EEM, Milestone 5 – SDS Phase 1, and the SDS CCRs detailed in the chart above. The "SDS Phase 1 portion of CCR Project 002" amount shown above reflects the subtraction of the 250 gratis hours associated with CCR Project 002

<sup>3</sup> The Milestone 6 payment will be invoiced monthly, January through September 2009 (\$8,750.00 per month). The State may choose to end the maintenance support services at any time and will be billed only for work performed. In the event that the State decides to end maintenance support prior to September 2009, the State will notify Compuware of their intent at least two weeks prior to the State's desired end date for maintenance support.

<sup>4</sup> Compuware will invoice the State for the SDS Phase 1 Issue Document 003 Adjustment and SDS Phase 2 Design/Development work upon receipt of approval for this CCR (CCR #SDS013).

**Impact of Not Implementing Proposed Change:**

N/A

**Alternatives:**

None

**C. Initial Review Results of the Change Request**

Initial Review Date: 1/15/2009

Assigned to: Karen Buckwalter & Diane  
Toscano

Approve for Impact Analysis

Reject

Defer Until:

Reason:

**D. Initial Impact Analysis**

Baselines Affected:

Configuration Items Affected: Cost

Cost / Schedule Impact Analysis Required? Yes No

Impact on Cost:

Impact on Schedule:

Impact on Resources:

Final Review Results:

Review Date:

Classification: X HIGH  MEDIUM  LOW

**E. Impact Analysis Results**

Specific Requirements Definition:

Impact of Not Implementing the Change:

Alternatives to the Proposed Change:

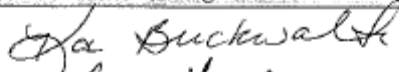
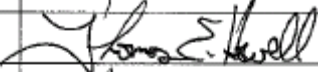

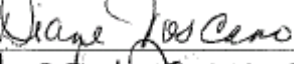

None

Final Recommendation:

Accept change request

**F. Signatures**

Governance Body:

Name/Title	Signature	Date
Karen Buckwalter, State of Michigan		1/22/09
Tom Howell, State of Michigan		1/22/2009
Trina Anderson, State of Michigan		1/22/2009
Diane Toscano - Compuware		1/22/09
Cindy Janssen - Compuware		1/22/09

**State of Michigan  
EEM/SDS Project  
Change Control Request**

**A. General Information**

*Information to be provided in this section is general in nature and provides the necessary information about the organization of the project and project participants.*

<b>Project ID/Acronym:</b>	<u>EEM/SDS Project</u>	<b>Date:</b>	<u>1/15/2009</u>
<b>Controlling Agency:</b>	<u>CEPI/DIT</u>	<b>Modification Date:</b>	<u>1/21/2009</u>
<b>Prepared by:</b>	<u>Compuware</u>	<b>Control Number (From Control Log)</b>	<u>SDS016</u>

**B. Requestor Information**

**Proposed Change Description and References:**

Upon approval of this CCR, the State will not be responsible for the fixed priced, deliverables- based payments not detailed in CCR 013. Instead, Compuware will provide the State of Michigan with the resources shown in the table below and corresponding monthly rates to support SDS post-Phase 1.0. Monthly rates have been adjusted for January, February and March 2009 as shown to reflect pro-rated availability of resources (these resources will also be working on several remaining SDS Phase 1.0 tasks covered by the existing contract)

Name	Monthly Fixed Rate	January 09 (assumes 1/23/09 start)	February 09	March 09	April 09 (and beyond)
Joe Rush	\$ 20,300.00	\$ 4,640.00	\$ 18,270.00	\$ 18,270.00	\$ 20,300.00
Linda Ross	\$ 15,100.00	\$ 3,452.00	\$ 13,590.00	\$ 13,590.00	\$ 15,100.00
Brad Cogswell	\$ 15,700.00	\$ 3,589.00	\$ 14,130.00	\$ 14,130.00	\$ 15,700.00
Brian Cecile	\$ 14,200.00	\$ 3,246.00	\$ 12,780.00	\$ 12,780.00	\$ 14,200.00
Glen Stroup	\$ 16,400.00	\$ 3,749.00	\$ 14,760.00	\$ 14,760.00	\$ 16,400.00
Emmanuel Mukarigari	\$ 12,700.00	\$ 2,903.00	\$ 11,430.00	\$ 11,430.00	\$ 12,700.00

January rates assume a 1/22/09 signed CCR, were pro-rated for the number of total working days in January and reflect 80% of the prorated monthly fixed rate. February and March rates reflect 90% of overall monthly fixed rate. April (and beyond) reflect 100% of the monthly fixed rate.

These resources will perform post-SDS Phase 1.0 tasks at the direction of the State Senior Project Manager, Karen Buckwalter. The Compuware Program Director, Diane Toscano, will provide oversight and support to the Compuware resources at no cost to the State. Diane will meet with Karen as needed and at a minimum, monthly, to review project status, issues, and concerns.

The State Senior Project Manager will provide the Compuware Program Director with one months written notice if particular resources are no longer needed on the project (i.e., phase or total task completion – planned roll-off). If the State has concerns regarding resource performance, the State Senior Project Manager will contact the Compuware Program Director for resolution, which may include removal and/or replacement, rate adjustment, etc. Normal, established project issue escalation procedures apply.

The monthly rates above assume reasonable levels of overtime, holiday, vacation and sick time:

- Maximum of 193 hours per month per resource, including holidays, vacation, overtime, sick/personal time. Compuware resources must obtain prior written approval from the State PM and Compuware Project Director to exceed this amount and the monthly rate would then be pro-

rated accordingly (i.e. the monthly rate, divided by 193 hours = the hourly rate charged for any pre-approved additional hours.)

▪ Joe Rush	\$105.18 per hour
▪ Linda Ross	\$78.24 per hour
▪ Brad Cogswell	\$81.35 per hour
▪ Brian Cecile	\$73.58 per hour
▪ Glen Stroup	\$84.97 per hour
▪ Emmanuel Mukarigari	\$65.80 per hour

- Compuware resources will not be expected to work on State holidays.
- Maximum of 15 days vacation time January 22<sup>nd</sup> through December 31, 2009. Vacation time must be requested in writing and pre-approved by the State Senior PM and Compuware Project Director.
- Sick/personal time can be made up with State Senior Project Manager approval. State concerns over any excessive resource absence will be communicated to the Compuware Project Director for resolution.
- Timesheets will be submitted twice monthly (mid-month and end-of-month) by each Compuware resource to the State Senior Project Manager for signature. These timesheets will then be forwarded by the Compuware resource to the Okemos office for processing. The State will provide a replacement signatory in the event of senior PM absence on "time-sheet day" to help ensure prompt processing of these time sheets.

The following assumptions are included in the monthly rate:

- Six (6) average days per month travel for Joe Rush (can be managed over planned resource project term – e.g. maximum of 66 days for an 11 month project term)
- Eight (8) average days per month travel for Linda Ross (to be managed over planned resource project term – e.g. maximum of 88 days for an 11 month project term)
- Three (3) average days per month travel for Brad Cogswell (to be managed over planned resource project term – e.g. maximum of 33 days for an 11 month project term)
- Zero (0) days per month travel for the remaining development staff

Time spent traveling to and from the State is not billable.

Reconciliation of travel exceeding the above guidelines will be completed at the planned roll-off date for the resource. If the number of trips exceeds the maximum, the additional trip expense rate will be \$135 per trip. Each Compuware resource will provide a per-period and cumulative travel report with each time sheet so that travel can be actively monitored throughout the engagement. In the unexpected event that a resource must leave the project prior to the end of their planned project term (i.e., unexpected for reasons such as performance, resignation, etc.), no additional payment will be expected due to travel, to date, being more or less than the adjusted monthly average.

Andrea Flores currently provides maintenance support for the deployed applications, governed by the existing agreement in the Warranty and Maintenance Statement of Work. Andrea's tasks will be prioritized by the State Senior Project Manager, in conjunction with CEPI and may also include post SDS Phase 1 project tasks. Andrea's schedule will follow a normal 40 hour work week, reasonable vacation and sick/personal time. Monthly invoicing and payment for Andrea's support will follow the existing fixed price contractual agreement at \$8,750 per month.

Compuware will invoice the State monthly for the resources noted in the rate table above. Full payment will be due according to State payment terms (e.g., 45 days after receipt).

Any existing, open Change Requests that address post-SDS Phase 1 work (for example, CCR# Project002) will be closed upon approval of this CCR and CCR SDS013. This work will be prioritized, assigned and managed by the State Senior Project Manager at her discretion.

**Impact of Not Implementing Proposed Change:**

If approval of this CCR is delayed, Compuware may also have to delay continued support of the SDS post-Phase 1.0 project.

**Alternatives:**

None

**C. Initial Review Results of the Change Request**

**Initial Review Date:** 1/15/2009

**Assigned to:** Karen Buckwalter & Diane  
Toscano

- Approve for Impact Analysis
- Reject
- Defer Until:  
Reason:

**D. Initial Impact Analysis**

**Baselines Affected:** Current SDS Phase 2 milestone dates

**Configuration Items Affected:** Cost, Schedule, Resources

**Cost / Schedule Impact Analysis Required?** Yes No

**Impact on Cost:**

**Impact on Schedule:**

**Impact on Resources:**

**Final Review Results:**

**Review Date:**

**Classification:** X HIGH  MEDIUM  LOW

**E. Impact Analysis Results**

**Specific Requirements Definition:**

**Impact of Not Implementing the Change:**

**Alternatives to the Proposed Change:**

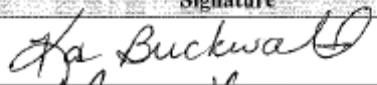
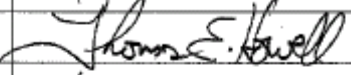
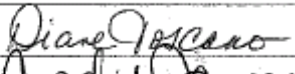
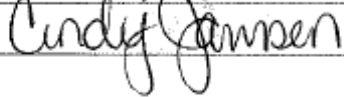
None

**Final Recommendation:**

Accept change.

**F. Signatures**

Governance Body:

Name/Title	Signature	Date
Karen Buckwalter, State of Michigan		1/22/09
Tom Howell, State of Michigan		1/22/2009
Trina Anderson, State of Michigan		1/22/2009
Diane Toscano - Compuware		1/22/2009
Cindy Janssen - Compuware		1/22/09

**State of Michigan  
EEM/SDS Project  
Issue Document**

**A. General Information**

Information to be provided in this section gives a specific name to the project as well as pertinent information about the personnel involved.

<b>Project ID/Acronym:</b>	EEM/SDS	<b>Date:</b>	11/07/2008
<b>Controlling Agency:</b>	CEPI/DIT	<b>Modification Dates:</b>	1/22/09 (State Response Added)
<b>Prepared by:</b>	Diane Toscano	<b>Issue Number :</b>	003 – Schedule extensions, unanticipated costs

**B. Issue Background**

**Issue Type:**

- |  |   |
|--|---|
| <input type="checkbox"/> Request for Information | <input type="checkbox"/> System Problem   |
| <input type="checkbox"/> Procedural Problem      | <input checked="" type="checkbox"/> Other |

**Date Resolution Needed:** ASAP  
**Proposed Assignee:** Jim Hogan, Cindy Janssen  
**Attachments (if any)** NO  
**Reviewer:** CEPI, DIT, Compuware Oversight Committee Members  
*(Assigned Negotiation Committee: Karen Buckwalter, Trina Anderson, Cindy Janssen, and Diane Toscano)*  
**Reviewer Completion Date:**  
**Reviewer Comments:**

**Issue Description:**

The SDS portion of the MDIT/CEPI project continues to experience delays. Multiple implementation schedule delays have been experienced over the course of the project, severely impacting Compuware's overall financial position. The two main, related issues (delays and cost impact) are detailed below:

**1. Delays in Implementing SDS Phase 1 and Phase 2**

The teams have gone through several iterations of planning for SDS Phase 1 and Phase 2:

- **At the start of the project**, the original implementation plan was as follows:
  - EEM Implementation of 7/30/2008
  - SDS Implementation of 7/30/2008
- In **January 2008**, a two-phased SDS schedule was developed, necessitated by the elongated SDS Requirements/Scope phase of the project (scope not approved until January 9, 2008 – see underlying contributors section below).
  - o PHASE 1
    - Coding completed by 5/31/2008, SIT testing completed by 7/1/2008
    - UAT complete 8/1/2008

- Code deployed into production 8/1/2008
  - Additional UAT/Pilot testing for other “non Obtain UIC” collections completed 10/1/2008 to support those other collections in the 8/1/2008 code base
  - PHASE 2
    - Code developed, SIT testing completed by 1/20/2009
    - UAT Complete 2/28/2009
    - Code deployed into production 2/28/2009
    - Additional UAT/Pilot testing for staggered collections completed 10/1/2009 to support various collections in the 1/20/2009 code base
  - **On May 29, 2008**, Change Control Request SDS005 was written, identifying several Design changes identified in the month of May 2008, which made the achievement of a 5/31/2008 development completion date impossible to attain
    - REVISED SDS PHASE 1 SCHEDULE
      - Coding and SIT completed by 7/31/2008
      - Code deployed into production 10/4/2008 (aligned with EEM)
  - Following a joint State/CPWR Design “lessons learned” sessions, in **August 2008**, the following SDS schedule was published:
    - SDS PHASE 1
      - Coding complete 8/1/2008
      - SIT, UAT testing complete 9/30/2008
      - Code deployed into production 10/4/2008
    - SDS Phase 2
      - Design complete 1/10/2009
      - Coding complete 2/15/2009
      - SIT, UAT testing complete 4/15/2009
      - Code deployed into production 5/1/2009
- On August 27, 2008**, Compuware agreed to support the revised SDS Phase 2 dates, requesting agreement from the State that every effort would be made to meet these dates and contain the project (resource allocation, scope, etc). Formal response to this request not received.
- **On September 19, 2008** Compuware received an email stating that “The SDS must be deployed no later than the week of November 17 in order to meet the needs associated with the Supplemental Nutrition program. There is no contingency – This must be done”. As of this writing, the State has requested the following:
    - SDS PHASE 1
      - Code deployed into production 12/15/2008
    - SDS PHASE 2
      - Unknown, Design not to begin until after Phase 1 deployment, presumably starting in January 2009

We still do not have a firm, committed project schedule in place. The project has experienced numerous schedule changes which have driven up Compuware costs significantly. Compuware has little reason to believe at this point that there will not be further delays on this project.

## 2. Cost Impact

The current revenue associated with the EEM/SDS project is \$2,963,080.00 (includes known scope/enhancement dollars and excludes contract specified maintenance and unknown enhancement dollars). Compuware’s actual and anticipated costs (assuming no further delays) to support this project total \$8,462,000.00, the majority of the overall loss due primarily to the additional resources needed to support SDS over a longer timeframe than originally anticipated.

**Issue Summary:** Pressures on time and cost have resulted in quality issues experienced by both the State and Compuware. Limitations on State resources have, at times, resulted in increased support provided by Compuware with resultant impacts on other parts of the project. Prioritization of key, critical path tasks has been necessary. In several cases, non-critical path deliverables were by necessity delayed, impacting overall Compuware cash flow.

## **Underlying Factors Contributing to These Issues**

### **1. Finalizing SDS Requirements and Scope**

The Requirements/Scope Finalization phase of the project was not completed until January 2009 (one year after project launch). The approach to this project phase was to document use cases/workflows and transform into a set of requirements to be used as input into the Design/Development phase. Problems developed early using this approach, namely:

- Inability to limit facilitated sessions to identifying “what” the system needed to support.
- Technical feasibility discussions occurred, raising questions on “how” the system needed to function. Compuware attempted to address concerns but, without “designing” the solution, hundreds of issues/questions were raised, all of which were discussed at length but were unanswerable until full Design (time consuming and off-goal). The State repeatedly raised the concern “how can we tell you what the system needs to do if we don’t understand how it’s going to work?” Attempts to educate State personnel on the fundamentals of a structured, disciplined SDLC methodology had limited value.
- Lack of business knowledge in current operations resulted in time used to document current business processes in order to help CEPI define what the new workflows would entail. This was not a reengineering project but CPWR continued to attempt to find ways to help CEPI transform their high level vision into a set of requirements that would define project scope. Compuware resources continued to raise concerns regarding the ability of SDS resources to complete the task.
- CEPI requested that Compuware bring in a resource with educational system expertise. Based upon the direction of Kristen Mullaney, Compuware contracted with Convergent Technologies (as a result of Issue Document #2) to provide insight into Michigan’s educational system (LEAs, Districts, Schools) to support the existing team expertise being supplied by Plante Moran subcontractors. When announced that Compuware had moved forward on the issue by contracting with Martin Thomas from Convergent Technologies at the Oversight Committee meeting, Meg Ropp stated that his expertise was not what was needed, rather “national” educational expertise was needed and Meg supplied Compuware with the name of a desired expert, Lee Tack. Compuware then contracted with Lee Tack who traveled to Michigan, met with CEPI, reviewed the existing requirements and produced a report. The report confirmed that CEPI was on the right track with requirements definition and provided guidance on some design principles to keep in mind. In summary, the additional resources brought in, Martin Thomas and Lee Tack (at additional cost to Compuware), provided little help in uncovering additional requirements (the task for this phase).

In early June 2007, Compuware went to the Project Oversight Committee with a proposal to redefine this project phase to simply be a series of facilitated session whose output was a set of business and technical requirements statements. This was in line with the contract which specified that the vendor was to document the additional 20% of requirements not included in the ITB originally and provide additional detail if needed on those ITB-supplied requirements. The teams continued to struggle with the re-defined task. The results were:

EEM original ITB Reqmts 101

Expectation (20% increase)	122
Actual	380 (315% increase over expectation)
SDS Original ITB Reqmts	57
Expectation (20% increase)	68
Actual	578 (850% increase over expectation)

Numerous stakeholders (other than CEPI and DIT) were involved in these re-defined requirements sessions and achieving consensus provided challenges from a scheduling and facilitation standpoint. Concerns on progress were escalated to the project Oversight Committee in July, August, September, October, November and December of 2007. Compuware alerted the Oversight Committee that the probability of meeting a fall 2008 implementation was being reduced with each month that the requirements phase continued, and that the subsequent SDS design, development and testing phases would be strained.

The elongated Requirements phase resulted in a schedule that provided little contingency in subsequent phases (Design, Testing, Training) in order to meet the post-requirements phase, State-supplied deadline of 8/1/2008 for Obtain UIC deployment.

## 2. Resources

Sufficient State resources have not been allocated to this project to meet the State supplied deadlines for deployment. As a result, the team (Compuware and the State) have struggled to meet various milestones. In addition, absences of key CEPI personnel have affected both the timing of the project and the quality of the Design. Impacts of these absences have been felt in testing and quality (little contingency was available as mentioned above) and in several Change Control Requests (notably SDS005).

Various CEPI team members have limited experience within the business. Compuware has raised concerns regarding the State's ability to support the application in the long term. In addition, Compuware had assumed CEPI had a reasonable level of understanding of their data and that CEPI would supply a simple list of data needed for each collection. Compuware provided much support in helping CEPI determine this although these were not system development decisions, nor was this a data development project.

## 3. Understanding Business Drivers for Deployment

The various schedules detailed above were driven by the needs of the business as communicated by CEPI to Compuware. It was difficult to understand the overall business drivers of these dates so that appropriate contingency schedules could be put in place. As a result, Compuware scrambled (additional resources, attempts to control scope, etc.) to meet dates only to find that dates could be moved. Result – additional Compuware costs, impacts to deliverables timing and quality.

One final note: The original State project manager, Kristen Mullaney, contributed to many of the issues experienced on this project during its first year and these issues had far-reaching, project-wide impact, many of which are still being experienced today. Communications were strained between Compuware and the State and the overall relationship was adversarial. Compuware requested removal of the State PM in late summer 2007 and the State finally responded in January 2008. The State replaced Kristen with Karen Buckwalter as the PM. Compuware appreciates the collaborative approach that Karen has brought to the project in helping to identify and jointly address project issues, greatly reducing the adversarial relationship experienced by team members prior to her arrival. Karen has gone above and beyond in helping to address CEPI resource issues, timeline/schedule changes, and overall decision making. However, Compuware continues to incur additional costs above what could reasonably have ever been

expected at contract signing and is looking to the State to help provide the additional funding to resolve this.

**Resolution:**

- Recompense for SDS Phase 1 Delays:
  - Due to the numerous delays experienced in the implementation of SDS Phase 1 as outlined above, Compuware requests that the State pay Compuware an additional \$530,720 for the associated costs Compuware has to incur for SDS Phase 1 (see Project Control Request #SDS013). This amount is in addition to the expected SDS Phase 1 milestone payments specified in the contract.
  
- SDS Phase 2:
  - Based upon the assumption that SDS Phase 2 Design will begin within the first two (2) weeks of January 2009, Compuware requests that the State pay Compuware an additional \$2,371,104 for completion of SDS Phase 2 project. This amount is in addition to the expected SDS Phase 1 milestone payments specified in the contract.
  - Compuware SDS Phase 2 Approach: Assuming the State's continuance with SDS Phase 2 and additional Compuware funding outlined above for SDS Phase 2:
    - During the Design phase of SDS Phase 2, the Compuware team will consist of the following 3 resources: An Enterprise Architect, a Business Analyst, and a Project Manager.
    - To effectively manage costs, Compuware will be releasing the current development, testing, training and project management support personnel during SDS Phase 2 Design.
    - Upon completion and approval of the SDS Phase 2 Design, Compuware will work with the State to provide a new firm project schedule for the development, testing, training and implementation project tasks. The approved design specifications and the new project schedule will be used to analyze the resource requirements needed to complete the remaining tasks for SDS Phase 2. If through this Resource Analysis, it is determined that additional Compuware resources are needed to complete SDS Phase 2, in excess of the current estimate of \$2,371,104, then additional compensation will be needed and requested by Compuware to the State.
    - After SDS Phase 2 Design approval and the Resource Analysis, Compuware will provide the needed resources to complete SDS Phase 2 development, testing, training and implementation tasks assigned to Compuware. Compuware will assign appropriate personnel to these subsequent phases of the SDS 2 project, which may be different than the current Compuware team members.
  
- State Resource Request:
  - Compuware requests that the State commit to providing sufficient, knowledgeable State subject matter experts, with decision making authority, for the remainder of the SDS Phase 2 project. If any delays are experienced over and above the current estimate of \$2,371,104 for the SDS Phase 2 project due to State resource issues or decision making impediments, Compuware will request additional compensation from the State accordingly.

*State Response:*

*Although the State does not agree with all of the points Compuware has included in this document, we do agree with the following:*

- The SDS project has taken longer than originally expected.*
- The SDS project complexity is greater than originally expected.*
- The SDS project has required more than the expected effort resources (both Compuware and the State) and therefore, the cost to deliver the project was underestimated.*

**Phase 1**

*In response to Compuware's request for an additional \$530,720 for unanticipated costs during Phase 1 of the SDS Project, the State agrees to use a portion of its existing contract contingency dollars to provide Compuware with an additional \$265,360. This and all other outstanding SDS (Phase 1) and EEM payments are outlined in Change Control Request (CCR) SDS013.*

**Phase 2**

*The State does not accept Compuware's Phase 2 proposal. Instead, the State will leverage its existing contract to engage Compuware in a time and materials delivery approach for the remainder of the SDS project as is outlined in CCR SDS 016.*

*The State may also choose to leverage a portion of its remaining budget to retain Compuware and PTD's expertise to produce its future training, online system help, and help desk guide documentation. A separate change request will outline the details, if applicable.*

Cost / Schedule Impact Analysis Required?      YES      NO

**Estimate of Additional Effort:**

<b>Resources Required</b>	<b>Work Days / Costs</b>

**C. Recommendation**

**Final Recommendation and Comments:**

**D. Management Action**

Recommendation status (check one):

Accept

Defer

Need Additional Information

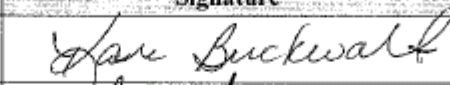
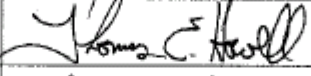




Reject

Assigned to:

Organization:

**E. Signatures**

The signatures of the people below relay an understanding in the purpose and content of this document by those signing it.

Name / Title	Signature	Date
Karen Buckwalter - State of Michigan		1/22/09
Tom Howell - State of Michigan		1/22/2009
Trina Anderson - State of Michigan		1/22/2009
James Hogan - State of Michigan		1/23/09
Diane Toscano - Compuware		1/23/09
Cindy Janssen - Compuware		1/22/09

STATE OF MICHIGAN  
 DEPARTMENT OF MANAGEMENT AND BUDGET  
 PURCHASING OPERATIONS  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

September 3, 2008

CHANGE NOTICE NO. 4  
 TO  
 CONTRACT NO. 071B7200082  
 between  
 THE STATE OF MICHIGAN  
 and

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>  <a href="mailto:Brian.smith@compuware.com">Brian.smith@compuware.com</a>	TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
	VENDOR NUMBER/MAIL CODE
	BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>	
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2009</b>	
TERMS <p style="text-align: center;"><b>N/A</b></p>	SHIPMENT <p style="text-align: center;"><b>N/A</b></p>
F.O.B. <p style="text-align: center;"><b>N/A</b></p>	SHIPPED FROM <p style="text-align: center;"><b>N/A</b></p>
MINIMUM DELIVERY REQUIREMENTS <p style="text-align: center;"><b>N/A</b></p>	
MISCELLANEOUS INFORMATION:	

**NATURE OF CHANGE(S):**

Effective immediately, the following additional commodity codes are added to this contract:

208-90-58 SOFTWARE, MICROCOMPUTER, UTILITIES, MISC  
 920-45-11 SOFTWARE, MAINTENANCE/SUPPORT, PROPRIETARY (CS138 ID-NONJURIS)

**AUTHORITY/REASON(S):**

Per agency and DMB agreement.

**TOTAL ESTIMATED CONTRACT VALUE REMAINS: \$5,232,440.00**

STATE OF MICHIGAN  
 DEPARTMENT OF MANAGEMENT AND BUDGET  
 PURCHASING OPERATIONS  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

August 6, 2008

**CHANGE NOTICE NO. 3**  
**TO**  
**CONTRACT NO. 071B7200082**  
**between**  
**THE STATE OF MICHIGAN**  
**and**

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>		TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
		VENDOR NUMBER/MAIL CODE
<a href="mailto:Brian.smith@compuware.com">Brian.smith@compuware.com</a>		BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>		
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2009</b>		
TERMS <b>N/A</b>	SHIPMENT <b>N/A</b>	
F.O.B. <b>N/A</b>	SHIPPED FROM <b>N/A</b>	
MINIMUM DELIVERY REQUIREMENTS <b>N/A</b>		
MISCELLANEOUS INFORMATION:		

**NATURE OF CHANGE(S):**

Effective immediately, this contract is hereby **INCREASED** by \$1,096,640.00.

**AUTHORITY/REASON(S):**

Per agency and DMB agreement.

**INCREASE: \$1,096,640.00**

**TOTAL REVISED CONTRACT VALUE: \$5,232,440.00**

STATE OF MICHIGAN  
 DEPARTMENT OF MANAGEMENT AND BUDGET  
 PURCHASING OPERATIONS  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

February 28, 2008

CHANGE NOTICE NO. 2  
 TO  
 CONTRACT NO. 071B7200082  
 between  
 THE STATE OF MICHIGAN  
 and

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> 2375 Woodlake Drive, Suite 310 Okemos, MI 48864		TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
		VENDOR NUMBER/MAIL CODE
<a href="mailto:Brian.smith@compuware.com">Brian.smith@compuware.com</a>		BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>		
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2009</b>		
TERMS <b>N/A</b>	SHIPMENT <b>N/A</b>	
F.O.B. <b>N/A</b>	SHIPPED FROM <b>N/A</b>	
MINIMUM DELIVERY REQUIREMENTS <b>N/A</b>		
MISCELLANEOUS INFORMATION:		

**NATURE OF CHANGE(S):**

See attached revision of Attachment A, Pricing and Payment schedule, effective immediately.

**AUTHORITY/REASON(S):**

Per agency and DMB agreement.

**Total Estimated Contract Value Remains: \$4,135,800.00**

## Change Notice #2 - Revised Attachment A

## Pricing

Deliverables By Milestone	Totals	EEM	SDS
	<b>\$4,135,800.00</b>	<b>\$1,925,799.00</b>	<b>\$2,210,001.00</b>
<b>Milestone 1</b>	<b>\$52,365.00</b>	<b>\$24,845.00</b>	<b>\$27,520.00</b>
<b>Will be paid when Milestone 1 is completed and approved (The following deliverables will be provided once for the project (no separate deliverables for EEM and SDS (per CCR #001 Milestone Documents)</b>			
Detailed Project Plan	\$3,973.00	\$1,588.00	\$2,385.00
Electronic Project Library	\$1,428.00	\$570.00	\$858.00
Quality Management Plan	\$952.00	\$380.00	\$572.00
Software Development Approach	\$1,009.00	\$404.00	\$605.00
Project Staffing and Location	\$2,620.00	\$1,048.00	\$1,572.00
Risk Management Plan	\$796.00	\$318.00	\$478.00
Issue Management Plan	\$796.00	\$318.00	\$478.00
Change Management Plan	\$794.00	\$316.00	\$478.00
Project Status Report	\$952.00	\$381.00	\$571.00
Development Software & Sharepoint Server (per CCR #001 Milestone Documents)	\$39,045.00	\$19,522.00	\$19,523.00
Requirements Validation & Gathering Plan (Moved from Milestone 2 per CCR #001 Milestone Documents)	\$0.00	\$0.00	\$0.00
<b>Milestone 2</b>	<b>\$60,032.00</b>	<b>\$24,453.00</b>	<b>\$35,579.00</b>
<b>80% paid when Milestone 2 is approved, 20% paid when Plans and docs are updated after Milestone 3</b>			
Documentation and Standards Plan (One deliverable for both systems per CCR #001 Milestone Documents)	\$1,330.00	\$532.00	\$798.00
Technical Architecture Plan	\$5,022.00	\$2,009.00	\$3,013.00
Equipment/Technology Acquisition Plan	\$2,511.00	\$1,005.00	\$1,506.00
Capacity Plan	\$7,533.00	\$3,013.00	\$4,520.00
Configuration Plan	\$1,256.00	\$502.00	\$754.00
Installation Plan	\$11,265.00	\$4,506.00	\$6,759.00
Training & Knowledge Transfer Plan	\$8,174.00	\$3,270.00	\$4,904.00
Test Plan			
Iteration #1	\$5,135.00	\$2,200.00	\$2,935.00
Iteration #2	\$5,135.00	\$2,200.00	\$2,935.00
Iteration #3	\$5,139.00	\$2,204.00	\$2,935.00
Data Conversion Plan	\$4,528.00	\$1,811.00	\$2,717.00
Application Turnover Plan	\$3,004.00	\$1,201.00	\$1,803.00
<b>Milestone 3</b>	<b>\$308,964.00</b>	<b>\$147,234.00</b>	<b>\$161,730.00</b>
<b>Will be paid when Milestone is completed</b>			

<b>and approved</b>			
Iteration #1			
Draft Technical Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Draft Business Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Iteration #2			
Draft Technical Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Draft Business Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Iteration #3			
Draft Technical Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Draft Business Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Finalized Technical Requirements	\$34,328.00	\$16,358.00	\$17,970.00
Finalized Business Requirements	\$34,328.00	\$16,358.00	\$17,970.00
Final Scope Document	\$34,328.00	\$16,358.00	\$17,970.00
<b>Milestone 4</b>	<b>\$2,082,496.00</b>	<b>\$948,037.00</b>	<b>\$1,134,459.00</b>
<b>Paid by Iteration when Iteration is approved</b>			
<b>Iteration #1 -Total</b>			
Logical & Physical Data Model	\$830,144.50	\$269,415.00	\$560,729.50
Data Dictionary	\$14,857.50	\$5,800.00	\$9,057.50
Technical Design	\$13,557.50	\$4,500.00	\$9,057.50
Technical Documentation	\$168,754.00	\$47,250.00	\$121,504.00
User Acceptance Test Cases	\$11,264.50	\$3,755.00	\$7,509.50
User Acceptance Testing	\$52,197.50	\$17,400.00	\$34,797.50
Source Code	\$132,510.50	\$44,170.00	\$88,340.50
Test Results	\$355,630.00	\$145,000.00	\$210,630.00
Training Docs	\$4,612.50	\$1,540.00	\$3,072.50
<b>Iteration #2 -Total</b>	<b>\$76,760.50</b>	<b>\$26,240.00</b>	<b>\$50,520.50</b>
Logical & Physical Data Model	\$843,144.50	\$269,415.00	\$573,729.50
Data Dictionary	\$14,857.50	\$5,800.00	\$9,057.50
Technical Design	\$13,557.50	\$4,500.00	\$9,057.50
Technical Documentation	\$168,754.00	\$47,250.00	\$121,504.00
Source Code	\$11,264.50	\$3,755.00	\$7,509.50
User Acceptance Test Cases	\$355,630.00	\$145,000.00	\$210,630.00
User Acceptance Testing	\$52,197.50	\$17,400.00	\$34,797.50
Test Results	\$132,510.50	\$44,170.00	\$88,340.50
Training Docs	\$4,612.50	\$1,540.00	\$3,072.50
<b>Delivery of Hardware &amp; Software</b>	<b>\$76,760.50</b>	<b>\$26,240.00</b>	<b>\$50,520.50</b>
<b>Iteration #3 -Total</b>	<b>\$13,000.00</b>	<b>\$13,000.00</b>	<b>\$13,000.00</b>
Logical & Physical Data Model	\$409,207.00	\$409,207.00	
Data Dictionary	\$5,793.00	\$5,793.00	
Technical Design	\$4,586.00	\$4,586.00	
Technical Documentation	\$47,255.00	\$47,255.00	
Source Code	\$3,755.00	\$3,755.00	
User Acceptance Test Cases	\$144,525.00	\$144,525.00	
User Acceptance Testing	\$17,396.00	\$17,396.00	
Test Results	\$44,171.00	\$44,171.00	
Training Docs	\$1,529.00	\$1,529.00	
<b>Delivery of Hardware &amp; Software</b>	<b>\$127,197.00</b>	<b>\$127,197.00</b>	
<b>Delivery of Hardware &amp; Software</b>	<b>\$13,000.00</b>	<b>\$13,000.00</b>	

<b>Milestone 5</b>	<b>\$276,143.00</b>	<b>\$110,830.00</b>	<b>\$165,313.00</b>
<b>Will be paid when approved in 2 stages: 1)</b>			
<b>Production/Data Conversion and</b>			
<b>2)Training</b>			
<b>Total for Production/ Data Conversion</b>	<b>\$57,065.00</b>	<b>\$22,827.00</b>	<b>\$34,238.00</b>
Production Environment	\$2,720.00	\$1,089.00	\$1,631.00
Data Conversion	\$54,345.00	\$21,738.00	\$32,607.00
<b>Total for Training</b>	<b>\$219,078.00</b>	<b>\$88,003.00</b>	<b>\$131,075.00</b>
User Training	\$11,751.00	\$4,700.00	\$7,051.00
Post-classroom Practice Exercise	\$15,914.00	\$6,366.00	\$9,548.00
Train the Trainers	\$11,751.00	\$4,700.00	\$7,051.00
Help Desk Guide	\$26,600.00	\$10,640.00	\$15,960.00
Pilot	\$153,062.00	\$61,597.00	\$91,465.00
<b>Milestone 6</b>	<b>\$105,000.00</b>	<b>\$45,000.00</b>	<b>\$60,000.00</b>
<b>Will be paid monthly</b>			
Month 1	\$8,750.00	\$3,750.00	\$5,000.00
Month 2	\$8,750.00	\$3,750.00	\$5,000.00
Month 3	\$8,750.00	\$3,750.00	\$5,000.00
Month 4	\$8,750.00	\$3,750.00	\$5,000.00
Month 5	\$8,750.00	\$3,750.00	\$5,000.00
Month 6	\$8,750.00	\$3,750.00	\$5,000.00
Month 7	\$8,750.00	\$3,750.00	\$5,000.00
Month 8	\$8,750.00	\$3,750.00	\$5,000.00
Month 9	\$8,750.00	\$3,750.00	\$5,000.00
Month 10	\$8,750.00	\$3,750.00	\$5,000.00
Month 11	\$8,750.00	\$3,750.00	\$5,000.00
Month 12	\$8,750.00	\$3,750.00	\$5,000.00
<b>2,000 hours for increase scope after requirements gathering \$80.00 per hour (Option)</b>	<b>\$320,000.00</b>	<b>\$160,000.00</b>	<b>\$160,000.00</b>
<b>2,000 hours for enhancements \$80.00 per hour (Option)</b>	<b>\$320,000.00</b>	<b>\$160,000.00</b>	<b>\$160,000.00</b>
<b>Direct Certification (Option)</b>	<b>\$150,000.00</b>	<b>\$75,000.00</b>	<b>\$75,000.00</b>
<b>2 years of maintenance after the warranty year (Option) (\$19,200 x 12 = \$230,400/per year x 2 years</b>	<b>\$460,800.00</b>	<b>\$230,400.00</b>	<b>\$230,400.00</b>
<b>The identified maintenance will be on an “as needed” basis. The hourly rates will not exceed \$100.00 per hour.</b>			

1. Allow EEM and SDS systems to be invoiced separately.

1.502 FINAL ACCEPTANCE  
 The following criteria will be used by the State to determine Final Acceptance of the project.  
 1. All documents, software and services are delivered and accepted by CEPI and MDIT in accordance with the requirements of the contract.  
 2. For thirty (30) days after installation and configuration in the staging environment (model office), the software and any related infrastructure must meet or exceed acceptance testing requirements in accordance with the requirements of the contract.  
 3. Due to the nature of required reporting at various times throughout the year, there will be a thirty (30) day period after the creation of quarterly, semi-annual, and yearly reports, in which the performance and reliability requirements must be met in order to prove the creation, operation, and accuracy of those first reports.  
 4. The software must meet or exceed the acceptance testing requirements for a period of ninety (90) consecutive days at the Lansing facility.  
 a. Approvals will be written and signed by CEPI and MDIT Project Managers.  
 b. Unacceptable issues will be documented and submitted to the Contractor.  
 CONTRACT #071B7200082  
 5. After installation and configuration in the production environment, all issues discovered during the warranty period are resolved and accepted or waived by CEPI and MDIT. Approvals will be written and signed by CEPI and MDIT Project Managers.  
 6. Payment will be by Milestone for each system separately, except for Milestone Two (2), Four (4), Five (5) and Six (6). Example: when all of the deliverables, products and services have been met and accepted by the State listed under Milestone One (1) then Contractor will be able to bill the State via the State's Project Manager who will fulfill the signature(s) required process within the State and submit the invoice to Invoice Processing for payment to Contractor.  
 a. Milestone 2 – 80% will be paid when this milestone is completed and approved by the state. The remaining 20% will be paid when all the deliverables (plans, designs and documents) have been updated to reflect the agreed upon final project scope which occurs after the end of the requirements gathering milestone (Milestone 3).  
 b. Milestone 4 – Due to the length of this milestone the state will allow specific invoices/payments that corresponding to the end of certain stages . These stages are: Iteration 1, Iteration 2, Pilot Implementation, and Michigan Implementation  
 c. Milestone 5 – will be allowed to have two (2) invoices/payments at the end of certain stages. These stages are: Training and Data Conversion/Mitigation  
 d. Milestone 6 will be allowed to be billed invoiced monthly.  
 6. Payment will be by Milestone for each system separately, ~~except for Milestone Two (2), Four (4), Five (5) and Six (6).~~ Example: when all of the deliverables, products and services have been met and accepted by the State listed under Milestone One (1) then Contractor will be able to bill the State via the State's Project Manager who will fulfill the signature(s) required process within the State and submit the invoice to Invoice Processing for payment to Contractor.  
 b. Milestone 4 – Due to the length of this milestone the state will allow specific invoices/payments that corresponding to the end of certain stages . These stages are: Iteration 1, Iteration 2, Pilot Implementation, and Michigan Implementation  
 EEM Iteration 1, Iteration 2, Iteration 3 and SDS Iteration 1, Iteration 2

2. After detailed planning, the SDS system will be delivered in two (2) iterations instead of three (3). Change payment by milestone for the SDS system to reflect.

Deliverables By Milestone	Totals	EEM	SDS	Proposed SDS Milestone 4 Payments
<b>Milestone 4</b>	<b>\$2,082,496.00</b>	<b>\$948,037.00</b>	<b>\$1,134,459.00</b>	<b>\$1,134,459.00</b>
<b>Paid by Iteration</b>				
<b>Iteration #1 -Total</b>	<b>\$592,085.00</b>	<b>\$269,415.00</b>	<b>\$322,670.00</b>	<b>Iteration #1 -Total \$560,729.50</b>
Logical & Physical Data Model	\$11,850.00	\$5,800.00	\$6,050.00	Logical & Physical Data Model \$9,057.50
Data Dictionary	\$10,550.00	\$4,500.00	\$6,050.00	Data Dictionary \$9,057.50
Technical Design	\$128,250.00	\$47,250.00	\$81,000.00	Technical Design \$121,504.00
Technical Documentation	\$8,755.00	\$3,755.00	\$5,000.00	Technical Documentation \$7,509.50
Source Code	\$285,420.00	\$145,000.00	\$140,420.00	Source Code \$210,630.00
Test Results	\$3,590.00	\$1,540.00	\$2,050.00	Test Results \$3,072.50
User Acceptance Test Cases	\$40,600.00	\$17,400.00	\$23,200.00	User Acceptance Test Cases \$34,797.50
User Acceptance Testing	\$103,070.00	\$44,170.00	\$58,900.00	User Acceptance Testing \$88,340.50
<b>Iteration #2 -Total</b>	<b>\$592,085.00</b>	<b>\$269,415.00</b>	<b>\$322,670.00</b>	<b>Training Docs \$76,760.50</b>
Logical & Physical Data Model	\$11,850.00	\$5,800.00	\$6,050.00	<b>Iteration #2 -Total \$573,729.50</b>
Data Dictionary	\$10,550.00	\$4,500.00	\$6,050.00	Logical & Physical Data Model \$9,057.50
Technical Design	\$128,250.00	\$47,250.00	\$81,000.00	Data Dictionary \$9,057.50
Technical Documentation	\$8,755.00	\$3,755.00	\$5,000.00	Technical Design \$121,504.00
Source Code	\$285,420.00	\$145,000.00	\$140,420.00	Technical Documentation \$7,509.50
Test Results	\$3,590.00	\$1,540.00	\$2,050.00	Source Code \$210,630.00
User Acceptance Test Cases	\$40,600.00	\$17,400.00	\$23,200.00	Test Results \$3,072.50
User Acceptance Testing	\$103,070.00	\$44,170.00	\$58,900.00	User Acceptance Test Cases \$34,797.50
<b>Iteration #3 -Total</b>	<b>\$898,326.00</b>	<b>\$409,207.00</b>	<b>\$489,119.00</b>	<b>User Acceptance Testing \$88,340.50</b>
Logical & Physical Data Model	\$11,808.00	\$5,793.00	\$6,015.00	Training Docs \$76,760.50
Data Dictionary	\$10,601.00	\$4,586.00	\$6,015.00	<b>Delivery of Hardware and Software \$13,000.00</b>
Technical Design	\$128,263.00	\$47,255.00	\$81,008.00	
Technical Documentation	\$8,774.00	\$3,755.00	\$5,019.00	
Source Code	\$284,945.00	\$144,525.00	\$140,420.00	
Test Results	\$3,574.00	\$1,529.00	\$2,045.00	
User Acceptance Test Cases	\$40,591.00	\$17,396.00	\$23,195.00	
User Acceptance Testing	\$103,052.00	\$44,171.00	\$58,881.00	
Training Docs	\$280,718.00	\$127,197.00	\$153,521.00	
Delivery of Hardware and Software	\$26,000.00	\$13,000.00	\$13,000.00	

STATE OF MICHIGAN  
 DEPARTMENT OF MANAGEMENT AND BUDGET  
 PURCHASING OPERATIONS  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

October 30, 2007

**CHANGE NOTICE NO. 1**  
**TO**  
**CONTRACT NO. 071B7200082**  
**between**  
**THE STATE OF MICHIGAN**  
**and**

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>  Email: <a href="mailto:Patrick.hug@compuware.com">Patrick.hug@compuware.com</a>	TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
	VENDOR NUMBER/MAIL CODE
	BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>	
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2009</b>	
TERMS <p style="text-align: center;"><b>N/A</b></p>	SHIPMENT <p style="text-align: center;"><b>N/A</b></p>
F.O.B. <p style="text-align: center;"><b>N/A</b></p>	SHIPPED FROM <p style="text-align: center;"><b>N/A</b></p>
MINIMUM DELIVERY REQUIREMENTS <p style="text-align: center;"><b>N/A</b></p>	
MISCELLANEOUS INFORMATION:	

**NATURE OF CHANGE(S):**

**See attached CCR for contract changes.**

**AUTHORITY/REASON(S):**

**Per agency and DMB agreement.**

**Total Estimated Contract Value Remains: \$4,135,800.00**

**State of Michigan  
EEM/SDS Project  
Change Control Request**

**A. General Information**

*Information to be provided in this section is general in nature and provides the necessary information about the organization of the project and project participants*

<b>Project ID/Acronym:</b>	<u>EEM/SDS Project</u>	<b>Date:</b>	<u>2/28/07</u>
<b>Controlling Agency:</b>	<u>CEPI</u>	<b>Modification Date:</b>	<u></u>
<b>Prepared by:</b>	<u>Kristen Mullaney</u>	<b>Control Number (From Control Log)</b>	<u>001 Milestone Documents</u>

**B. Requestor Information**

**Proposed Change Description and References:**

In the "Deliverables By Milestone" document in the Compuware Contract (PO # 071B7200082) make the following changes:

- 1) Under Milestone 1 for both systems change the line item "Delivery of Hardware and Software" to "Development Software and Sharepoint Server" with corresponding dollars of EEM \$19,522 and SDS \$19,523. This changes the total dollars for Milestone to \$52,365, with EEM as \$18,341 and SDS as \$34,024.
- 2) The remaining amount, \$26,000, from the "Delivery of Hardware and Software" line item is to be moved Milestone 4. It is not clear as to what this is, as it states in the bid that it is hardware and it is the State's contention that this is optional should we choose to have Compuware purchase servers for us. Compuware is reviewing what this is and will provide a statement and a break down of the what this costs was to include. This will increase Milestone 4 to by \$26,000 to \$2,082,496. Currently splitting the \$26,000 between EEM and SDS so each has an increase of \$13,000.
- 3) Move "Requirements Validation & Gathering Plan" from Milestone 2 to Milestone 1. There is no cost associated with this deliverable so does not effect costing in either Milestone.
- 4) Under both systems, EEM and SDS, Milestone 1: Combine the following deliverables from one for each system to one for the project (i.e. one for both systems):
  - Detailed Project Plan (including a communication plan)
  - Electronic Project Library
  - Quality Management Plan
  - Project Staffing and Location
  - Risk Management Plan
  - Issue Management Plan
  - Change Management Plan
  - Project Status Report
  - Software Development Approach document
  - Requirements Validation and Gathering Plan
- 5) Under Milestone 2 the "Documentation and Standards Plan" will be one deliverable for both systems. The remaining documents in Milestone 2 are to be one document for each system.

**Impact of Not Implementing Proposed Change:**

PMM-14 (Rel. 7/2006)

1

PMM – December, 2004

Unnecessary work to be done by Compuware and the State with no value add and will take away resources from work that is on the critical path.

**Alternatives:**

None

**C. Initial Review Results of the Change Request**

Initial Review Date: 2/28/07 Assigned to: Kristen Mullaney

Approve for Impact Analysis

Reject

Defer Until:

Reason:

**D. Initial Impact Analysis**

**Baselines Affected:** If require project documentation for both systems could push back the project timeline by two to three weeks due to time for development and review, incorporating feedback and approval.

**Configuration Items Affected:**

**Cost / Schedule Impact Analysis Required?**  Yes  No

**Impact on Cost:**

**Impact on Schedule:** Delay of two to three weeks and delay of critical path tasks getting accomplished with no value to the project

**Impact on Resources:** More work for resources that are already maxed out with no value to the project

**Final Review Results:** Allow changes

**Review Date:** 2/28/07

**Classification:**  HIGH  MEDIUM  LOW

**E. Impact Analysis Results**

**Specific Requirements Definition:**

N/A

Additional Resource Requirements	Work Days	Cost
	0	0
	0	0
	0	0
	0	0
	0	0
<b>TOTAL</b>	0	0

**Impact of Not Implementing the Change:**

Two to three weeks added to the project timeline and critical path tasks will be delayed.

**Alternatives to the Proposed Change:**

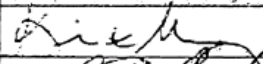

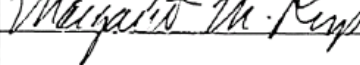
None

**Final Recommendation:**

Accept the changes as written in the Proposed Changes Section B above

**F. Signatures**

Governance Body:

Name/Title	Signature	Date
Kristen Mullaney		3/27/07
Loretta Rountree		3/27/07
Margaret Ropp		3/27/07

**STATE OF MICHIGAN**  
**DEPARTMENT OF MANAGEMENT AND BUDGET**  
**PURCHASING OPERATIONS**  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933

December 7, 2006

**NOTICE**  
**OF**  
**CONTRACT NO. 071B7200082**  
**between**  
**THE STATE OF MICHIGAN**  
**and**

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>  Email: <a href="mailto:Patrick.hug@compuware.com">Patrick.hug@compuware.com</a>	TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b>
	VENDOR NUMBER/MAIL CODE
	BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <b>MDIT/CEPI Student Data System</b>	
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2009</b>	
TERMS <p style="text-align: center;"><b>N/A</b></p>	SHIPMENT <p style="text-align: center;"><b>N/A</b></p>
F.O.B. <p style="text-align: center;"><b>N/A</b></p>	SHIPPED FROM <p style="text-align: center;"><b>N/A</b></p>
MINIMUM DELIVERY REQUIREMENTS <p style="text-align: center;"><b>N/A</b></p>	
MISCELLANEOUS INFORMATION:	

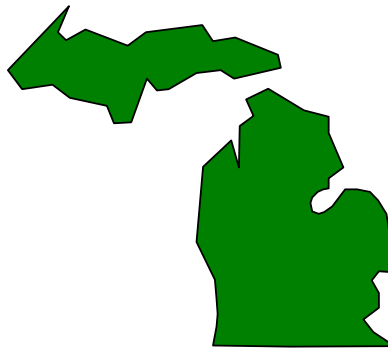
**Estimated Contract Value: \$4,135,800.00**

**STATE OF MICHIGAN  
 DEPARTMENT OF MANAGEMENT AND BUDGET  
 PURCHASING OPERATIONS  
 P.O. BOX 30026, LANSING, MI 48909  
 OR  
 530 W. ALLEGAN, LANSING, MI 48933**

**CONTRACT NO. 071B7200082**  
**between**  
**THE STATE OF MICHIGAN**  
**and**

NAME & ADDRESS OF VENDOR <b>Compuware Corporation</b> <b>2375 Woodlake Drive, Suite 310</b> <b>Okemos, MI 48864</b>  <p style="text-align: right;"><b>Email: <a href="mailto:Patrick.hug@compuware.com">Patrick.hug@compuware.com</a></b></p>	TELEPHONE Patrick Hug <b>(517) 347-1696 x221</b> VENDOR NUMBER/MAIL CODE  BUYER/CA (517) 241-0239 <b>Jacque Kuch</b>
Contract Compliance Inspector: Ann Lindberg <p style="text-align: center;"><b>MDIT/CEPI Student Data System</b></p>	
CONTRACT PERIOD: From: <b>November 27, 2006</b> To: <b>November 26, 2009</b>	
TERMS <p style="text-align: center;"><b>N/A</b></p>	SHIPMENT <p style="text-align: center;"><b>N/A</b></p>
F.O.B. <p style="text-align: center;"><b>N/A</b></p>	SHIPPED FROM <p style="text-align: center;"><b>N/A</b></p>
MINIMUM DELIVERY REQUIREMENTS <p style="text-align: center;"><b>N/A</b></p>	
MISCELLANEOUS INFORMATION: <b>The terms and conditions of this Contract are those of ITB #07116200224, this Contract Agreement and the vendor's quote dated June 14, 2006. In the event of any conflicts between the specifications, terms and conditions indicated by the State and those indicated by the vendor, those of the State take precedence.</b>  <b>Estimated Contract Value: \$4,135,800.00</b>	

<p><b>FOR THE VENDOR:</b></p> <p style="text-align: center;"><b>Compuware Corporation</b>          _____          Firm Name</p> <p style="text-align: center;">_____          Authorized Agent Signature</p> <p style="text-align: center;">_____          Authorized Agent (Print or Type)</p> <p style="text-align: center;">_____          Date</p>	<p><b>FOR THE STATE:</b></p> <p style="text-align: center;">_____          Signature  <b>Greg Faremouth</b>          _____          Name  <b>IT Division, Acting Director</b>          _____          Title</p> <p style="text-align: center;">_____          Date</p>
--	--



**STATE OF MICHIGAN**  
**Department of Management and Budget**  
**Purchasing Operations**

Invitation to Bid No. [071B7200082](#)  
[CEPI Student Data System](#)

Buyer Name: [Jacque Kuch](#)  
Telephone Number: [\(517\) 241-0239](#)  
E-Mail Address: [kuchj@michigan.gov](mailto:kuchj@michigan.gov)



Table of Contents

- Article 1 – Statement of Work (SOW)..... 40
  - 1.103 CURRENT COMPUTING ENVIRONMENT ..... 44
  - 1.104 WORK AND DELIVERABLES ..... 48
  - 1.201 CONTRACTOR STAFF, ROLES, AND RESPONSIBILITIES..... 71
  - 1.202 STATE STAFF, ROLES, AND RESPONSIBILITIES..... 73
  - 1.203 OTHER ROLES AND RESPONSIBILITIES..... 74
  - 1.30 PROJECT PLAN ..... 74**
    - 1.301 PROJECT PLAN MANAGEMENT ..... 74
    - 1.302 REPORTS..... 75
  - 1.40 PROJECT MANAGEMENT ..... 76**
    - 1.401 ISSUE MANAGEMENT..... 76
    - 1.402 RISK MANAGEMENT ..... 77
    - 1.403 CHANGE MANAGEMENT ..... 77
  - 1.50 ACCEPTANCE ..... 78**
    - 1.501 CRITERIA ..... 78
    - 1.502 FINAL ACCEPTANCE ..... 80
  - 1.60 COMPENSATION AND PAYMENT ..... 81**
- Article 2 – General Terms and Conditions ..... 82
  - 2.010 Contract Structure and Administration ..... 82
  - The State of Michigan agrees to Contractor’s request to accept your existing Escrow Agreement with Brooks and Kuschman P.C..... 82
    - 2.011 Definitions ..... 82
    - 2.012 Attachments and Exhibits..... 82
    - 2.013 Statements of Work..... 82
    - 2.014 Issuing Office ..... 83
    - 2.015 Contract Compliance Inspector..... 83
  - 2.020 Contract Objectives/Scope/Background ..... 84
    - 2.021 Background..... 84
    - 2.022 Purpose..... 84
    - 2.023 Objectives and Scope ..... 84
    - 2.024 Interpretation ..... 84
    - 2.025 Form, Function and Utility ..... 84
  - 2.030 Legal Effect and Term..... 84
    - 2.031 Legal Effect ..... 84
    - 2.032 Contract Term ..... 84
  - 2.040 Contractor Personnel ..... 85



- 2.041 Contractor Personnel ..... 85
- 2.042 Contractor Identification ..... 87
- 2.043 Cooperation with Third Parties ..... 87
- 2.044 Subcontracting by Contractor ..... 87
- 2.045 Contractor Responsibility for Personnel ..... 88
- 2.050 State Standards ..... 88
  - 2.051 Existing Technology Standards ..... 88
  - 2.052 PM Methodology Standards ..... 88
  - 2.053 Adherence to Portal Technology Tools ..... 88
  - 2.054 Acceptable Use Policy ..... 88
- 2.060 Deliverables ..... 88
  - 2.061 Ordering ..... 88
  - 2.62 Software ..... 89
  - 2.63 Hardware ..... 89
  - 2.064 Equipment to be New and Prohibited Products ..... 89
- 2.070 Performance ..... 89
  - 2.071 Performance, In General ..... 89
  - 2.072 Time of Performance ..... 89
  - 2.073 Liquidated Damages ..... 89
  - 2.074 Bankruptcy ..... 90
  - 2.075 Time is of the Essence ..... 90
  - 2.076 Service Level Agreements (SLAs) ..... 90
- 2.080 Delivery and Acceptance of Deliverables ..... 90
  - 2.081 Delivery of Deliverables ..... 90
  - 2.082 Contractor System Testing ..... 90
  - 2.083 Approval of Deliverables, In General ..... 91
  - 2.084 Process for Approval of Written Deliverables ..... 92
  - 2.085 Process for Approval of Custom Software Deliverables ..... 92
  - 2.086 Final Acceptance ..... 93
- 2.090 Financial ..... 93
  - 2.091 Pricing – See section 1.502 – Final acceptance
  - 2.092 Invoicing and Payment Procedures and Terms ..... 93
  - 2.093 State Funding Obligation ..... 94
  - 2.94 Holdback ..... 94
  - 2.095 Electronic Payment Availability ..... 94
- 2.100 Contract Management ..... 94
  - 2.101 Contract Management Responsibility ..... 94
  - 2.102 Problem and Contract Management Procedures ..... 95



- 2.103 Reports and Meetings ..... 95
- 2.104 System Changes ..... 95
- 2.105 Reserved ..... 95
- 2.106 Change Requests ..... 95
- 2.107 Management Tools ..... 97
- 2.110 Records and Inspections ..... 97
  - 2.111a Records and Inspections ..... 97
  - 2.112 Errors ..... 98
- 2.120 State Responsibilities ..... 98
  - 2.121 State Performance Obligations ..... 98
- 2.130 Security ..... 98
  - 2.131 Background Checks ..... 98
- 2.140 Reserved ..... 99
- 2.150 Confidentiality ..... 99
  - 2.151 Freedom of Information ..... 99
  - 2.152 Confidentiality ..... 99
  - 2.153 Protection of Confidential Information ..... 99
  - 2.154 Exclusions ..... 100
  - 2.155 No Implied Rights ..... 100
  - 2.156 Remedies ..... 100
  - 2.157 Security Breach Notification ..... 100
  - 2.158 Survival ..... 100
  - 2.159 Destruction of Confidential Information ..... 100
- 2.160 Proprietary Rights ..... 100
  - 2.161a Ownership ..... 100
  - 2.162 Source Code Escrow ..... 101
  - 2.163 Rights in Data ..... 101
  - 2.164 Ownership of Materials ..... 101
  - 2.165 Standard Software ..... 101
  - 2.166 Pre-existing Materials for Custom Software Deliverables ..... 101
  - 2.167 General Skills ..... 102
- 2.170 Warranties And Representations ..... 102
  - 2.171 Warranties and Representations ..... 102
  - 2.172 Software Warranties ..... 103
  - 2.173 Equipment Warranty ..... 104
  - 2.174 Physical Media Warranty ..... 105
  - 2.175a DISCLAIMER ..... 105
  - 2.176 Consequences for Breach ..... 105



- 2.180 Insurance ..... 105
  - 2.181 Liability Insurance ..... 105
- 2.190 Indemnification ..... 108
  - 2.191 Indemnification ..... 108
  - 2.192 Continuation of Indemnification Obligations ..... 109
  - 2.193 Indemnification Procedures ..... 109
- 2.200 Limits of Liability and Excusable Failure ..... 110
  - 2.201 Limits of Liability ..... 110
  - 2.202 Excusable Failure ..... 110
  - 2.203 Disaster Recovery ..... 111
- 2.210 Termination/Cancellation by the State ..... 111
  - 2.211 Termination for Cause ..... 111
  - 2.212 Termination for Convenience ..... 111
  - 2.213 Non-Appropriation ..... 112
  - 2.214 Criminal Conviction ..... 112
  - 2.216 Rights and Obligations upon Termination ..... 113
  - 2.217 Reservation of Rights ..... 113
  - 2.218 Contractor Transition Responsibilities ..... 113
  - 2.219 State Transition Responsibilities ..... 114
- 2.220 Termination by Contractor ..... 114
  - 2.221 Termination by Contractor ..... 114
- 2.230 Stop Work ..... 114
  - 2.231 Stop Work Orders ..... 114
  - 2.232 Cancellation or Expiration of Stop Work Order ..... 115
  - 2.233 Allowance of Contractor Costs ..... 115
- 2.240 Reserved ..... 115
- 2.250 Dispute Resolution ..... 115
  - 2.251 In General ..... 115
  - 2.252 Informal Dispute Resolution ..... 115
  - 2.253 Injunctive Relief ..... 116
  - 2.254 Continued Performance ..... 116
- 2.260 Federal and State Contract Requirements ..... 116
  - 2.261 Nondiscrimination ..... 116
  - 2.262 Unfair Labor Practices ..... 116
  - 2.263 Workplace Safety and Discriminatory Harassment ..... 116
- 2.270 Litigation ..... 117
  - 2.271 Disclosure of Litigation ..... 117
  - 2.272 Governing Law ..... 117



- 2.273 Compliance with Laws ..... 117
- 2.274 Jurisdiction ..... 118
- 2.280 Environmental Provision ..... 118
  - 2.281 Reserved..... 118
- 2.290 General ..... 118
  - 2.291 Amendments..... 118
  - 2.292 Assignment ..... 118
  - 2.293 Entire Contract; Order of Precedence..... 118
  - 2.294 Headings..... 118
  - 2.295 Relationship of the Parties (Independent Contractor Relationship) ..... 118
  - 2.296 Notices ..... 119
  - 2.297 Media Releases and Contract Distribution..... 119
  - 2.298 Reformation and Severability ..... 120
  - 2.299 Consents and Approvals ..... 120
- 2.300 No Waiver of Default ..... 120
  - 2.301 Survival ..... 120
  - 2.302 Covenant of Good Faith ..... 120
  - 2.303 Permits ..... 120
  - 2.304 Website Incorporation ..... 120
  - 2.305 Taxes ..... 120
  - 2.306 Prevailing Wage ..... 120
  - 2.307 Call Center Disclosure ..... 121
  - 2.308 Future Bidding Preclusion ..... 121
- Attachment A..... 122
- Attachment A..... 124
- Deliverable Schedule ..... 124
- Attachment C..... 128
- Appendix 1 ..... 132
- School Code Master (SCM)..... 132
- Current System Overview..... 132
- Requirements of New System (SCM)..... 133
- Single Record Student Data (SRSD)/ Unique Identification Code (UIC) Application (referred to as the "SRSD/UIC Application"). ..... 136
- Current System Overview..... 136
- Requirements of New System (SRSD/UIC)..... 136
- Appendix 2 ..... 141
- Appendix 3 ..... 143
- GAYLORD..... 153



- Executive Summary ..... 1
- Set Academic Standards and Curriculum ..... 4
- Administer Performance-based and Standardized Assessments..... 4
- Certify Educators ..... 5
- Conduct Data Driven Analysis and Interventions and Manage Accountability Systems..... 5
- Manage Grants and Monitor Compliance ..... 6
- Collect and Report Data ..... 6
- Existing and Target Environment ..... 13
- Current State ..... 13
- Target Environment ..... 14
- Enabling Process Gap Analysis Table..... 15
- Technology ..... 16
- Recommendations..... 17
- Current State ..... 18
- Target Environment ..... 20
- Enabling Process Gap Analysis Table..... 20
- Technology ..... 22
- Recommendations..... 22
- Current State ..... 24
- Target Environment ..... 25
- Enabling Process Gap Analysis Table..... 26
- Technology ..... 28
- Recommendations..... 28
- Current State ..... 30
- Target Environment ..... 31
- Enabling Process Gap Analysis Table..... 31
- Technology ..... 33
- Recommendations..... 33
- Current State ..... 35
- Target Environment ..... 36
- Enabling Process Gap Analysis Table..... 37
- Technology ..... 38
- Recommendations..... 39
- Current Environment..... 40
- Target Environment ..... 41
- Enabling Process Gap Analysis Table..... 42
- Technology ..... 44
- Recommendations..... 46



Information Architecture ..... 48

Implementation Plan Summary ..... 55

Appendices..... 63

    Attachment A    Pricing ..... 94

    Appendix 1

    Appendix 2

    Appendix 3

    Appendix 4

    Appendix 5

    Appendix 6

    Appendix 7

    Appendix 8



## Article 1 – Statement of Work (SOW)

### 1.00 PROJECT IDENTIFICATION

#### 1.001 PROJECT REQUEST

The State of Michigan (State), through the Michigan Department of Management & Budget (MDMB) and the Center for Educational Performance and Information (CEPI), in coordination with the Department of Information Technology (MDIT), have issued this contract for the purpose of gathering requirements and obtaining two new state-of-the art systems to replace the current Single Record Student Database (SRSD)/Unique Identification Code (UIC) system and the School Code Master (SCM) system, including all associated hardware and software as options.

At the State's discretion the project is broken down into three parts:

- 1) Detailed Requirements Gathering
- 2) Replace SCM
- 3) Replace SRSD/UIC

The optimal solution is achieved by customizing by designing, developing and implementing an entirely new system.

The State seeks to have services begin upon execution of the Contract, with an iterative implementation of the new modular system(s) to follow a mutually agreed upon project schedule. The system design, development and implementation projects will have multiple iterations defined by the Contractor after a detailed requirements study has been conducted.

#### 1.002 BACKGROUND

In 2005, the State of Michigan contracted with the CELT Corporation in conjunction with the Council of Chief State School Officers (CCSSO) to conduct a comprehensive review of Michigan's information infrastructure and ability to meet federal data collection and reporting requirements including those of the No Child Left Behind (NCLB) Act of 2001. A detailed report, "The State of Michigan Decision Support Solutions Report" emerged from the Decision Support Architecture Consortium (DSAC) studies. The report provided an objective assessment and gap analysis of the current educational information system decision support capabilities as well as a roadmap for the deployment of information technologies, process reengineering, and organizational changes required meet federal and state data management requirements.. This project is one of eleven related projects recommended by the report. The eleven projects are divided into phases. Phase 1 contains the following eight projects:

- Project 1 Decision Support System Architecture Master Plan: Development of a master plan that outlines the delivery of the components and establishes a governance structure.
- Project 2 Extension of the UIC Process to all State Agency Educational Systems of Record: Upgrade of the current Single Record Student Database and School Code Master systems, which will extend the UIC process to all state agency systems of record.
- Project 3 Extended Directory Services (Identity Management): The development of a centralized security application to provide secure role-based authentication and authorization services via an educational portal.
- Project 4A Educational Portal and a Comprehensive Web-Services Strategy (School Data Gateway): Develop an application (based on the identity management solution) that enables the secure exchange of educational data between local districts/reporting entities and the State.
- Project 6 Architected Platform of Decision Support Services: Planning, Design and RFP Development: Develop a comprehensive set of business (functional) and technical requirements for an end-to-end decision support system solution based upon DSAC's architectural frameworks and recommended standards.
- Project 7a Data Warehouse / Data Mart Platform: Implement a data warehouse focusing initially on student demographics, district/school building information, summative assessment data, and educator demographics.



Project 8 Data Reporting and Analysis Platform: Construct a user-friendly tool set for self-directed data selection, analysis, and presentation by end users.

The contract is associated with Project 2 listed above. The project involves requirements gathering for, and implementation of, new systems to replace the State's current School Code Master system (SCM) and Single Record Student Database system (SRSD) including the Unique Identification Code (UIC) and Error Check functionality.

A portion of the funding for this project comes from a Federal Longitudinal Data Systems Grant (LDS) awarded to Michigan and Tri-State partners, Wisconsin, Minnesota and the Wisconsin Center for Education Research (WCER). The grant requires that all deliverables and work products developed as a part of this project be shared among the states in the LDS partnership and possible other states. Furthermore, Wisconsin, Minnesota and WCER may provide additional requirements.

State and federal laws require Michigan's Pre K-12 public schools as well as other entities that receive program funding to collect and report data about students, personnel and schools. CEPI coordinates the data collections with Intermediate School Districts (ISD), Local Education Agencies (LEA) and Public School Academies (PSA). State agencies, such as the Department of Education, the Department of Labor and Economic Growth, the Department of Treasury and others, provide data and data definitions that are required by state and federal laws. Additional information pertaining to CEPI can be found at [www.mi.gov/cepi](http://www.mi.gov/cepi).

The existing SCM and SRSD systems have served the State of Michigan for more than 5 years to collect data on schools and students. Currently the systems collect data from over 800 school districts/LEAs/educational entities utilizing over 35 different vendors. The vision for the new systems includes critical functionality improvements to enable Michigan to meet early childhood through post-secondary educational needs:

#### Student Data System

- 1) **Secure collection** of individual student record data and ability to share data elements automatically with other state and local (school district) applications
- 2) Ability to **maintain student records** (including the Unique Identification Code) 24/7 through bulk upload, online entry, error check/correction and automated data exchange
- 3) **Reporting** of current submission data including important aggregations, calculations and comparisons with the district's previously submitted data as well as with files from other LEAs statewide.
- 4) **Sharing and integration** of student data horizontally across state student data systems of record to reduce duplication of effort.

#### Educational Entity Master

- 1) Ability to support all **current school configurations** and flexibly integrate **emerging** teaching/learning/administrative "**school structures**," some of which include consortia, virtual campuses, and new entities that provide early childhood through post-secondary educational services
- 2) Provide **automated services** to state educational data systems and allow 24/7 user access

Both systems must be architected in a flexible manner so that the state can make changes to these systems quickly and easily in response to changes in federal and state reporting requirements.

#### School Code Master (SCM)

The School Code Master (SCM) is the State of Michigan's database of school directory information for public and registered non-public educational entities. It contains the official identification numbers and contact information for the educational systems in Michigan. The data maintained in the SCM are used for mandated data submissions to the State and Federal government and are critical to meeting State and Federal requirements. There are numerous systems across multiple state agencies that interface with the SCM. It is the link that ties several other datasets together.



SCM was built based on traditional educational settings for K-12, and is not flexible enough to meet the needs of tracking children longitudinally from early childhood through post-secondary settings. As Michigan strives to track students longitudinally, it is now necessary to have systems flexible enough to recognize non-traditional settings (e.g., daycare centers, consortia, virtual campuses, etc.) for the provision of education, as well as the various partnerships that are emerging among providers.

The new system requires the capability of including all current and future education-related entities served by the State of Michigan. For example, the current SCM leaves out over 500 entities (summer camp, child care institutions, etc.) that receive food-related support from MDE through the Office Grants Coordination and School Support.

### **Single Record Student Database (SRSD)**

Michigan has been collecting isolated snapshots of individual-level data on 1.7 million students three times a year since 2001 using SRSD. In the fall of 2002, the Center for Educational Performance and Information (CEPI) issued the first Unique Identification Codes (UIC) for students and has continued to work in partnership with local districts to maintain the UIC data. In the winter of 2005, the Michigan Department of Education used the Unique Identification Codes to begin tracking student assessment results and now have two years of assessment data that should be linked to the student record data collected in the SRSD. However, Michigan does not currently have the infrastructure to connect students' records with their assessment results. Also, like the SCM, the SRSD was built based on traditional educational settings for K-12 and cannot accommodate the various entities found, for example, in early childhood (e.g., home-based or various community-based settings), migrant, or post-secondary educational settings.

The current SRSD system does not support the longitudinal linking of data on students, personnel, schools, districts, finances and other data. Furthermore, the SRSD data collection cycles are based on state school aid payments to districts, which do not align with state and federal reporting for various program areas. Because of this misalignment, districts are forced to report duplicative data to various source systems at different times throughout the year. It is imperative that the SRSD replacement system and the longitudinal data system are integrated to achieve essential improvements in data quality.

The purpose of the new system(s) is to provide a proven state-level education information management system (student-level and school-level data) that will enable the State of Michigan to meet increasing state and federal reporting requirements and enable stakeholders at all levels of education to make informed educational decisions based on accurate and timely information. The system should improve the State's data collection, analysis and reporting capabilities, allowing school districts to maintain their current student information systems, input data and retrieve information through web-based systems, meet student-level data reporting requirements, and maintain security of student information.

Maintaining the ability to exchange data file extracts through scheduled online data submission add automated tools for pulling and/or pushing data from the State's student data system vertically to local systems and horizontally with other State systems of record at pre-defined intervals. The files being transferred must be protected against exposure to public view and follow standard secure network protocols and comply with FERPA requirements when exchanging student data. Both kinds of data exchange tools (manual submission and automated services) must improve the quality of data and the ease of data extraction and transmittal. Integrated data validation and correction procedures to ensure that district data submitted to the State are accurate, timely, and complete are also required. Finally, the system must be flexible enough to keep up with changing legislative requirements. This means that there must be a way of adding or removing data elements without major reprogramming.



## 1.10 SCOPE OF WORK AND DELIVERABLES

### 1.101 IN SCOPE

The Contractor will provide the following services and deliverables for the complete and successful implementation of the system(s) providing the functionality required for the business operations for the State's Educational Entity Master (EEM) and Student Data System (SDS):

1. Detailed requirements gathering, which would include existing and enhanced functionality.
  - a. This will involve analyzing the existing state systems and understanding all business and technical requirements
  - b. Visits to select local educational settings to analyze technical interoperability and business process requirements for interoperability. The new SDS should improve processes at both levels.
  - c. Functional Requirements Document for the systems that has been agreed to and approved by the appropriate State entities.
2. Scalable, modular, flexible systems that are fully web-based, using open architecture and a relational database management system.
3. Create installation scripts and assist MDIT staff to install the systems on a server at the MDIT data center in Lansing.
4. Conversion and migration of all current data.
5. Design, Development, and Implementation (DDI) of the systems, project management and support services, including Milestones 1 through 4 as detailed in **Section 1.104 Work and Deliverables**, and:
  - a. functionality required to support state and federal program requirements
  - b. quality assurance
  - c. train the trainer and state program staff training
  - d. technical knowledge transfer
  - e. assist with business process change management
  - f. risk mitigation
  - g. support and maintenance
  - h. system and process documentation
6. Secure transfer and exchange of data over the Internet among educational entities using multiple file formats, including Extensible Markup Language (XML) and Comma Separated Values (CSV) file formats.
7. Provide tools for pulling and/or pushing data from the SDS to local and other state agency systems. Note that this includes providing an API or SIF agent for the systems at the local districts. Note: API/SFI integration at the local level is outside the scope of this project.
8. Initial implementation (deployment) on a "pilot scale" that runs parallel with existing production systems.
  - a. with ISD, LEA and PSA districts identified by CEPI that represent small, medium and large student populations
  - b. Automated push/pull data exchange implementation (e.g. web services using API or SIF agents, etc.) with volunteer districts.
9. One (1) year transition period post-implementation to include:
  - a. Structured take-over of operations and maintenance by the State
  - b. Provide guidance to State as it performs business operations
  - c. Provide requested enhancements to system, if any
  - d. Perform application software maintenance, troubleshooting assistance, and requested enhancements while training MDIT staff to take over these roles.
  - e. Address low severity defects that did not affect the new system going into production.
  - f. Transfer knowledge and work with assigned MDIT personnel
10. One (1) year of maintenance services, renewable for three(3) years
  - a. Provide one Full-Time Equivalent (FTE) onsite to perform requested maintenance and enhancements or troubleshoot system defects under the direction of CEPI and MDIT and assure smooth daily operations.



## 11. Value – Added Options

The State reserves the right to exercise the value-added option for and electronic transcript exchange service. This service must be architected so that it can be added without redesign of the core system. The State will approve the proposed partner or solution if this option is pursued.

- a. **Electronic Transcript Exchange service (e-transcripts):** Functionality to enable educational entities to electronically exchange student transcripts. Such an option should include:
  - i) E-transcripts Internet Connectivity: K-12 ISD, LEA and PSA school districts and potentially post-secondary institutions will transact with the System through highly secure Internet connections.
  - ii) Regulatory Compliance:
    - 1) Accessibility: the proposed solution will comply with Department of Information Technology e-Michigan standards for American's with Disabilities Act compliance.
    - 2) FERPA: the proposed solutions will comply with the privacy and security requirements of the Family Educational Rights and Privacy Act (FERPA).
  - iii) Transcript request and transmission service: The system will permit only the institution uploading a transcript and the institution to which the transcript is directed to have access to a transcript being transmitted over the System.
  - iv) E-transcripts Design:
    - 1) Open standards: The system will be designed with mainstream and open standards to allow implementation in an environment utilizing the Microsoft Windows Server and SQL Server platforms, as well within the context of local district student information systems.
    - 2) Data definition standards: the system will adhere to federal data definition standards to ensure consistent data exchange, particularly for students who participate in federal programs such as special education and migrant education.
    - 3) State Standards: The solution must be in compliance with Michigan Department of Information Technology Standards.
    - 4) User Interface: The solution will be a web-based user interface
    - 5) E-transcripts User requirements:
      - I. Student Information System Extracts: The solution must include computer and manual processes that allow only authorized users to extract and securely deliver transcripts in a standardized file format allowing multiple local student information systems to adopt the standard format.
      - II. Data download functionality: The system will enable authorized users to view, print or download selected transcripts. There should be a print method that is acceptable for a hard copy presentation of the document. The download should have a selection of formats available, including but not limited to PDF and text.
      - III. User request: There will be an integrated request subsystem allowing an authorized user from either a source institution or target institutions to request a transcript. The request should be available in the same selection of formats as the data download functionality.

### 1.102 OUT OF SCOPE

The proposed solution is not intended to be a school or district-level information management system (e.g., scheduling, grade reporting, student report cards).

### 1.103 CURRENT COMPUTING ENVIRONMENT

Information regarding the State's information technology architecture and standards may be found at: <http://www.michigan.gov/dit/0,1607,7-139-34305---,00.html>.

### Overview of Existing State Operating Environments

Broadly classified into three environments: - Development/Test, Quality Assurance and the Production



Environment. The DIT recommended infrastructure is that the Production and UAT Testing environments have the same configuration. The development environment can be a scaled down version of the production environment (i.e. the web server can also serve as the application server). All code changes undergo a three-step process to be introduced into production:

1. First, code is developed and tested in the “development” stage, which is composed of the development database, and application servers. Work will be performed utilizing tools on the local developer’s machine, with copies on a network server for backup and recovery purposes.
2. Second, once development is completed, the code is moved to the Quality Assurance (QA) environment, which consists of Web Servers, Networking Servers, SQL Server, and Windows 2000 authenticated workstations. Contractors will be given Read/Write authority on all the QA servers as needed. The code is then tested with clients for verification to ensure proper functionality.
3. Finally, once approval has been received, the code changes are promoted by MDIT staff to the Production Environment through Visual Source Safe where MDIT staff will evaluate the code. The Production Environment is composed of database, application and web servers. Production pushes and changes to the production environment that could affect other sites in the environment must be requested through the Remedy system.

The current workplace technology for MDE and CEPI environment includes:

Windows 2000 Server SP4  
Internet Information Services 5.0  
SQL Server 2000 Standard Edition SP3  
SAN (storage area network) technology for data storage  
NAS (network area storage) technology for file storage

The following software tools are currently used:

- VB.Net (1.1 framework)
- C#.Net (1.1 framework)
- VB (6.0)
- ASP.Net (1.1 framework)
- ASP
- HTML
- JavaScript
- Visual FoxPro (6.0)
- MS SQL
- Access
- XML
- MSMQ
- SQL Reporting Services
- Microsoft Project
- Visio
- Biztalk 2002

The preferred software toolset to be used for the development of these projects are:

- Visual Studio.NET (2.0 framework, VB.NET, ASP.NET)
- HTML
- JavaScript
- MS SQL Server 2005
- XML
- MSMQ
- SQL Reporting Services 2005
- Microsoft Project 2003
- Visio 2003



- Optimal Trace, Vantage and other Compuware products that help address major stages of the application life cycle.

**Compuware products that should be available to evaluate before using them for this project are:**

**Optimal Trace**

- Requirements gathering and documentation tool (traceability)
- Develops test cases

**Vantage**

- Performance monitoring and diagnostic tool

**DevPartner**

- Security Assessment (application side)
- Fault testing
- Tuning (optimization of code)

The Department of Information Technology (DIT) recommendations for the use of file transfer are.

- FTP
- HTTPS/HTTP
- IBM WebSphere MQ and Message Broker
- Web Services
- VPN (IPSEC)

Note: Microsoft Biztalk is currently in use, but it is not an acceptable solution for any implementation

Below lists Contractor proposed solution which is in compliance with the MDIT policies.

For data submissions over the web, Contractor proposes the use of the industry-standard web communication protocol HTTPS that uses SSL (Secure Socket Layer) to encrypt information before transmitting it.

The use of HTTPS for securing data transmission will be applied in two places:

- 1- When users are uploading their submission files. Doing so would ensure that the file upload is secure and makes it very difficult for an interceptor to read the content of the file.
- 2- When users are maintaining a record using a web form. This would encrypt the form's content that is sent to the user as well as the user's input that is sent back to the server.

HTTPS uses a cryptographic system that uses two keys to encrypt data - a public key known to everyone and a private or secret key known only to the recipient of the message. The internet browsers the State is asking to support (IE, Netscape, and Firefox) all support SSL. By convention, URLs that require SSL connection start with https: instead of http:

The pair of keys (public, private) is automatically exchanged between the browser and the web server and users do not have to perform any additional steps than they would have to do if the site was not secured with https.

The encryption algorithm performed by HTTPS can be any of several available in the market such as DES, 3DES, RC2, MD5, SHA-1, etc. Each uses a key with a certain length. The longer the key, the stronger the encryption. For example DES keys are 56 bits long, RC2 keys are 128 bits, and 3DES keys are 168 bits. Contractor will follow the State's standards for encryption. While visiting the current SCM and SRSD sites on the web, we confirmed that the State already has HTTPS technology deployed.

The Contractor will provide encapsulation of the business rules within the application code as custom business objects. The custom business objects will reside in the business rules tier of the n-tier application Contractor will build.

The Contractor will provide the selection of the SQL Reporting Services to be utilized as the reporting tool for the development of required reports.



The Contractor will provide development and implementation of authentication of users and role-based security. Authentication will be handled either by the IDM pilot with DCH (previously known as the LDAP solution), or through the State’s MEIS application. This role-based security implementation must be able to use roles that allow the application to make determinations; such as, whether a user is privileged by checking the security context of the user. The application will make decisions based on this logical role (such as whether to allow access to data for a particular district). Authorization is the process through which a person is granted permission to invoke behavior, view/create/delete/update data for one or more districts.

The Contractor production and UAT environments are in compliance with MDIT standards and are listed below. Modifications may be required. These modifications will be agreed to by the State and Contractor.

<b>PRODUCTION HARDWARE ENVIRONMENT</b>	
Quantity	<b>2</b>
Purpose	<b>Web / Application Server</b>
Processors	2 Dual Core Intel Xeon Processors with the VT chipset to support for virtualization
Local Storage	2 @ 300GB Hard Drives
Memory	16GB RAM
Software	<ul style="list-style-type: none"> <li>Windows 2003 R2 Enterprise Operating</li> </ul>
Quantity	<b>2</b>
Purpose	<b>Database / Application Server</b>
Processors	2 Dual Core Intel Xeon Processors with the VT chipset to support for virtualization
Local Storage	2 @ 300GB Hard Drives
Memory	16GB RAM
Software Licensing Recommended licensing model	<ul style="list-style-type: none"> <li>Windows 2003 R2 Enterprise Operating</li> <li>Microsoft SQL 2005 Enterprise</li> <li>Per CPU for the database server</li> </ul>

<b>UAT HARDWARE ENVIRONMENT</b>	
Quantity	<b>2</b>
Purpose	<b>Web / Application Server</b>
Processors	2 Dual Core Intel Xeon Processors with the VT chipset to support for virtualization
Local Storage	2 @ 300GB Hard Drives
Memory	16GB RAM
Software	<ul style="list-style-type: none"> <li>Windows 2003 R2 Enterprise Operating</li> </ul>
Quantity	<b>2</b>
Purpose	<b>Database / Application Server</b>
Processors	2 Dual Core Intel Xeon Processors with the VT chipset to support for virtualization
Local Storage	2 @ 300GB Hard Drives
Memory	16GB RAM
Software Licensing Recommended licensing model	<ul style="list-style-type: none"> <li>Windows 2003 R2 Enterprise Operating</li> <li>Microsoft SQL 2005 Enterprise</li> <li>Per CPU for the database server</li> </ul>

**State Network Environment**



The State of Michigan (SOM) has a very complex network. The network has different perimeter entry points, and an internal network made up of a large WAN, a large MAN, and 3 hosting centers located in the Lansing metropolitan area.

**Vendor Extranet:** This zone allows vendors to connect to the SOM network via either point to point WAN circuits, or Gateway to Gateway VPN over the internet. The SOM currently allows vendors to place their network equipment on our premise, or they can terminate their connection at our dmarc at an AT&T (formerly SBC) facility. This zone is separated from the SOM network with a firewall. This access is application only; remote control access is not allowed.

**Local Government Extranet:** This Zone allows local government entities access to applications on the SOM network. This is provided by the provisioning of separate WAN circuits on the SOM WAN cloud. This zone is separated from the SOM network with a firewall.

**SOM Lansing Metropolitan Area Network (LMAN):** This is the SOM's high-speed backbone network that is utilized by SOM employees to access SOM resources and internet resources. The backbone is made up of redundant fiber links capable of transporting 2GBPS of traffic. Several State buildings as well as the State's 3 hosting centers are also connected to the backbone thru a distribution layer network.

**Agency Internet DMZ:** This zone is for public-facing server access to the Internet. This zone is firewall protected from the Internet, as well as from the LMAN. Servers in this zone can connect with 100mb Ethernet. The state currently has Internet services provided by Merit and Sprint to provide redundancy. This zone is available at all 3 hosting centers.

#### 1.104 WORK AND DELIVERABLES

Contractor shall provide Deliverables/Services and staff, and otherwise do all things necessary for or incidental to the performance of work, as set forth below:

**A. General Technical Requirements** – The general technical requirements the solution must meet are:

1. A user interface that is fully web-based.
2. A scalable solution, meaning the State may use a variety of hardware and clustering solutions to increase capacity and throughput without having to modify the system.
3. The use of a modular framework as part of the main solution, meaning a set of components, wizards, classes, and libraries that minimize programming required to modify or customize the system.
4. A relational database and object-oriented application architecture.
  - a. Logically, there should be one data layer, one application layer, and one presentation layer.
5. The system(s) must initially use the CEPI/MDE's Identity Management Solution for user authentication. The system(s) must also be designed to integrate with the State's planned enterprise-wide identity management solution, if known at the time of development.
  - a. Authorization is to be provided by the SCM/SDS solution.
6. Development of the system must be structured.
  - a. It must be possible to make use of version control and a fully scriptable build and deployment process.
7. The hardware and software environment must insure that CEPI/MDIT is not required to be vendor specific in its pursuit of future hardware and software for open systems.
8. The hardware and software environment, including future versions, must allow CEPI/MDIT a reasonable amount of time to upgrade and coordinate infrastructure changes without impacting other CEPI/MDIT systems.
9. Commercial-Off-The-Shelf (COTS) solutions must be backward compatible and support independent upgrades to the infrastructure.
  - a. The State must have the ability to make changes to the system independent of the vendor after implementation.



10. The software maintenance program includes all future software updates and system enhancements applicable to system modules licensed without further charge to all licensed users maintaining an annually renewable software supported contract.
11. The State will be provided with information on software problems encountered at other locations, along with the solution to those problems, when such information is relevant to State software.
12. For the first year and all subsequent Contract years, the following services are provided for the current version and one previous version of any Software provided with the deliverables, commencing upon installation of the deliverables or delivery of the Software:
  - a. Error Correction. Upon notice by the State of a problem with the Software (which problem can be verified), reasonable efforts to correct or provide a working solution for the problem.
  - b. Material Defects. The State will be notified of any material errors or defects in the deliverables known, or made known to the Contractor from any source during the Contract term that could cause the production of inaccurate, or otherwise materially incorrect, results and shall initiate actions as may be commercially necessary or proper to effect corrections of any such errors or defects.
  - c. Updates. All new releases and bug fixes for any software deliverable developed or published by the contractor and made available to its other customers at no additional charge will be provided to the State at no additional charge.
13. Backup and Recovery
  - a. The system has the ability to provide point-in-time recovery of data to the last completed transaction.
  - b. The system has the ability to allow for continued use of the system during backup.
  - c. The system has the ability to provide a complete backup and recovery process for all database tables and system files.
  - d. The system has the ability to create on request backups.
  - e. The back up and archival features of the system proposed can be initiated automatically or by manual request.
  - f. The system software and data must be able to be restored to its previous operational status within four (4) hours after initiation of recovery process.

**B. Detailed Technical Requirements**

CEPI is seeking a solution that accommodates the State’s existing technical architecture investment as well as the technical diversity among the school districts. **See section 1.103 Current Environment.**

1. Contractor must provide a comprehensive architectural diagram of the proposed solution.
2. The proposed solution must:
  - a. Be compliant with State of Michigan policies, standards and guidelines
  - b. Be kept up-to-date, yet remain backward-compatible, as new browser versions are released

**C. General Business Requirements**

1. **Location of Work** – The Contractor will perform the work at the following locations:
  - a. Contractor’s offsite location as agreed upon by the State of Michigan. The Contractor will be responsible for all costs associated with their offsite location.
  - b. The State will provide office space in its building, including all equipment and network connections. The State and Contractor will negotiate the required presence by the Contractor at the State offices.
    - i. The contractor is responsible for providing the software necessary for managing the project and system development.
2. **Hours of Operation**
  - a. Normal State working hours are 8:00 a.m. to 5:00 p.m.(EST), 8 hours per day, Monday through Friday, with work performed as necessary after those hours to meet project deadlines.
  - b. The State is not obligated to provide State management of assigned work outside of normal State working hours. The State reserves the right to modify the work hours in the best interest of the project.
  - c. Contractor shall observe the same standard holidays as State employees. The State does not compensate for holiday pay.



### 3. Warranties

- a. The Contractor will provide a warranty provision for the products and services resulting from this Contract commencing on the first day following formal written acceptance by the State for a particular phase or software component.
- b. The minimum warranty period is one (1) year.
- c. During the warranty period, Contractor must correct any element of the system which fails to perform in accordance with the requirements of this Contract and/or published specifications.
  - i. Corrective action by the Contractor may include, but is not limited to, redesigning, repairing or replacing the nonconforming element.
- d. The warranty shall provide that all hardware, software and firmware is free from imperfections in design and free from any and all defects and is able to perform continuously and satisfactorily under normal operating conditions.
- e. The Contractor shall assign all applicable third party warranties for deliverables to the State.

### 4. State and Agency Rules

- a. Contractor must follow State/Agency rules for computer and Internet usage and will be required to sign any agreements, as required of the State's own employees.
- b. The Contractor is responsible for maintaining the confidentiality of their passwords and is liable for any harm resulting from disclosing or allowing disclosure of any password.
  - i. Any conduct that restricts or inhibits the legitimate business use of CEPI/MDIT systems or networks is prohibited.
  - ii. Each person must use CEPI/MDIT systems and networks for lawful purposes only.
  - iii. Specifically prohibited is any use of CEPI systems or disclosure of CEPI data which would constitute a criminal offense, give rise to civil liability, violate any CEPI, MDIT, or State of Michigan policy, or otherwise violate any applicable local, state or federal law.
  - iv. This also applies to any computer systems or networks that are accessed from CEPI/MDIT computer systems and networks.
- c. The Contractor shall use all CEPI/MDIT software in accordance with applicable license agreements and any further restrictions imposed by CEPI or MDIT.
  - i. Contractors shall not make any unauthorized copies of any CEPI/MDIT licensed software under any circumstances.
  - ii. Contractors found copying or knowingly using copyrighted software other than for backup purposes, are subject to removal.
  - iii. Contractors shall not provide software to any outsiders including consultants, local governmental units and others when this would be in violation of law or copyright or license agreements.

### 5. Security and Confidentiality

- a. It is the responsibility of the Contractor to ensure that all documentation, electronic files, and data are developed, used, and maintained in a secure manner, protecting the confidentiality of all materials, records, and files.
- b. During development, testing, and production, the Contractor must ensure that all data collected and presented to users is regulated by the restrictions on data sharing as outlined by the Family Educational Rights and Privacy Act (FERPA).
- c. Contractor staff assigned to the project must:
  - i. Sign non-disclosure agreements
  - ii. Sign acceptable use and security agreements
  - iii. Submit to background checks.
    1. The Contractor will be required to authorize and pay for the investigation of its personnel proposed to have access to State facilities and systems.
    2. The scope of the background check is at the discretion of the State and the results will be used to determine Contractor personnel eligibility for working within State facilities and with systems.



3. Such investigations may include Michigan State Police Background checks (ICHAT) as well as the National Crime Information Center (NCIC) Finger Prints.
4. Proposed Contractor personnel may be required to complete and submit an RI-8 Fingerprint Card for the NCIC Finger Print Check.
5. The State must also approve the company which will be used by the Contractor to perform the background checks.

**D. Detailed Business Requirements –**

1. During the initial Planning and Detailed Requirements Gathering phase detailed business requirements will be documented and verified.
  - a. Appendix 1 - Business and Interface Requirements contains a partial list of potential requirements.
  - b. The requirements contained in Appendix 1 have been provided as a starting point.
  - c. The list should not be considered complete and all requirements contained in Appendix 1 must be validated.
2. Application Security
  - a. The State will retain administration of data access security, including application security (granting of access, resetting of passwords, definition of password syntax rules, monitoring of access violation reports, etc.).
  - b. The State will administer all user security profiles.
  - c. MDIT will oversee and coordinate security issues relative to the Vendor and State agencies.
  - d. The Contractor is responsible for the function of security software implementation and maintenance if the changes implemented under this Contract warrant a change from the current system.

**E. Services**

1. Contractor will provide services identified in **Section 1.101** for the complete and successful implementation of the system providing the functionality required for the business operations for the State’s EEM and SDS.
2. In addition to the activities and deliverables described below, Contractor will:
  - a. Provide support to keep EEM and SDS running.
    - i. Respond to support calls within 30 minutes during regular business hours (Application Business hours are 7am – 6pm EST).
    - ii. Provide an emergency number for immediate support.
    - iii. After hours response must be within 2 hours.
  - b. Work with CEPI to ensure data quality in the system.
  - c. Provide support for all hardware and software upgrades and releases.
  - d. Continue to enhance and modify the system in order for the system to remain viable and meet future requirements of the regulating agencies and institutions.
  - e. Supply complete up-to-date manuals for EEM and SDS, its components, operations, maintenance, administration, and use that are easily referenced, easily used, and searchable.
  - f. Provide train the trainer and administrative training for EEM and SDS, its components, operation, and maintenance.
  - g. Work with other State agencies, educational agencies and State Vendors to implement the EEM and SDS requirements.



- h. Produce all State and Federal mandated reports and data transfers that are presently in SRSD/UIC/SCM and reports required to meet future requirements.
  - i. Refer to– **Appendix 2 Report Requirements** of the RFP attachments for initial reporting requirements.
  - j. Plan and assist MDIT to perform the installation, including configuration, setup and testing of SCM and SDS.
3. The services being provided must conform to the State’s Project Management Methodology. The State’s Project Management Methodology web site is [http://www.michigan.gov/dit/0,1607,7-139-18391\\_22016-58009--,00.html](http://www.michigan.gov/dit/0,1607,7-139-18391_22016-58009--,00.html)

The EEM/SDS project will consist of four phases. Each phase will have key milestones as outlined below:

- Phase 1 – Planning and Detailed Requirements Gathering
  - Milestone 1 – Project Oversight Plans
  - Milestone 2 – Planning
  - Milestone 3 – Detailed Business Requirements
- Phase 2 – System Design, Development, Testing and Implementation
  - Milestone 4 – System Design, Development and Testing
  - Milestone 5 – Implementation
- Phase 3 – Transition to independent State operation over a one year period
  - Milestone 6 – Turnover and Transition
- Phase 4 – Maintenance Period for support of the system software
  - Milestone 7 – Maintenance and Support as requested by the State

- a. Within each phase of the project, the Contractor must meet a series of Milestones.
  - b. Contractor payments will be based on successful completion of the Milestones.
  - c. Each Milestone includes a set of deliverables that make up the requirements of the milestone.
  - d. The CEPI Director, State’s technical Lead and the State Project Manager must approve each deliverable.
5. The Milestones and activities and deliverables associated with each phase are:
- a. **Milestone 1 – Project Oversight Plans-** Project Oversight covers those activities that require ongoing administrative oversight throughout all DDI Processes, from initiation to completion of the project.
    - i. **Activities for Milestone 1:**
      - 1. Negotiate an updated Project Plan for the project.
      - 2. Establish reporting requirements and communication protocols with the State Project Manager.
      - 3. Establish on-site staff arrangements, which cover the number and distribution of Contractor’s staff proposed for location at CEPI and MDIT, the logistical support for these staff, and their interaction with State staff.
      - 4. Establish the Electronic Project Library or similar tool for sharing documentation with the project team.
      - 5. Present a quality assurance approach for project activities.
      - 6. Prepare required status and risk reports.
      - 7. Prepare a Risk Management Plan.
    - ii. **Deliverables for Milestone 1:**



1. **Detailed Project Plan** - within 15 days of execution of the Contract, the Contractor will update the draft Project Plan from their proposal. See Section 1.301 Project Plan Management, for detailed requirements on the Project Work Plan. The detailed plan will:
  - a. Be provided in Microsoft Project.
  - b. Include a schedule and Gantt chart (for all project tasks, subtasks, and activities), milestones, and deliverables.
  - c. Include Contractor and State resources for all tasks, subtasks, and activities that exist as line items within the Project Plan.
  - d. Include the following date-related information:
    - i. Originally scheduled start and end dates for all tasks, subtasks, and activities (including milestones and deliverables)
    - ii. Anticipated start dates for future tasks, subtasks, and activities, if schedule fluctuation has occurred
    - iii. Anticipated end dates for all current and future tasks, subtasks, and activities, if schedule fluctuation has occurred
    - iv. Actual start dates for all current and completed tasks, subtasks, and activities
    - v. Actual end dates for all completed tasks, subtasks, and activities
  - e. Be updated, at a minimum, bi-weekly
  - f. Identify issues that affect deadlines.
2. **Electronic Project Library** - The Contractor is required to provide and maintain an Electronic Project Library to serve as a foundation for defining, managing and monitoring the project and also act as a repository to retain and track critical project information. This deliverable will be considered for acceptance as it pertains to meeting Milestone One for payment upon delivery of the product with support documentation as described under bullet "g." below.

The Contractor will:

- a. Ensure the library includes current and historical versions of the Detailed Project Work Plan, Project Control and Project Management Plan, and all other project deliverable documents.
- b. Maintain the library throughout the life of the contract, including during system operations and maintenance.
- c. Train applicable State staff on the technology and use of the Electronic Project Library.
- d. Provide all parties appropriate folder-level and file-level access/restrictions according to standards agreed upon between the Contractor and the State.
- e. Provide a description of the security measures that will be put in place to ensure that only authorized personnel have access to the Electronic Project Library.
- f. Index, as appropriate, all materials in the Electronic Project Library, for easy retrieval.
- g. Upon delivery of the framework for the Electronic Project Library, provide documentation on the use of the Library, to include:
  - i. A description of the process the Project Team will use to add new items and update items in the Electronic Project Library.
  - ii. The management of historical records and retention period(s) and procedures for archiving documents.



- iii. A description of the Contractor's procedures for managing version control on all materials added to the repository.
- 3. Quality Management Plan** - This deliverable will contain, at a minimum:
- a. Quality Management Approach - Description of the Contractor's approach for assuring the quality of work and deliverables completed during the Project. At a minimum, the plan will address the following:
    - i. Quality Assurance Activities - Description of the quality assurance activities to be performed by the Contractor during the term of the contract.
    - ii. Quality Control Activities - Description of the quality control activities to be performed on all deliverables before submission to State by the Contractor during the term of the Contract.
    - iii. Quality Assurance Process and Procedures - Description of the Contractor's processes and procedures for conducting quality assurance activities, including the review and approval of all contract deliverables by the State.
    - iv. Problem Reporting and Resolution - Including Integrated Issue Management.
    - v. Problem Escalation - Description of the process the Contractor will use to address problems and resolve conflicts that cannot be resolved by a single team or business area, or that require a decision from upper-level management.
    - vi. Preliminary Schedule for Quality Assurance Activities - Including: Deliverable(s) to be Reviewed; Anticipated Date(s) for Review; Contractor Participant(s); and State Participant(s).
- 4. Issue Management Plan** – as referenced and outlined in section 1.401 of this document. Contractor will administer issue management and must interact and coordinate with the State's Project Manager and project team. To include documented process and parameters for internal Contractor team and documented process and parameters for the overall project team (State and Contractor personal).
- 5. Change Management Plan** – as referenced and outlined in section 1.403 of this document. Contractor will administer the change management process with input and coordination with the State's Project Manager and project team.
- 6. Software Development Approach** - This deliverable describes the administrative and technical procedures to be used throughout the software development life cycle (SDLC) to control modifications and releases of the software. This deliverable will describe how the Contractor will control software development with different schedules for different functionality. The document will include:
- a. The software development policies and procedures that will be executed.
  - b. The process for recording and reporting the status of items and modification requests.
  - c. The Contractor's plan to ensure the completeness, consistency, and correctness of releases.
  - d. Any controls put in place for the storage, handling, and delivery of the software releases.
  - e. The initial design, development, and implementation (DDI) as well as ongoing maintenance, enhancement, reuse, reengineering, and all other activities resulting in software products.
  - f. The acquired insight into, and any tool(s) for monitoring, the processes to be followed for change and version control, the methods to be used, and the approach to be followed for each software development activity.
- 7. Project Staffing and Location Plan**- This deliverable details the Contractor's plan for establishing their State-approved project team. The plan will include, at a minimum:



- a. Reporting requirements.
- b. Identify Key personnel, project staff organization and State counterparts.
- c. Communication protocols for Contractor's interaction with the State project management team.
- d. Percent of work to be performed on-site and the percent of work to be performed off-site.
- e. Type of work to be performed on-site and the type of work to be performed off-site.

**8. Risk Management Plan** - The Contractor will create a Risk Management Plan utilizing the States template or a template approved by the State's Project Manager. Contractor must work with the State's Project Manager and project team to gather and document risks from the State's perspective to be incorporated into the risk plan. The plan will be used throughout all phases of the project and must be revisited on a monthly basis Contractor's and the State's Project Managers and will included at a minimum defined processes for:

- a. Risk identification
- b. Risk analysis
- c. Response planning
- d. Monitoring
- e. Control
- f. Issue Management

**9. Project Status Report** - The Contractor will provide CEPI and MDIT with bi-weekly and monthly Project Status and Risk Reports in a format approved by the State. The reports will provide information on:

- a. Weekly/monthly activities
- b. Accomplishments
- c. New issues and issue status
- d. Risks
- e. Upcoming events

**b. Milestone 2 – Planning** - The Planning Milestone includes a number for plans that will guide and govern the project from requirements gathering through deployment and preparing for the eventual assumption of responsibilities by the State. These deliverables and documents must be reviewed and updated to reflect the final scope of the project which is not finalized until after the requirements gathering stage which follows. To allow for payment for the majority of this milestone and provide assurance to the state that these documents will be updated, 20 % of the cost of this milestone will be held back until these deliverables and documents have been updated after the scope has been finalized and agreed to by the State and Contractor.

**i. Activities for Milestone 2** - Key activities include:

- 1. Confirming the Project Team, from both the State and Contractor's side.
- 2. Reviewing and confirming project timelines and resources.
- 3. Confirming standards and templates for deliverables.
- 4. Preparing key plans for ongoing support of the project.
- 5. Assisting MDIT with installing, configuring, and maintaining technical environments.



**ii. Deliverables for Milestone 2**

- 1. Documentation and Standards Plan** - Standards for how systems, applications, work flows, and business processes are documented. The contents of this plan should include, at a minimum:
  - a. Formats for plans, deliverables, and other documentation needed.
  - b. Formats for any system/application user manuals.
  - c. Formats for any Detailed System Design (DSD) or General System Design (GSD) documentation that is necessary.
  - d. Documentation for system maintenance plan.
  - e. Protocol for maintenance documentation.
  
- 2. Requirements Validation and Gathering Plan** – Contractor will detail the requirements identified and how they will be validated, verified and further detailed. Describe how additional requirements will be sought out, discovered and documented. Identify the stakeholders to be included and the process for gathering input, feedback and validation. The plan shall include number and length of meetings and communication protocol.
  
- 3. Equipment/Technology Acquisition Plan** – Contractor will detail key equipment and technology acquisition activities, by project process/phase (i.e., Planning, Design, Development, Implementation, Transition, and Maintenance).
  - a. The Contractor will provide an option for purchase and installation of the server(s) and associated software for the new SDS/EEM at MDIT. The State may accept this option or purchase the equipment through State contracts.
  - b. The State has the option to purchase hardware and software through Contractor or through State sources and/or contracts
  
- 4. Technical Architecture Plan** – The Contractor's solution must include the technical architecture plan. The Contractor shall propose a feasible technical architecture most appropriate for the requirements specified in Appendices 1, 2 and 3. Some of the environments may be shared on the same hardware (i.e. QA testing and UAT testing could be on the same server). The Technical Architecture Plan will:
  - a. Include all environments proposed for the project and their rationale for proper use and deployment of the proposed solution.
  - b. Describe how and where multiple environments will be supported on the same hardware.
  - c. Describe environments such as the following, or others as deemed appropriate by the Contractor:
    - i. Development: The environment used by the developers to develop, customize and extend the solution required.
    - ii. Conversion: The environment used to convert the legacy data, including testing of extractions and transformations, prior to actual loading of the data to production.
    - iii. QA Testing: The environment for Contractor Quality Assurance Testing and Performance Testing of the release by the Contractor prior to release to UAT.
    - iv. UAT Testing: The environment for User Acceptance Testing the release prior to implementing the system in production. UAT must be conducted in the State's environment.
    - v. Production: The State's end user or final environment shall be available throughout the defined extended business hours, with minimal windows of downtime for system maintenance and upgrades.
    - vi. Training: A test/demo area for training users that must be updated and rebuilt on demand with a standardized base set of data.
  - d. Include detailed architectural diagrams with textual support for the environments proposed.
  - e. Be updated as hardware and software are modified, added, or upgraded.



- f. Include:
  - i. Required servers and the minimal hardware specifications per server, identifying each server by its purpose and its environment.
  - ii. Required software for each server, including number of licenses, versions, pricing structure and usage of the licenses.
  
- 5. **Capacity Plan** - The Contractor must provide and maintain a Capacity Plan document to include:
  - a. Planning and sizing estimates for all environments, including:
    - i. Expected storage requirements,
    - ii. Storage growth rates,
    - iii. Network bandwidth,
    - iv. Backup media consumption,
    - v. Anticipated load, and
    - vi. Expected maintenance activities.
  - b. Ongoing updates to the plan throughout the project.
  
- 6. **Configuration Plan** - The Contractor must provide a Configuration Management (CM) Plan:
  - a. Describing how configurations for all environments should be managed.
  - b. Describing how configurations will be verified and promoted.
  - c. The State uses Visual Source Safe as its standard repository tool. The Contractor may make use of its own internal CM tool, but anything that is to be promoted to production environment must be checked into a repository managed and controlled by MDIT. This includes such things as source codes, master configuration files, migration scripts for software upgrades, and other CM utilities.
  
- 7. **Installation Plan** - The Contractor must assist MDIT with all installations on State environments. In the Installation Plan, the Vendor must:
  - a. Describe what is necessary to install the system.
  - b. Fully document the initial installation plan and all revisions so the process can be repeated by the State technical staff.
  - c. Ensure staff provided by the Contractor work closely with the State to ensure appropriate knowledge transfer to State staff for the ongoing maintenance and support of the system following conclusion of the contract.
  - d. Include rollout strategy.
  
- 8. **Training and Knowledge Transfer Plan** - This deliverable must cover two interrelated areas: 1. Training for Local Agency, State and CEPI users on the system inputs and outputs and 2. A knowledge transfer plan to allow the transfer of the system technical operation and maintenance to MDIT and CEPI staff.  
 The Training Plan shall:
  - a. Be based on a Training Needs Analysis. This analysis shall include:
    - i. An assessment of the target audience: their knowledge, skills and readiness for training. Note: the target audience will include staff from multiple State Departments as well staff from local and intermediate school districts who will then serve as the trainers for their local sites.
    - ii. An assessment of available resources and project timeframes.
  - b. Describe an off-site, facilitator-led training supported by a training database and technology solutions.
    - i. The Contractor shall utilize the State Training facilities or State-approved alternative facilities (reference **Appendix 5**) for facilitator-led classroom training or alternatively, facilities provided by ISD/LEA/PSA or education association partners per the results of the training needs assessment.



- c. Include:
  - i. Training and knowledge transfer
  - ii. Training content
  - iii. Schedules
  - iv. Events and activities
  - v. Resources from both Contractor and State
  - vi. Time commitments

**9. Test Plan** - The Contractor will provide a detailed approach to Unit Testing, System Testing, User Acceptance Testing (UAT), Quality Assurance, Performance, and Operations Testing. The Test Plan Deliverable shall contain the following, at a minimum:

- a. Description of testing approach.
- b. Selection of test cases or processes.
- c. Resources from the State and Contractor including metrics required to assure adequate testing for UAT state testers.
- d. Schedule.
- e. Validation of test results.
- f. Corrective action approach.

**10. Data Conversion Plan** – Contractor shall provide a Data Conversion Plan in the Planning Document at the end of the Requirements Gathering and the Planning Stage.

- a. Contractor must determine data conversion requirements and develop conversion software and scripts for data cleansing and actual conversion. Contractor will work with State staff to complete data conversion.
- b. The quality of the data conversion shall be the Contractor’s responsibility.
- c. The Plan shall include:
  - i. The extent of data and files to be converted, sources of this information, and any unique issues
  - ii. Description of conversion process
  - iii. How and when data cleansing will be performed.
  - iv. Indication of any State resources needed.
  - v. Scope of conversion effort, including how many years of data to be converted to the new system and the data validation process.

**11. Application Turnover Plan** - This Plan is a critical component for successful completion of the project. The Plan must contain the following:

- a. A description of how the Contractor will prepare CEPI staff to assume responsibility for supporting the system.
- b. A description of how the Contractor will perform application software support for the system and provide the knowledge to MDIT staff to take over the maintenance responsibilities when the Contractor’s support ends.
- c. A plan to migrate Compuware application life cycle tools to SOM staff who will assume responsibility for support of said tools.
- d. A plan and work breakdown schedule (WBS) that specifies state resources required and specific high level tasks to turnover the system and to support the system.

**c. Milestone 3 – Detailed Business Requirements-** This milestone includes detailed documentation of the business or functional requirements. The business or functional requirements describe what is required to meet the users' business needs and is considered 80-90% complete. The Contractor will review and validate known requirements and discover additional requirements or more detail on the currently known requirements.



i. **Activities For Milestone 3**

1. Facilitate face-to-face requirements gathering sessions with key users identified by CEPI to include multiple state agencies, Local Educational Entities (LEAs) , Intermediate School Districts (ISDs) and other educational entities.
2. Validate existing requirements contained in Appendices 1 and 2
3. Organize requirements by functional area.
4. Discover other requirements necessary for possible inclusion into the final project scope. Identify, quantify and prioritize those additional requirements that are not currently defined for existing and/or new entities.
5. Contractor to utilize the “Optimal Trace”, Vantage, and other Compuware products that help address major stages of the application life cycle and provide training to the state project team to be able to also utilize these tool
6. Requirements Gathering document that shows the meetings, who attended the meeting, agendas and notes from the requirements gathering meetings.
7. The Requirements Documents must specify:
  - a. Business requirements and functionality
  - b. Technical requirements and functionality
  - c. Requirements from RFP validated
  - d. New requirements discovered during the requirements gathering process that need discussion and approval to be included in the final project scope

ii. **Deliverables For Milestone 3**

1. **Draft Detailed Technical Requirements** - Document will be due midway through this milestone.
2. **Draft Detailed Business Requirements** - Document will be due midway through this milestone.
3. **Requirements Gathering Documentation**
  - a. Outlines requirements gathering process
  - b. States meetings and interviews that occurred
  - c. List the attendees of the meeting and interviews and others spoken to for requirements gathering
  - d. Meeting notes from the meetings
4. **Detailed Business Requirements Documents that must include:**
  - a. Business requirements and functionality
  - b. Business requirements validated
  - c. Further detail of the known business requirements
  - d. New business requirements discovered during the requirements gathering process that need discussion and approval to be included in the final project scope.
5. **Detailed Technical Requirements Documents that must include:**
  - a. Technical requirements and functionality
  - b. Technical requirements validated
  - c. Further detail of the known technical requirements
  - d. New technical requirements discovered during the requirements gathering process that need discussion and approval to be included in the final project scope.
6. **Final Project Scope Document** – this is to include all business and technical requirements that have been agreed to by the State and Contractor to be included in the final scope. This must include:
  - a. Included business requirements



b. Included technical requirements

Number of additional hours, if needed, for development , testing, implementation, etc, to accomplish the agreed upon finalized project scope. The additional hours are to be come from the 2000 hours that are set aside in this contract for increased project scope per system due to newly discovered and/or increase detailed requirements beyond the RFP listed requirements.

**Milestone 4 – System Design, Development and Testing-** This milestone includes the system and database design. Detailed specifications are written, system components and interfaces are developed and the system is fully tested. An iterative approach is recommended to reach this milestone. The activities listed below should be repeated a number of times with each cycle adding significant functionality to the system.

**I. Activities For Milestone 4**

1. Facilitate Joint Application Design sessions with key users identified by CEPI
2. Create design documents and detailed specifications
3. Create logical and physical data models including a data dictionary
4. Document technical specifications
5. Develop user acceptance test cases
6. Construct system components
7. Build system interfaces
8. Test application to validate that all requirements have been met
9. Test for quality assurance and performance
10. Support user acceptance testing
11. Prepare user, system, and operations documentation

**ii. Deliverables for Milestone 4**

1. **Logical and Physical Data Model** - The Contractor shall provide the State with the Logical and Physical Data Model. Contractor shall use the State’s suggested/preferred list of data elements as provided by the Data Managers Working Group (DMWG), CEPI and CELT Corporation.
2. **Data Dictionary** - The Contractor shall provide the State with a data dictionary of the database schema. The State shall provide the Contractor with the data dictionary compiled by the State and the CELT Corporation to be used as a starting basis for the data dictionary. This data dictionary identifies source systems and common data element names, definitions and attributes. The Contractor shall use these common elements when developing the SDS/EEM data dictionary. The completed data dictionary could include but not be limited to:
  - a. Field definitions
  - b. Field edits
  - c. Domain values
  - d. Field constraints
  - e. Field attributes
  - f. National Center for Education Statistics or SIF data elements and associated characteristics
3. **Technical Design** - The design shall:
  - a. Translate requirements into a set of deliverables that can be used to drive and support the building of software artifacts; such as code, configuration data, and rules; with proper use of domain-related typing wherever possible.
    - i. Restrictions based on the underlying application framework must be clearly identified and explained.
    - ii. The design documents must be concise and accurate.
  - b. Include the following items:
    - i. Proposed schema



- ii. Web page mockups for new or modified pages
- iii. A set of high-level classes to be implemented
- iv. A textual description of algorithms to be deployed
- v. Business rules to be deployed.
- vi. Configuration settings in the application or framework to enable the necessary functionality
- vii. Business process diagrams
- viii. Descriptions of common user interface objects such as menus and other navigational items
- c. Include a unit test plan and a system integration test plan
  - i. The unit test plan will describe how the developer will evaluate the resulting artifacts while testing the unit independent of all other units.
  - ii. The integration test plan will describe how the developer will evaluate the resulting artifacts while testing the unit as a component of the system, emphasizing regression testing for common objects or other objects that have dependencies with other artifacts.
  - iii. The test plans will include test data, expected inputs and outputs, and any automated testing to be utilized.
- d. Be reviewed and approved by business staff (CEPI) and by technical staff (MDIT).
- e. During testing, developers shall update the design documents to reflect any clarifications that were made during development and testing.
- f. The Contractor and State will determine the exact components of each of these design documents upon contract award.
- g. Securing connection strings to databases must adhere to MDIT agency guidelines.
- h. VMWare: Contractor will build the applications developed to be able to scale out when needed. Scaling-out enables the State to cost-effectively solve application server and database capacity issues resulting from increased traffic and transaction volumes. The application architecture must be carefully designed to run the application and database servers. VMWare will remain at no cost item to the State if the State hosts the solution. The necessity of building a scaled out architecture will be finalized after the Milestone 3 – Requirements Gathering/Project Scope finalization.

- 4. Technical Documentation** - The Contractor shall produce and update technical documentation for the system, including system documentation
- a. Final versions of these documents are due before implementation as well as at interim time periods as agreed upon by the Contractor and the State.
  - b. The Operations Manual with system documentation shall include the following components:
    - i. Object model.
    - ii. System architecture.
    - iii. High-level interaction between modules/packages.
    - iv. Backup procedures.
    - v. Batch schedule and procedures.
    - vi. Standard system tasks such as starting up and shutting down software and servers.
  - c. All publicly facing interfaces must be documented to facilitate developer training and system maintenance.
  - d. The documentation should be sufficient to provide initial training for technical staff.
  - e. One electronic version and one hardcopy of the system documentation shall be provided to the State initially, and as updates are made.



## 5. Source Code and Artifacts -

- a. The Contractor will have the majority of the responsibility with input from MDIT, for developing source code, as defined by the deliverable document.
- b. The Contractor shall unit test all of the resulting artifacts.
- c. Michigan will own source code and will be able to modify this source code at will; however, Contractor reserves the right to reuse this source code on development project with other clients.

## 6. Test Results

- a. As system components are developed, the Contractor will be required to provide comprehensive testing to validate functionality and performance.
- b. Testing will include:
  - i. Unit testing:
    1. Scope, or aspect of the system tested
    2. Method for selecting cases
    3. Test cases
    4. Results
    5. System errors identified
    6. Corrective action and ongoing maintenance requirements
  - ii. Systems testing:
    1. Sequence for a complete system test
    2. Method for selecting cases
    3. Test cases
    4. Results and implications for overall system operation
    5. Corrective action and ongoing maintenance requirements
  - iii. User acceptance testing
  - iv. Quality assurance testing
  - v. Performance testing
  - vi. Operations testing:
    1. Identification of all operations areas requiring testing
    2. Sequence of activities for operations test
    3. State participants and other state approved participants (i.e. LEAS, educational entities, etc.)
    4. Results and implications for overall SCM and SDS operation
    5. Deficiencies, corrective action, and required training
- c. In addition to unit testing, the Contractor Development Team shall perform integration testing, ensuring defects are not introduced when the unit is combined with the other software artifacts for the given iteration or release.
- d. The Contractor shall conduct User Acceptance, Quality Assurance and Performance Testing in accordance with the Test Plan in the Quality Assurance (QA) Testing environment.
- e. Testing must be done over a WAN speed link, 512K for State of Michigan WAN attached users and 56K for dial-in clients.
  - i. The Contractor shall resolve all defects and perform all other technical support required to successfully complete this testing.



- ii. The Contractor shall conduct a walk-through of the testing process and the test results to enhance State understanding and to facilitate the State approval process, including a review of performance metrics and general “lessons learned” from all testing participants.

#### **7. User Acceptance Test (UAT) Cases –**

- a. The Contractor will develop the test plans for User Acceptance Testing to include expected results. The Contractor will use the “Optimal Trace” tool as well as other Compuware tools to derive test cases and the State will work with the Contractor to document the expected results.
- b. The user acceptance test cases should include data edits and data validation criteria.
- c. The State will need at least 6 weeks notice before the UAT is to start with the required numbers and/or hours of testing required to assure a smooth implementation..

#### **8. User Acceptance Testing –**

- a. UAT will be at least 3 weeks in length per system.
- b. The Contractor shall schedule, coordinate, monitor, and manage all User Acceptance Testing (UAT) activities.
- c. The State is responsible for providing end users (from State and local agencies) and subject matter experts to perform the user acceptance testing.
- d. Users participating in UAT are expected to sign off on the test results at the completion of UAT, providing their recommendation to the State Project Managers for formal approval and readiness for production.
- e. State testers will update the test cases with the test results during UAT testing. If results are successful, they will provide their signoff by marking the test case as ‘Passed’.
- f. The Contractor shall provide support for the duration of UAT.
  - i. This support must include both business and technical assistance.
- g. The testing process will include the ability to provide for a complete test a student test cycle.
- h. The Contractor shall support the UAT by:
  - i. Monitoring system performance
  - ii. Investigating why data was not processed
  - iii. Monitoring computer resource usage
  - iv. Participating in problem review meetings
  - v. Investigating problems and identifying potential problems
  - vi. Answering user questions about the system
  - vii. Investigating and ensuring user access to the system in the UAT environment
  - viii. Generally helping the users execute tests and review results
- i. The Contractor shall correct all defects discovered during UAT in a timely manner by following normal application development procedures – modifying the appropriate configuration items in the development environment, unit and integration testing the change, promoting the configuration item to the testing environment, quality assurance testing the change, and promoting the change to the UAT environment.
- j. Promotions to UAT shall occur on a regularly scheduled basis unless it is an emergency situation (e.g., UAT cannot continue until problem is resolved).
- k. The Contractor must have procedures and tools for tracking, reporting, and correcting deficiencies.

#### **9. Training Material -**

- a. The Contractor shall be responsible for creating an Instructor’s Manual and a Student Manual to be used during all classroom sessions for state and local end users (i.e. LEAS, educational entities, etc.)
- b. The Contractor shall provide an editable electronic version of all end user training material, as well as hardcopies of this material for State of Michigan review purposes.



- c. The Contractor shall be responsible to provide all required copies for classroom sessions.
- d. The Student Manual shall include additional practical exercises in the back of the manual that the end user can complete upon return to their work location.
- e. Both manuals should include curriculum by functionality, with sufficient examples and exercises to accomplish the stated training objective of assuring that end users gain the skills necessary to perform their job functions in the new SDS.
- f. The Contractor shall also create any other necessary training aids such as presentation outlines and audio-visual materials.
- g. The Contractor's training plan and approach shall include training on how to effectively utilize the Online User Aids described in subsection 15 below.
- h. Additional training materials may include Web-Based Tutorials (WBTs), CDs, videos, and virtual classrooms. An introduction to these items should be provided during the classroom training, with the intent that these materials supplement the training received by students upon their return to their work location.
- i. All training materials shall be delivered to, and become the property of the CEPI and State of Michigan, upon the completion of the system implementation.

**10. Training Data -**

- a. The Contractor will be responsible for developing and maintaining base data for all training activities.
- b. The Contractor must refresh the training data to its base data upon request by the State.
- c. The responsibility for the training data continues for the duration of the contract.

**11. Online User Aids -**

- a. The Contractor shall produce Online User Aids, including web page and field help, and an Online User's Guide.
- b. The Online User's Guide should be delivered in electronic format only, but be printable by the end user if desired.
- c. The Contractor will design and develop the Online User's Guide and include:
  - i. Features most used in the SDS/EEM, as defined by CEPI.
  - ii. Features hardest to understand (update after pilot), as defined by CEPI.
  - iii. Problems most significant to the end user (update after pilot),
  - iv. Features that cause the most calls to a help desk (update after pilot),
  - v. Features that would potentially result in less training required, supplementing the training already received, and,
  - vi. Simulations to help the user do a task.
- d. The guide shall:
  - i. Address the usage of the system from a business process (workflow) perspective, describing how to accomplish business processes associated with the new system.
  - ii. Be easy to use by enabling users to quickly locate the particular help they need with options such as "how do I?" and step-by-step procedures.
  - iii. Be scenario-based for end users.
  - iv. Be available in conjunction with UAT tasks to allow for testing of the user instructions in parallel to the software.

d. **Milestone 5 – Implementation Support** - Implementation support provides coordination of all project-related activities taking place and enables staff to make a smooth transition to the new system in production.

i. **Activities for Milestone 5:**

- 1. Installation of production environment
- 2. Train program support State staff.
- 3. Train end user trainers (Train-the-Trainers model).
- 4. Provide Help Desk support activities.



ii. **Deliverables for Milestone 5:**

**1. Production Environment -**

- a. It shall be a joint responsibility between the Contractor and MDIT to install and configure.
- b. The warranty period will commence on the first day following formal written acceptance by the State for a particular phase or software component.

**2. Data Conversion –**

- a. Data Conversion, including the quality of the converted data, is the responsibility of the Contractor.
- b. Conversion shall include any supplemental data such as default values or mocked up standard data to make a fully functional system.
- c. The Contractor will determine if any data could be taken from other application system to load the new system's database.
- d. The Contractor will be required to produce a conversion report showing what data was converted, data sources, volume of data converted and any data conversion errors or issues.

**3. User Training –**

- a. End user training will be accomplished by the contractor providing regionalized training to a group of designated trainers who will then be responsible for training the end users at their local sites. The actual training of each end user will be the responsibility of the user trainers who have been trained by the contractors.
- b. The Contractor will provide the full complement of training, as approved by the State in the Training and Knowledge Transfer Plan.
- c. The Contractor will be responsible for developing and providing training materials for all training groups, state staff, end-users and train the trainers
- d. Training for State CEPI staff, other State users and trainers who will then train local users must coincide with the schedule in the Project Work Plan for system implementation. The project work plan must allow sufficient time for pilot site end user training to occur prior to pilot implementation and comprehensive end user training to occur prior to full system implementation.
- e. The Contractor will integrate the trainer training with the Pilot implementation of the system.
- d. The Contractor shall provide both system and business (workflow as it relates to the automated process) training to state users and end user trainers .
- e. The Contractor will not be required to provide training in navigating in a browser-based environment or in basic keyboard skills.
- f. The Contractor will be responsible for scheduling people using State facilities, (or alternative training facilities provided by LEA and education association partners as determined by the training needs assessment), State-authorized registration programs, and databases as approved in the Training Plan.
- g. The Contractor will minimize travel cost/time for trainer trainees when developing the training portion of the Training Plan.
- h. Costs for training facilities and the establishment of additional temporary training facilities will be the responsibility of the State.
- i. Training should be PC-based, with each trainee having access to a PC.
  - i. The classroom training will begin with a high-level introduction and interaction with the system and will progress deeper into low-level end-user system functionality and business processes and workflows.
  - ii. The Contractor will provide training for the trainers to use the ad hoc reporting tool with common reporting examples.
  - iii. Classroom training will be business process driven.
  - iv. The training application within the classroom will function in all ways as a production application.



- v. It is recommended that the larger percentage of the training be hands-on and assistance provided in helping the trainees understand how to relate the training to specific job roles.
- vi. The State expects that staff attending training do not spend more than eight (8) hours a day at the classroom environment.
- vii. The Contractor will provide for each training class at least **one facilitator and an assistant.**
  - 1. The State may partner with the Contractor to provide additional trainers. However, no guarantee can be made to the availability of this staff.
- j. The Contractor shall retain full responsibility to complete the requirements of training state users and the end user trainers).
- k. The Contractor will ensure all designated trainers who have completed the training curriculum will have the ability to correctly train end users on complete activities and functions within the SDS/EEM environment corresponding to the users' day-to-day responsibilities.
  - i. The State will have a designated lead trainer who will monitor and approve the delivery of the training and ensure that sufficient training has been provided by the contractor to allow a high level of proficiency.
- l. The Contractor shall plan different classroom curriculum based on functionality and the results of the Training Needs Analysis.
- m. The Contractor shall be responsible for collecting and reporting information on classroom training, including:
  - i. Progress to Schedule (classes scheduled v. classes actually held, total planned to be trained v. number actually trained).
  - ii. Number and category of staff trained.
  - iii. Material covered by trainer.
  - iv. Proficiency attained in each section/module by trainee, based on analysis of evaluation.

**4. Post-classroom Practice Exercises –**

- a. The Contractor shall provide the capability for post-classroom, online self-directed practice, such as web-based simulations, to allow recently trained end-users to build upon the initial classroom training.
- b. The post-classroom practical exercises shall enable end-users to practice, based on their job responsibilities, in the training environment.
- c. Trainees will be supported in their practice efforts via the Online User Aids, Web-Based Tutorials (WBT), and their classroom training material (Student Manual).

**5. Help Desk Guide –**

- a. The Contractor will develop a Help Desk Guide with help desk processes and scripts to support the new application, data, and workflow.
- b. The Contractor shall provide the Help Desk Guide two months prior to Pilot implementation.
- c. The Help Desk Guide must contain a FAQ section that is to be developed and updated following training and pilot implementation.

**7. Pilot Michigan EEM/SDS Implementation –**

- a. Before statewide implementation, the Contractor shall conduct a Pilot implementation of the system.
- b. The pilot, for each system, is to be minimum 90 days in length.
- c. The educational agencies selected will represent the various different infrastructure, personnel, and caseload.
- d. The pilot start date and duration will be agreed upon with the State.
- e. The Pilot implementation shall include all of the implementation support identified in this activity – namely:
  - i. Data Conversion



- ii. Training
- iii. Site Support
- f. The Contractor shall support the Pilot by:
  - i. Monitoring system performance
  - ii. Investigating why data was not processed
  - iii. Monitoring computer resource usage
  - iv. Participating in problem review meetings
  - v. Investigating problems and identifying potential problems
  - vi. Answering user questions about the system
  - vii. Investigating and ensuring user access to the system in the UAT environment

**8. Michigan SDS/EEM Implementation –**

- a. After a successful Pilot, the new systems will roll out.
- b. Prior to implementation, the Contractor will have full responsibilities to:
  - i. Monitor progress against a detailed installation plan ensuring each task is completed accurately and on schedule.
  - ii. Communicate with the State Project Managers to provide status and escalate issues.
  - iii. Participate with the implementation team to coordinate activities, discuss status, and resolve issues.
  - iv. Coordinate implementation with training.
  - v. Ensure data readiness.
    - 1. Coordinate with the data conversion team to address manual and automated data correction activities pre- and post-conversion.
    - 2. Provide staff to perform manual and automated data. cleanup/conversion activities.
  - vi. Implement new workflow:
    - 1. Work with State staff (CEPI and MDIT) to plan the transition from the existing workflow to the new one.
  - vii. Provide onsite post-implementation help to resolve workflow and application issues.

- e. **Milestone 6 – Turnover and Transition** – Activities required to meet this milestone are split between Contractor responsibilities and CEPI/MDIT activities. On the business side, the CEPI staff are responsible for daily operations, under the oversight of the Contractor.

On the technical side, MDIT has assumed responsibility for hardware and system maintenance support. The Contractor is providing application software maintenance and enhancement, and at the same time is training the MDIT staff to take over routine support for application software.

**i. Activities for Milestone 6 -**

- 1. Key Activities:
  - a. **Prepare updated Turnover Plan**
    - i. Develop training for MDIT Client Service Center (Help Desk) staff based on the Help Desk processes and scripts.
    - ii. Train Client Service Center staff.
    - iii. Support the State by providing updates to the Help Desk Guide reflecting new functionality as it is released.
    - iv. Complete training and operations testing for State business users.
    - v. Review all aspects of system operations with State managers to assure State resources are prepared for initial operations.



2. **System Maintenance and Enhancement Activities** – Contractor will provide Software maintenance and enhancement meeting the definitions below:
  - a. System Maintenance:
    - i. Refers to regular and routine work performed by the Contractor on the EEM/SDS, and any ancillary systems or interfaces run by the Contractor under this contract.
    - ii. Includes any work required to correct defects in the system operation as required in Milestone 7. This includes:
      1. Any routine file maintenance to update any information required for operation of the system such as data changes, constructing new edits, investigating batch job failures, investigating and correcting application defaults, repairing jobs run incorrectly, repairing problems due to system software failures, repairing problems due to operator or schedule error, rectifying problems due to web page, program, object, class, scripts, control language, or database errors, repairing security problems, repairing and restoring corrupted files, table structures, and databases, rectifying incorrect documentation, and repairing problems due to jobs run with incorrect data.
    - iii. The Contractor will perform system maintenance at the direction of the State, and, as defined in the Scope of Work, for the component parts of the system after its implementation.
    - iv. If the Contractor considers that any individual maintenance change requested by MDIT constitutes a system enhancement (as defined in this section below in 5.), the Contractor will advise the MDIT Project Manager in writing that the Contractor considers the request a system enhancement.
      1. If the MDIT Project Manager agrees with the Contractor on the classification of this work order, he/she will re-classify the work order as a system enhancement.
      2. If the MDIT Project Manager denies the Contractor’s request for reclassification of the work order, the Contractor may seek remedy through the dispute resolution process.
  
3. **Adaptive and Preventive Maintenance Activities**
  - a. Adaptive and preventive maintenance addresses upgrades to the system due to technical changes to system components to keep the system maintainable, including the following services:
    - i. Upgrades or patches of the application server, Windows components, operating system, or other system and application software.
    - ii. Software modifications and upgrades necessary because of expiring vendor support.
    - iii. Hardware, database, or application conversions that do not modify user functionality.
    - iv. One-time loads or reformats of user data.
    - v. Report distribution changes.
    - vi. Disaster recovery plan activities.
  - b. The changes should be transparent to the user.
  - c. Adaptive release changes will be performed in a monthly patch release.
  - d. For major upgrades requiring a more significant amount of time to develop, test, and implement, the changes should be completed as part of a development release or a quarterly release.
  
4. **Performance Maintenance Activities** - Performance maintenance addresses activities to improve the performance of the application.
  - a. Performance maintenance includes the following services:
    - i. Improve the performance, maintainability, or other attributes of an application system.
    - ii. Data table restructuring.
    - iii. Data purges and or archiving to reduce/improve data storage.
    - iv. Run time improvements.
    - v. Replace utilities to reduce run time.
    - vi. Potential problem correction.
    - vii. Data set expansions to avoid space problems.



- b. Performance maintenance changes will be performed in a monthly patch release or, for major changes requiring significantly more time to develop, test, and implement, the changes should be completed as part of a development release or quarterly release.
- c. Activities that typically can be completed independent of a production release (e.g., data set expansions, data purges) may be completed on a more frequent basis (e.g., daily or weekly).

**5. System Enhancement Activities -**

- a. System enhancement includes changes to the system that are necessary to meet:
  - i. New State policy requirements,
  - ii. New Federal regulations,
  - iii. New technology requested by the State, or
  - iv. Accommodate new or updated interfaces requested by the State.

**6. Other Transition Activities -**

- a. The Contractor’s operations staff provides oversight of all business functions
- b. The Contractor’s technical staff provides application software maintenance and automated file transfers
- c. The Contractor’s technical staff performs software enhancements, pursuant to approved change orders from the State.
- d. The Contractor’s technical staff provides any formal training and “Hands-On” experience in the transfer system software, pursuant to the Knowledge Transfer Plan

**ii. Deliverables for Milestone 6 -**

**1. Updated Turnover Plan**

- a. The Contractor must implement the turnover process, consistent with the approved Turnover Plan.
- b. This implementation will begin with an updated Turnover Plan to the State confirming the steps and requisite responsibilities for transferring the daily business operation to State staff.
- c. The updated plan is due no later than 90 days prior to the final Statewide Implementation Date for the new system and should include:
  - i. Responsibilities of the respective parties (CEPI, MDIT and Contractor) for each system area.
  - ii. Work Breakdown Schedule of tasks, resources, timelines and dependencies.
  - iii. Proposed transition schedule to State staff.
  - iv. Level of resources required after transition.
  - v. Backup plan for any failed transfers.
  - vi. Proposal for Contractor maintenance after the Transition Phase is complete.

**2. Maintenance and Enhancement Support Document – this document must include:**

- a. The activities and process to be provided by Contractor for regular maintenance.
- b. The activities and processes to plan for, develop, test and implement enhancements approved by the State.

**3. Final Turnover Report**

- a. The Contractor must provide a report to the State describing the successes and any deficiencies in State operation of the system during the Transition Phase.
- b. This report is due 60 days prior to the termination of the Transition Phase for the new system and should include:
  - i. Training provided to each business area.
  - ii. Any risks and proposed remediation for continued CEPI operation of the business areas after the Transition Phase.
  - iii. Level of State business resources required after transition.



**4. Knowledge Transfer Reports –**

- a. Throughout the project, the Contractor will provide a series of monthly progress reports on the activities, issues, and progress in knowledge transfer for the MDIT employees.
- b. The Contractor will file a summary report no later than 60 days prior to the termination of the Transition Phase describing the knowledge transfer process, the accomplishments, and any obstacles to MDIT's assumption of full responsibility for the system at the termination of the Transition Phase. The content should include:
  - i. Training provided to each technical area.
  - ii. Any necessary corrective action or remediation taken.
  - iii. Risks in State assumption of operation.

**5. Updated Application Source Code Artifacts -** The Contractor will follow the agreed upon procedures to modify, test, and implement code.

**6. Updated Documentation –**

- a. The Contractor will update any documentation that has been previously created by the Contractor to reflect the updated and enhanced functionality of the application/system.
- b. The Contractor will provide updated versions of all systems, user, training, and operations documentation prior to the implementation date.
- c. Documentation must meet all requirements of the approved Documentation Standards Plan and be provided in electronic and hard copy, if requested by State.
- d. Documentation includes:
  - i. Complete system documentation.
  - ii. User manuals (administrator and authorized user).
  - iii. Training manuals.
  - iv. Glossary
  - v. Updates to the Help Desk Guide to reflect new functionality as it is released.
  - vi. All operations procedures not covered in a user manual and requested by the State.

**f. Milestone 7 – Maintenance Support**

- i. **Activities for Milestone 7 -** Software Maintenance and enhancement will follow the definitions as described in the Turnover and Transition period.
  - 1. System Maintenance.
  - 2. Adaptive and Preventive Maintenance.
  - 3. Performance Maintenance.
  - 4. System Enhancement.
    - a. System Enhancement Activities are defined as minor enhancements that are considered “normal or reasonable “ for the business environment such as if there is a federal, state or other reporting requirement change or addition. Minor equates to a range from 4 to 20 hours per requested minor enhancement.
  - 5. Documentation Update.
  - 6. Provide a routine status report to the State.
  - 7. During the one-year maintenance support period, the Contractor will provide on-site staff for enhancements or trouble-shooting on the new system as needed.
  - 8. The maintenance period is the one-year period from the Statewide Systems Operations Date to the date when the State assumes sole responsibility for operation of the SDS.
    - a. All maintenance will be performed by qualified personnel who are familiar with the system.
    - b. The Contractor will provide backup maintenance resources.
    - c. The Contractor will provide for escalation of maintenance issues to ensure critical issues are resolved.
    - d. The Contractor will provide remote diagnostic capabilities if determined needed, during the requirements gathering phase.
    - e. The Contractor will provide one point of contact to report system malfunction whether malfunction is due to software or is of unknown origin. The Contractor will then be responsible for providing the appropriate remedy.



- f. The Contractor will make maintenance of the system available from the Contractor on an annually renewable Contract basis.
- g. For the first year and all subsequent Contract years, the Contractor will provide the following services for the system, commencing upon installation of the deliverable(s):
  - i. Error Correction. Upon notice by State of a problem with the system (that can be verified), the Contractor shall use reasonable efforts to correct or provide a working solution for the problem.
  - ii. The Contractor shall notify the State of any material errors or defects in the deliverables known, or made known to the Contractor from any source during the Contract term that could cause the production of inaccurate or otherwise materially incorrect, results.
  - iii. The Contractor shall initiate actions, as may be commercially necessary or proper to effect corrections of any such errors or defects.

ii. ***Deliverables for Milestone 7 -***

The deliverables will be specified and documented during the Transition and Maintenance Planning period and will be listed in a Maintenance Document that both the State and Contractor will agree upon.

**1.20 ROLES AND RESPONSIBILITIES**

**1.201 CONTRACTOR STAFF, ROLES, AND RESPONSIBILITIES**

A. Contract Staff

All persons assigned to this contract shall be employees, or subcontractors, of the Contractor and, in the case of key personnel, meet the qualifications outlined in section B below. The Contractor must include a similar provision in any contract with any subcontractor selected to perform work under this project. Contractor's staff must be able to pass a security clearance check conducted by the Contractor. Contractors must present certifications evidencing satisfactory background checks and drug tests for all staff identified for assignment to this project. Contractor is responsible for any costs associated with ensuring their staff meets all requirements.

The Contractor will provide, and update when changed, an organizational chart indicating lines of authority for personnel involved in performance of this Contract and relationships of this staff to other programs or functions of the firm. This chart must also show lines of authority to the next senior level of management and indicate who within the firm will have prime responsibility and final authority for the work.

The Contractor will provide sufficient qualified staffing to satisfy the deliverables of this Statement of Work. Contractor will provide:

1. Personnel with the ability to work professionally with the users, administrators, CEPI, MDIT and other State agencies serving the citizens of the State of Michigan
2. Personnel with abilities to work with state and local agency personnel that have a wide range of application and computer-related knowledge
3. Personnel with the ability to train and/or educate while assisting CEPI personnel
4. Personnel with the ability to document and act on customer suggestions and complaints
5. Personnel with the ability to document problems, fixes, resolutions and preventative measures for the future
6. Personnel with the ability to troubleshoot problems and provide timely resolutions in order to prevent downtime

B. Key Personnel

Contractor will to provide the final staff list that is sufficient and have requisite skills, to meet all requirements of this contract. In addition the State has listed a limited number of key roles for which Contractor must identify the final personnel that is being presented for these positions and identify if there has been a personal changes since the Oral Presentation. For any personal changes, resumes must be provide and the State given time to review to accept or reject any personal changes before the contract is signed. Each personal identified as



meeting a key role must meet the State minimum standards. The following are considered key roles for this project:

### **Project Manager**

Evaluates and recommends staff with appropriate skills for a project team. Coordinates the activities of a number of project team members: schedules work assignments, sets priorities, directs work, and addresses deviations from plans. Plans and executes communication plans for the good of the project team. Evaluates the work product of project team members. Maintains adherence to the project charter and scope document. Initiates completion of change control documents and insures that disposition is made before changes are made. Maintains the risk management document, risk and mitigation activities, keeping aware of the current risk status of a project and the need to employ mitigation measures. Maintains records of work completed and deliverables. Insures all program and system documentation is complete before approvals and payments are made. Is responsive to Quality Assurance staff. At this level, the candidates are expected to be able to help others adapt to new and unfamiliar concepts and tools and solve the most difficult barriers to the completion of their assignment. The candidate must have a minimum of three (3) years of recent project management experience and have demonstrated expert knowledge skills and abilities in project management. In addition, the individual must have four to five years of professional experience directing information technology developers. This position requires possession of a bachelor's degree preferably in information technology, engineering or business or equivalent experience. Project Management Professional (PMP) certification preferred.

### **Senior or Expert Analyst in the area of Educational Systems and Data**

Under minimal supervision the Senior Analyst performs duties and has responsibilities as an expert in educational systems and data. As a resource person, the Senior Analyst resolves problems related to the work for staff assigned to the project. Duties include responding to requests for information regarding educational systems and data, solving problems related to the work and reviewing the processes involved in the work to ensure efficiency and quality in the work area. The Senior Analyst must be skilled in the areas of knowledge transfer, requirements gathering and group facilitation. The senior position requires three to five years experience in application development analysis and the expert position requires six to eight years of up to date current experience.

### **Database Administrator (DBA)**

DBA responsibilities include the design, development, and maintenance of data base management systems. Specifically, DBA responsibilities may include: analysis of database requirements, database generation, data modeling, performance monitoring and tuning, the development of subsystems employing the use of database utility software, problem resolution, installation of software and implementation of modifications and upgrades, and establishing procedures for effective database operation, control, and recovery. Other services may include database interfacing, integration, and replication. This would include the design, testing and implementation of interface modules between various database management systems and other file structures that would allow transparent access to "foreign" databases from a given database management system. This position requires four to five years experience in application Database Administration. A bachelor's degree and a master's degree with appropriate certifications are preferred.

### **Enterprise Architect**

The Enterprise Architect is responsible for designing the architecture for an organization on an enterprise level. The Enterprise Architect defines system and application architecture and provides vision, problem anticipation, and problem solving ability to an organization. The Enterprise Architect must be familiar with a variety of concepts, practices, and procedures. Relies on extensive experience and judgment to plan and accomplish goals. Performs a variety of tasks. Leads and directs the work of others. A wide degree of creativity and latitude is expected. This position requires a Bachelor's degree in an information technology related field and a minimum of three to five years of experience in the field or in a related area. A masters degree is preferred.



### **Training Specialist**

This category requires a person with directly related knowledge and experience in the areas of computer and applications-related end user and support personnel training requirements. Tasks may include identifying the training needs of potential participants, preparation of training plans and schedules, developing course materials, preparation of computerized training exercises and conducting training sessions. Individuals proposed for this category must possess superior communications and interpersonal skills. **This position requires one to two years experience in developing and providing specialized training.**

### **C. Approval of Key Personnel**

The State Project Manager shall have the absolute right to approve or disapprove the Contractor's and any subcontractor's key personnel assigned to this contract. The State Project Manager may also approve or disapprove any proposed changes in key staff or require the removal or reassignment of any Contractor employee or subcontractor personnel found unacceptable by the State.

### **Notice of Change to Key Personnel**

The Contractor shall notify the State Project Manager in writing of any changes in key personnel at least 30 days prior to the change, except in the case of immediate risk to the health and safety of project staff, or in the case of unlawful security breaches. The Contractor shall, upon request, provide the State with a resume of any members of its staff or a subcontractor's staff assigned to or proposed to be assigned to any part of this contract.

Individuals assigned by the Contractor are employees of that Contractor, and are not, under any circumstances or conditions, employees of the State of Michigan.

The State reserves the right to interview and approve the Contractor's personnel. The State reserves the right to reject any proposed staff member and require the appointment of a satisfactory Contractor staff member, as well as to require verification of a proposed staff member's skills through demonstration and/or testing.

The State will retain the right to release outright or request the replacement of any Contractor representative who is working at an inferior level of performance, as determined by the State Project Manager. The Contractor will be given 24 hours advance notice of this action. The Contractor shall provide an acceptable replacement within five (5) working days of notice of this release.

The Contractor will assume full responsibility for the behavior of its employees and will remove any of its employees from State premises at the request of the State Project Manager.

The key personnel assigned to the project may not be replaced during the course of the project without the prior approval of the State Project Manager. The State Project Manager and/or designated representatives may interview candidates prior to this approval.

## **1.202 STATE STAFF, ROLES, AND RESPONSIBILITIES**

### **State Project Team**

The State will work to assist the Contractor in delivering the system. The State will provide a Project Manager from MDIT to lead the project and Project Sponsors from CEPI and MDIT.

The State Project Manager will be responsible for ensuring that the project is in compliance with the contract and satisfies the requirements as stated. The State Project Manager will consult with the Project Sponsors on a continuing basis in every phase of the project. This joint effort will ensure that the system is properly implemented, supports the requesting agency's defined functional and technical requirements, and is properly documented.

The State Project Manager will provide expertise, assistance, and technical leadership in matters such as



policy, organization, staff, environment, data, information processing, current systems and acceptance testing. The State's Project Manager will work closely with the Contractor's Project Manager on a day-to-day basis.

The State Project Manager will provide the following services:

- Provide State facilities, as needed
- Coordinate the State resources necessary for the project
- Facilitate coordination between various external vendors involved with this project as well as other related projects.
- Facilitate communication between different State departments/divisions
- Milestone acceptance sign-off
- Resolution of project issues
- Escalation of outstanding/high priority issues
- Utilize change control procedures
- Conduct regular and ongoing reviews of the project to confirm that it meets all objectives and requirements
- Document important project decisions

**The State's Project Manager along with the Contractor's Project Manager will report to CEPI.**

The State will assign staff, to participate with the Contractor's staff, in all project phases as outlined in the State's IT Methodology. This integration of staff will expedite the ultimate transition of responsibility to State staff.

Stakeholders will be involved through the Data Managers Working Group, which is comprised of those parties primarily responsible for Michigan educational agency *systems of record* (a.k.a., *source systems*), including the student information (general and program-specific), assessment, certification, financial, staffing, and other systems. Multiple agencies including Management and Budget, Education, Labor & Economic Growth, Community Health, Treasury, Human Services, and Corrections, are represented.

**1.203 OTHER ROLES AND RESPONSIBILITIES**

The State staff roles comprise the proposed State project team that will work with the Contractor. If the Contractor identifies a need for additional State staff with specific technical qualifications, the Contractor should indicate these needs as a part of their proposal. At the State's discretion, State personnel may be substituted or added as needed.

All questions which may arise as to the quality and acceptability of work, the manner of performance and rate of progress of the work, the interpretation of designs and specifications, and as to the satisfactory and acceptable fulfillment of the terms of this agreement shall be decided by the CEPI and MDIT Project Managers.

**1.30 PROJECT PLAN**

**1.301 PROJECT PLAN MANAGEMENT**

**A. Orientation Meeting**

1. 10 calendar days from execution of the Contract, Contractor(s) will be required to attend an orientation meeting to discuss the content, scope, deliverables and procedures of the Contract.
2. The meeting will be held in Lansing, Michigan, at a date and time mutually acceptable to the State and the Contractor.
3. The State shall bear no cost for the time and travel of the Contractor for attendance at the meeting.

**B. Project Plan**

1. Contractors must submit a draft Project Plan as part of their proposal.
2. The Project Plan will cover both Contractor and State tasks and responsibilities, as well as a work schedule. At a minimum, the Plan must contain the following items, or reasonable substitutions:

- a. Project team and organization



- i. A description of how the Contractor will organize, deploy, and administer the project team.
- b. Project Work Plan, which includes the following:
  - i. A work breakdown structure of the major phases of the project, accounting for all tasks, deliverables, dependencies, resource assignment and milestones. This should include all aspects of the SDS in order to provide the functionality stated in Technical Requirement and in Appendix 1 – Business and Interface Requirements, and Appendix 2 – Reporting Requirements.
  - ii. A timetable for each task, deliverable, and milestone.
  - iii. Tasks, resources, and timetables for the design, development, testing, and implementation of the SDS, including all interfaces and other agency resources.
  - iv. Contractor resource loading by task and role.
  - v. A description, by phase, of the number of Contractor personnel (including subcontractor personnel, if applicable) to be based at the Contractor’s project site.
  - vi. State resource loading by task and role. Note that any use of State personnel must be consistent with the description of the available State project team described in Section 1202 A. In the Project Plan submitted in the Proposal, the Contractor is not required to provide information on the use of State resources; however, as the preliminary Work Plan is refined during the Project Oversight Task, the State expects the Contractor to add this information.
  - vii. Critical path with parallel and dependent project tasks.
  - viii. A summary of total Contractor and State hours by phase. The Work Plan, as described above, must cover the entire project and each phase, and must reflect State staff, tasks, and schedules.
- c. Any assumptions or constraints identified by the Contractor. If there is a need for State staff in addition to those referenced in Section 1.202 A, the Contractor should note this at this point.
- d. A proposed project schedule will meet the State's technical and business requirements as specified in Technical Requirements, in Appendix 1 - Business and Interface Requirements, and Appendix 2 – Reporting Requirements, within the time frame identified in Section 1.3.
  - i. If the Contractor cannot meet the proposed schedule, they must identify any shortcomings in their system or staff resources, or explain why they believe the schedule to be unrealistic.
  - ii. The State may, at its sole discretion, change the schedule, or adhere to the proposed schedule and evaluate the proposals on their ability to demonstrate how they will meet the schedule.
- e. An explanation of how the schedule provides for the handling of potential and actual problems. This must also include general plans for dealing with the slippage of critical dates.
- f. The draft Project Plan submitted will be reviewed and updated by both the State team and the Contractor awarded the contract.
- g. Once updated and approved by the State, the resultant Project Plan will be turned over to the Contractor who must maintain it throughout the remainder of the project.

**1.302 REPORTS**

Reporting formats must be submitted to the State for approval within ten (10) business days after the effective date of the contract.. Once both parties have agreed to the format of the report, it shall become the standard to follow for the duration of the contract. The following reports must be provided, together with any reports identified in Section 1.104, Work and Deliverables, and the following requirements met:

- A. Written monthly summaries or progress reports that outline work accomplished during the reporting period, work to be accomplished during the subsequent reporting period, if known; problems, real or anticipated, which should be brought to the attention of the CEPI and MDIT Project Managers and notification of any significant deviation from the previously agreed upon work plans. All areas of decision making that pertain to this contract must be reviewed in detail with the CEPI and MDIT Project Managers prior to any final decision. Each monthly progress report will contain the following:
  - 1. Project schedule status.



- a. Identify if the project is on schedule or if there is any deviation from the previously agreed upon schedule.
  - b. If the project has deviated from the previously agreed upon schedule, identify the reason for the deviation and the affected areas.
  - c. Identify in detail the steps that will be taken to resolve the deviation.
  - d. Specify any schedule adjustments that have resulted from the deviation.
2. Activities of the past month - Summarize the actions taken and progress made on the project during the past month.
  3. Activities of the following month - Summarize the actions planned for the following month in order to meet the project delivery and performance schedule requirements.
  4. Deliverables - Identify deliverables delivered to CEPI in the past month and deliverables planned for delivery to CEPI in the following month.
  5. Issues - Identify problems, difficulties, either anticipated or encountered, and suggested solutions.
  6. Resolution of prior issues - Identify resolutions to issues identified in previous progress reports.
  7. Percentage completed. Indicate the percentage completed for each task defined in the work plan during the past month, the total percentage completed for each task, total percentage completed for the development, and the total percentage completed for the project.
- B. A project dashboard with updated project work breakdown schedule (project plan) must be submitted bi-monthly to the State's Project Manager. Contractor may present a format for the dashboard to the State's Project Manager within 20 days after the contract has been signed by both parties. The State's Project Manager may make changes and adjustments to the format and then will finalize the format with Contractor.
- C. The Contractor will maintain progress and resource schedules for all tasks under this contract. This documentation will include, as appropriate, progress Gantt charts, resource schedule reports, and progress reports. The Contractor is responsible for tracking hours expended on each task.
- D. All documentation prepared by the Contractor must be submitted to CEPI and/or MDIT as both a printed hard copy and in Microsoft Word electronic format.
1. CEPI/MDIT and the Contractor must mutually agree upon alternative electronic formats.
- E. The Contractor's name, logo, or other company identifier may not appear on documentation delivered to the State without written authorization from the Contract Administrator.
1. An exception to this will be transmittal of cover letters showing delivery of said documents and invoices.
- F. All documentation submitted to CEPI or MDIT by the Contractor must contain a title page with the following information:
1. Contract Number
  2. Contract Expiration Date
  3. Task Name (if applicable)
  4. Deliverable Name
  5. Name of Vendor
  6. Vendor Project Director
  7. Date of Deliverable or Report
  8. Time Period of Deliverable or Report
- G. All reports and deliverables to be furnished by the Contractor, as described in Section 1.104, Work and Deliverables, will be delivered to the CEPI, MDIT Technical Lead and the MDIT Project Manager for their approval.
- H. The Contractor will inspect all reports and deliverables for accuracy and adequacy prior to delivery.

**1.40 PROJECT MANAGEMENT**

**1.401 ISSUE MANAGEMENT**

An issue is an identified event that if not addressed may affect schedule, scope, quality, or budget. An issue is defined as anything that will delay the project timeline by two (2) or more days.

The Contractor shall maintain an issue log for issues relating to the provision of services under this Contract. The issue management log must be communicated to the State's Project Manager on an agreed upon schedule, with email notifications and updates, utilizing the State's PM issue management form. The issue



management plan will be developed in accordance with the State's PMM methodology and the PMBOK® (Project Management Book of Knowledge, Project Management Institute).

The issue log must be updated and must contain the following minimum elements:

- Description of issue
- Issue identification date
- Responsibility for resolving issue.
- Priority for issue resolution (to be mutually agreed upon by the State and the Contractor)
- Resources assigned responsibility for resolution
- Resolution date
- Resolution description.

#### **1.402 RISK MANAGEMENT**

A risk is an unknown circumstance or event that, if it occurs, may have a positive or negative impact on the Contract. Risk management generally involves (1) identification of the risk, (2) assigning a level of priority based on the probability of occurrence and impact to the project, (3) definition of mitigation strategies, and (4) monitoring of risk and mitigation strategy.

Contractor will create a risk management plan. A risk management plan format will be submitted to the State for approval within twenty (20) business days after the effective date of the contract. Once both parties have agreed to the format of the plan, it shall become the standard to follow for the duration of the contract. The plan must be monitored and updated monthly, or as agreed upon. The risk management plan will be developed in accordance with the State's PMM methodology and the PMBOK® (Project Management Book of Knowledge, Project Management Institute).

#### **1.403 CHANGE MANAGEMENT**

Controlling scope and providing for system changes that result from legislative mandates, agency request, or Contractor suggestion is extremely important to the State in maintaining project accountability.

For enhancements and change orders requested by the State, the Contractor will provide to the State its cost estimate, including programming time and/or any incremental changes for the State's review prior to implementing any requested changes. The cost estimate will be provided by hour, utilizing the hourly rate for the labor grades provided in the Contractor's pricing proposal. The Contractor will provide its cost estimate for enhancements and change orders requested by the State within two weeks of receiving the request. If the Contractor is unable to provide an accurate estimate within two weeks, the Contractor will provide, within a two week timeframe, a date when a complete estimate will be delivered to the State. Work will not begin on the enhancement and/or change order by the Contractor until written approval is received from the State in the form of a Contract Change Notice issued by the Department of Management & Budget, Purchasing Operations.

Change control is ongoing throughout the duration of the contract and is subject to the following limitations:

- A. The Contractor will perform system maintenance, as defined in Section 1.104, at no additional cost to CEPI.
- B. The Contractor will perform system enhancement tasks approved by the State. System enhancements include the following:
  1. Implementation of capabilities not included.
  2. Activities necessary to meet new or revised federal requirements.
  3. Activities necessary to meet new or revised State requirements.
  4. Changes to established reports, screens, or tape formats.
- C. During DDI, State Contract Managers may exercise their option for change requests for system enhancements consistent with the change control process outlined below, not to exceed 10% of the proposed fixed price for DDI as incorporated into the Contract.
- D. During the Transition Phase, the State Contract Managers may exercise their options for



change requests for system enhancements consistent with the change control process outlined below, not to exceed 2,400 hours. Any requests for enhancements exceeding the 2,400 hours included in the Transition Phase Operations Fee would be reimbursed at the agreed upon blended hourly rate for system enhancements, as incorporated into the Contract.

- E. All Change Requests for Enhancement work require prior approval from State Contract Managers prior to the onset of any work.
- F. All Change Order descriptions must be in writing with estimates of required resources and costs.

If a proposed contract change is approved by the State Project Manager and the MDIT Contract Administrator, the Contract Administrator will submit a request for change to the Department of Management and Budget, Purchasing Operations Buyer, who will make recommendations to the Director of Purchasing Operations regarding ultimate approval/disapproval of a change request. If the DMB Purchasing Operations Director agrees with the proposed modification, and all required approvals are obtained (including State Administrative Board), the Purchasing Operations Buyer will issue an addendum to the Contract, via a Contract Change Notice.

**Contractors who provide products or services prior to the issuance of a Contract Change Notice by the DMB Office of Purchasing Operations risk non-payment for the out-of-scope/pricing products and/or services.**

**1.50 ACCEPTANCE**

**1.501 CRITERIA**

The following criteria will be used by the State to determine acceptance of the deliverables provided under this contract. The criteria cover Phase 1 – Planning and Detailed Requirements Gathering; Phase 2 – System Design, Development, Testing and Implementation; and Phase 3 – Transition to independent State operation over a one year period

The criteria also cover two aspects of compliance: performance of the Contractor in meeting the requirements, and contract compliance, both financial and non-financial.

- A. **Document Deliverables** - Documents include, but are not limited to plans, design documents, project schedules, user guides, and procedure manuals.
  - 1. Documents are dated and in electronic format, compatible with State of Michigan software in accordance with Article 1.302.
  - 2. Requirements documents are reviewed and updated throughout the development process to assure requirements are delivered in the final product.
  - 3. Draft documents are not accepted as final deliverables.
  - 4. The documents will be reviewed and accepted in accordance with the requirements of the Contract.
  - 5. CEPI and MDIT will review business documents within 30 days of receipt.
    - a. Approvals will be written and signed by CEPI and MDIT Project Managers.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit documents for approval within 30 days of receipt.
  - 6. MDIT and CEPI will review technical documents within 30 days of receipt.
    - a. Approvals will be written and signed by CEPI and MDIT Project Managers with assistance from MDIT.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit documents for approval within 30 days of receipt.
  - 7. CEPI and Project Managers will review project documents within 30 days of receipt.
    - a. Approvals will be written and signed by both Project Managers.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit documents for approval within 30 days of receipt.



- B. Software Deliverables - Software includes, but is not limited to, software product, development tools, support tools, data migration software, integration software, and installation software.
  - 1. Beta software is not accepted as final deliverable.
  - 2. The software will be reviewed and accepted in accordance with the requirements of the contract.
  - 3. CEPI and MDIT will review software within 30 days of receipt for acceptance of functionality, usability, installation, performance, security, standards compliance, backup/recovery, and operation.
    - a. Approvals will be written and signed by CEPI and MDIT Project Managers.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit software for approval within 30 days of receipt.
  - 4. Software is installed and configured, with assistance from MDIT, in an appropriate environment (e.g. development, conversion, QA testing, UAT testing, production, and training).
  - 5. Contingency plans, de- installation procedures, and software are provided by the Vendor and approved by CEPI and MDIT Project Managers.
  - 6. Final acceptance of the software will depend on the successful completion of UAT.
  - 7. CEPI and MDIT will review test software, data, and results within 30 days of receipt.
    - a. Approvals will be written and signed by CEPI and MDIT Project Managers.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit test software, data and results for approval within 30 days of receipt.
  - 8. MDIT will review software license agreements within 30 days of receipt.
    - a. Approvals will be written and signed by CEPI and MDIT Project Managers.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit the license agreement for approval and final signature by authorized State signatory within 30 days of receipt.
  - 9. Software source code, where applicable, is reviewed by MDIT within 30 days of receipt for readability, structure, and configuration management.
    - a. Approvals will be written and signed by MDIT Project Manager.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit source code for approval.
- C. Service Deliverables - Services include, but are not limited to training, data migration, help desk, and support.
  - 1. The services will be accepted in accordance with the requirements of the contract.
  - 2. CEPI and MDIT will review a Request for Approval of Services within 30 days of completion or implementation.
    - a. Approvals will be written and signed by CEPI and MDIT Project Managers.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit a Request for Approval of Services for approval within 30 days of receipt.
  - 3. CEPI and MDIT will review migrated and configured data within 30 days of completion.
    - a. Approvals will be written and signed by CEPI and MDIT Project Managers.
    - b. Unacceptable issues will be documented and submitted to the Contractor.
    - c. After issues are resolved or waived, the Contractor will resubmit a request for approval within 30 days of receipt.
  - 4. CEPI and MDIT staff are properly trained and supplied with the proper tools and documentation to support, upgrade, monitor, operate, and configure the application in accordance with the requirements of this contract and the accepted Contractor's proposal.
  - 5. The Contractor has the tools and connectivity installed, in compliance with MDIT standards, to properly support and monitor the application.



- D. Ongoing Operations - For ongoing activities, such as project status reports and work plan updates, acceptance of the initial report or plan will constitute acceptance of the deliverable, for purposes of milestone payment.
1. Ongoing operations will include operation of all SDS subsystems, accounting, and reporting activities by State staff, along with Contractor support for all interfaces required for the routine operation of the Michigan SDS and continued preparation of MDIT staff for transfer of system maintenance and enhancement responsibilities. Since the transition period is a joint responsibility of the Contractor and the State, there needs to be clearly defined roles in the Contractor's SOW reflecting the respective responsibilities. The criteria for this period will reflect the success of the Contractor in supporting State mandates for transition of responsibilities
  2. The hardware and software proposed by the Vendor to support the Michigan SDS must meet the following metrics in each of the listed categories. For specific comparative metrics, the Contractor must provide the required measurement. Some of these metrics can be differentiators for systems that are otherwise "tied" with respect to functionality and basic technical requirements.
    - a. User Load:
      - i. The system must be able to support 8000 users and at least 300 concurrent users.
      - ii. The response time for user screens should not degrade below current response times for the peak number of users listed previously. The response time should be broken down by class of user actions:
        1. Search screens should have the longest allowed times (5 seconds depending on complexity)
        2. Natural screen flows resulting in the updates of single logical records must be one second or less.
        3. Screen actions invoking complex computations or rules engines must be two seconds or less.
        4. Actions invoking remote interfaces or systems should be time limited by the responsiveness of the remote system.
      - iii. Response time for the system will be measured at multiple locations in the Lansing area.
      - iv. The Contractor will measure response time and report the results to the State Contract Managers.
    - b. Transaction Performance:
      - i. The system must be able to perform 1.5x the peak rate of transactions on the current system with 2x the number of participants in order to provide sufficient spare capacity for future growth.
        1. If there are multiple classes of transactions, this metric should be per transaction type applied simultaneously across all transaction types.
      - ii. The batch window time must be clearly defined based on the estimated caseload and class of batch job.
      - iii. The backup window times must be clearly defined, both incremental and weekly/monthly etc.
      - iv. The Contractor must address where batch jobs have been eliminated in favor of online transactions (the more the better in general), without excessively degrading system performance. This must be in addition to any mandated online transactions.
    - c. System Down Time:
      - i. The system must be operational twenty-four hours per day, seven days per week.
      - ii. The Contractor will provide a configuration for a failover solution with one hour or less time to switch to the standby/backup DR solution.
      - iii. If appropriate, the Contractor will provide a cluster configuration for the production environment (this is a zero downtime solution), if such a configuration is possible.

**1.502 FINAL ACCEPTANCE**

The following criteria will be used by the State to determine Final Acceptance of the project.



1. All documents, software and services are delivered and accepted by CEPI and MDIT in accordance with the requirements of the contract.
2. For thirty (30) days after installation and configuration in the staging environment (model office), the software and any related infrastructure must meet or exceed acceptance testing requirements in accordance with the requirements of the contract.
3. Due to the nature of required reporting at various times throughout the year, there will be a thirty (30) day period after the creation of quarterly, semi-annual, and yearly reports, in which the performance and reliability requirements must be met in order to prove the creation, operation, and accuracy of those first reports.
4. The software must meet or exceed the acceptance testing requirements for a period of ninety (90) consecutive days at the Lansing facility.
  - a. Approvals will be written and signed by CEPI and MDIT Project Managers.
  - b. Unacceptable issues will be documented and submitted to the Contractor.
5. After installation and configuration in the production environment, all issues discovered during the warranty period are resolved and accepted or waived by CEPI and MDIT. Approvals will be written and signed by CEPI and MDIT Project Managers.
6. Payment will be by Milestone for each system separately, except for Milestone Two (2), Four (4), Five (5) and Six (6). Example: when all of the deliverables, products and services have been met and accepted by the State listed under Milestone One (1) then Contractor will be able to bill the State via the State's Project Manager who will fulfill the signature(s) required process within the State and submit the invoice to Invoice Processing for payment to Contractor.
  - a. Milestone 2 – 80% will be paid when this milestone is completed and approved by the state. The remaining 20% will be paid when all the deliverables (plans, designs and documents) have been updated to reflect the agreed upon final project scope which occurs after the end of the requirements gathering milestone (Milestone 3).
  - b. Milestone 4 – Due to the length of this milestone the state will allow specific invoices/payments that corresponding to the end of certain stages . These stages are: Iteration 1, Iteration 2, Pilot Implementation, and Michigan Implementation
  - c. Milestone 5 – will be allowed to have two (2) invoices/payments at the end of certain stages. These stages are: Training and Data Conversion/Mitigation
  - d. Milestone 6 will be allowed to be billed invoiced monthly.
7. Software licenses must be invoiced with the corresponding milestone or stage.
8. All bills related to this contract have been submitted and approved for payment by the State's Project Manager and the CEPI Director.
9. A product roadmap is available to CEPI and MDIT including information such as technical requirements, functional enhancements, and product availability periods.

#### **1.60 COMPENSATION AND PAYMENT**

Payment will be made based on an acceptance of a deliverables that meet a milestone. Deliverables will be either physical deliverables (documents) or service deliverables. Service deliverables will be invoiced on a monthly basis. Physical deliverables will be deemed acceptable when approved by the appropriate State parties. The physical deliverables are those listed for each Milestone in the Milestones with Associated Deliverables document. The pricing for the Milestones are all-inclusive. Any expenses the Contractor expects to incur should be built into the price for the deliverable and milestone. The State will not pay for travel costs. Travels costs expected should be estimated as a component of the Contractor pricing and included with the Contractor's bid submitted to the State.

CEPI/MDIT will review all work for acceptance within 30 days of completion and/or receipt. The Contractor will not be paid for any costs attributable to corrections of any errors or omissions that have been determined by the CEPI and MDIT Project Mangers to be occasioned by the Contractor. Payments will not be made until work is accepted.



**Article 2 – General Terms and Conditions**

2.010 Contract Structure and Administration

The State of Michigan agrees to Contractor’s request to accept your existing Escrow Agreement with Brooks and Kuschman P.C.

**2.011 Definitions**

Capitalized terms used in this Contract (including its Exhibits) shall have the meanings given below, unless the context requires otherwise:

- (a) “Days” means calendar days unless otherwise specified.
- (b) “24x7x365” means 24 hours a day, seven days a week, and 365 days a year (including the 366th day in a leap year).
- (c) “Additional Service” means any Services/Deliverables within the scope of the Contract, but not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration. “Additional Service” does not include New Work.
- (d) “Amendment Labor Rates” means the schedule of fully-loaded hourly labor rates attached as

**Article 1, Attachment C.**

- (e) “Audit Period” has the meaning given in **Section 2.111**.
- (f) “Business Day,” whether capitalized or not, shall mean any day other than a Saturday, Sunday or State-recognized legal holiday (as identified in the Collective Bargaining Agreement for State employees) from 8:00am EST through 5:00pm EST unless otherwise stated.
- (g) “Incident” means any interruption in Services.
- (h) “Business Critical” means any function identified in any Statement of Work as Business Critical.
- (i) “Deliverable” means physical goods and/or commodities as required or identified by a

Statement of Work

- (j) “Key Personnel” means any Personnel designated in **Article 1, Section 1.201 and/or**

**Attachment B**, as Key Personnel.

- (k) “New Work” means any Services/Deliverables outside the scope of the Contract and not specifically provided under any Statement of Work, that once added will result in the need to provide the Contractor with additional consideration. “New Work” does not include Additional Service.
- (l) “Services” means any function performed for the benefit of the State.

(m) “State Location” means any physical location where the State performs work. State Location may include state-owned, leased, or rented space.

(n) “Subcontractor” means a company Contractor delegates performance of a portion of the Services to, but does not include independent contractors engaged by Contractor solely in a staff augmentation role.

(o) “Work in Process” means a Deliverable that has been partially prepared, but has not been presented to the State for Approval.

**2.012 Attachments and Exhibits**

All Attachments and/or Exhibits attached to any, and all Statement(s) of Work, attached to, or referencing this Contract, are incorporated in their entirety into, and form part of, this Contract.

**2.013 Statements of Work**

- a. The parties agree that the Services/Deliverables to be rendered by Contractor pursuant to this Contract (and any future amendments of it) will be defined and described in detail in Statements of Work or Purchase Orders (PO) executed under this Contract. Contractor shall not be obliged or authorized to commence any work to implement a Statement of Work until authorized via a PO issued against this Contract, or an amendment to this Contract (see 2.106). Contractor shall perform in accordance with this Contract, including the Statements of Work/Purchase Orders executed under it.
- b. Unless otherwise agreed by the parties, each Statement of Work (as defined in Article 1) will include, or



incorporate by reference to the appropriate Contract Article 1 Attachment containing, the following information:

- a description of the Services to be performed by Contractor under the Statement of Work;
- a project schedule (including the commencement and completion dates for all tasks, subtasks (for all projects of sufficient duration and complexity to warrant sub task breakdown), and Deliverables;
- a list of the Deliverables to be provided, if any, including any particular specifications and acceptance criteria for such Deliverables, and the dates on which the Deliverables are scheduled to be completed and delivered to the State;
- all Deliverable price schedules and other charges associated with the Statement of Work, the overall fixed price for such Statement of Work and any other appropriate pricing and payment terms;
- a specification of Contractor’s and the State’s respective performance responsibilities with respect to the performance or completion of all tasks, subtasks and Deliverables;
- a listing of any Key Personnel of Contractor and/or its Subcontractors for that Statement of Work and any future Statements of Work;
- any other information or provisions the parties agree to include.

(c) Reserved.

(d) The initial Statements of Work, as of the Effective Date, are attached to this Contract.

**2.014 Issuing Office**

This Contract is issued by the Department of Management and Budget, Office of Purchasing Operations (“OAS”) and the Department of Information Technology (collectively, including all other relevant State of Michigan departments and agencies, the “State”). OAS is the sole point of contact in the State with regard to all procurement and contractual matters relating to the Contract. **OAS is the only State office authorized to change, modify, amend, alter or clarify the prices, specifications, terms and conditions of this Contract.** The Contractor Administrator within the Office of Purchasing Operations for this Contract is:

Jacque Kuch  
 Office of Purchasing Operations  
 Department of Management and Budget  
 Mason Bldg, 2nd Floor  
 PO Box 30026  
 Lansing, MI 48909  
 kuchj@michigan.gov  
 517-241-0239

**2.015 Contract Compliance Inspector**

Upon receipt at OAS of the properly executed Contract, it is anticipated that the Director of DMB Purchasing Operations, in consultation with (insert the end using agency), will direct that the person named below, or any other person so designated, be authorized to monitor and coordinate the activities for the Contract on a day-to-day basis during its term. However, monitoring of this Contract implies **no authority to change, modify, clarify, amend, or otherwise alter the prices, terms, conditions and specifications of such Contract as that authority is retained by the Office of Purchasing Operations.** The Contract Compliance Inspector for this Contract is:

Ann Lindberg  
 Department of Information Technology, Agency Services  
 Cadillac Place, Suite #9-350  
 3032 West Grand Blvd  
 Detroit, MI 48202

**2.016 Project Manager**

The following individual will oversee the project:



Kristen Mullaney  
Department of Information Technology  
608 W Allegan, Hannah Building,  
Lansing, MI 48913  
[mullaneyk@michigan.gov](mailto:mullaneyk@michigan.gov)  
Phone: 517-335-3797

2.020 Contract Objectives/Scope/Background

**2.021 Background**

See Article 1, Section 1.002 Background

**2.022 Purpose**

See Article 1, Section 1.001 Project Request

**2.023 Objectives and Scope**

See Article 1, Section 1.10 Scope of Work and

**2.024 Interpretation**

Sections 2.021 through 2.023 are intended to provide background and context for this Contract and are not intended to expand the scope of the obligations under this Contract or to alter the plain meaning of the terms and conditions of this Contract. However, to the extent the terms and conditions of this Contract are unclear or otherwise ambiguous, such terms and conditions are to be interpreted and construed in light of the provisions of this Section.

**2.025 Form, Function and Utility**

If the Contract is for use of more than one State agency and if the Deliverable/Service does not meet the form, function, and utility required by that State agency, that agency may, subject to State purchasing policies, procure the Deliverable/Service from another source.

2.030 Legal Effect and Term

**2.031 Legal Effect**

Except as otherwise agreed in writing by the parties, the State assumes no liability for costs incurred by Contractor or payment under this Contract, until Contractor is notified in writing that this Contract (or Change Order) has been approved by the State Administrative Board (if required), approved and signed by all the parties, and a Purchase Order against the Contract has been issued.

**2.032 Contract Term**

This Contract is for a period of **three (3) years with two (2) one-year options to renew** commencing on the date that the last signature required to make the Contract enforceable is obtained. All outstanding Purchase Orders shall also expire upon the termination (cancellation for any of the reasons listed in 2.210) of the Contract, unless otherwise extended pursuant to the Contract. Absent an early termination for any reason, Purchase Orders issued but not expired, by the end of the Contract's stated term, will remain in effect for the balance of the fiscal year for which they were issued.

**2.033 Renewal(s)**

This Contract may be renewed in writing by mutual agreement of the parties not less than thirty (30) days before its expiration. The Contract may be renewed for up to two (2) additional one (1) year periods. Successful completion of negotiations surrounding the terms of the extension, will be a pre-requisite for the exercise of any option year.



## 2.040 Contractor Personnel

### **2.041 Contractor Personnel**

(a) Personnel Qualifications. All persons assigned by Contractor to the performance of Services under this Contract shall be employees of Contractor or its majority-owned (directly or indirectly, at any tier) subsidiaries (or a State-approved Subcontractor) and shall be fully qualified to perform the work assigned to them. Contractor shall include a similar provision in any subcontract entered into with a Subcontractor. For the purposes of this Contract, independent contractors engaged by Contractor solely in a staff augmentation role shall be treated by the State as if they were employees of Contractor for this Contract only; however, the State understands that the relationship between Contractor and Subcontractor is an independent contractor relationship.

(b) Key Personnel

(i) In discharging its obligations under this Contract, Contractor shall provide the named Key Personnel on the terms indicated. **Exhibit C** provides an organization chart showing the roles of certain Key Personnel, if any.

(ii) Key Personnel shall be dedicated as defined in **Exhibit C** to the Project for its duration in the applicable Statement of Work with respect to other individuals designated as Key Personnel for that Statement of Work.

(iii) The State will have the right to recommend and approve in writing the initial assignment, as well as any proposed reassignment or replacement, of any Key Personnel. Before assigning an individual to any Key Personnel position, Contractor will notify the State of the proposed assignment, will introduce the individual to the appropriate State representatives, and will provide the State with a resume and any other information about the individual reasonably requested by the State. The State reserves the right to interview the individual before granting written approval. In the event the State finds a proposed individual unacceptable, the State will provide a written explanation including reasonable detail outlining the reasons for the rejection. Additionally, the State's request shall be based on legitimate, good-faith reasons. Proposed alternative for the individual denied, shall be fully qualified for the position.

(iv) Contractor shall not remove any Key Personnel from their assigned roles or the Contract without the prior written consent of the State. If the Contractor does remove Key Personnel without the prior written consent of the State, it shall be considered an unauthorized removal ("Unauthorized Removal"). It shall not be considered an Unauthorized Removal if Key Personnel must be replaced for reasons beyond the reasonable control of Contractor, including illness, disability, leave of absence, personal emergency circumstances, resignation or for cause termination of the Key Personnel's employment. It shall not be considered an Unauthorized Removal if Key Personnel must be replaced because of promotions or other job movements allowed by Contractor personnel policies or Collective Bargaining Agreement(s) as long as the State receives prior written notice before shadowing occurs and Contractor provides thirty (30) days of shadowing unless parties agree to a different time period. The Contractor with the State shall review any Key Personnel replacements, and appropriate transition planning will be established. Any Unauthorized Removal may be considered by the State to be a material breach of the Contract, in respect of which the State may elect to exercise its rights under **Section 2.210**.

(v) It is acknowledged that an Unauthorized Removal will interfere with the timely and proper completion of the Contract, to the loss and damage of the State, and that it would be impracticable and extremely difficult to fix the actual damage sustained by the State as a result of any Unauthorized Removal. Therefore, Contractor and the State agree that in the case of any Unauthorized Removal in respect of which the State does not elect to exercise its rights under **Section 2.210**, the State may assess liquidated damages against Contractor as specified below.

For the Unauthorized Removal of any Key Personnel designated in the applicable Statement of Work, the liquidated damages amount shall be \$25,000.00 per individual provided Contractor identifies a replacement approved by the State pursuant to **Section 2.041** and assigns the replacement to the



Project to shadow the Key Personnel s/he is replacing for a period of at least thirty (30) days prior to such Key Personnel's removal.

If Contractor fails to assign a replacement to shadow the removed Key Personnel for at least thirty (30) days, in addition to the \$25,000.00 liquidated damages for an Unauthorized Removal, Contractor shall pay the amount of \$833.33 per day for each day of the thirty (30) day shadow period that the replacement Key Personnel does not shadow the removed Key Personnel, up to \$25,000.00 maximum per individual. The total liquidated damages that may be assessed per Unauthorized Removal and failure to provide thirty (30) days of shadowing shall not exceed \$50,000.00 per individual.

(c) Re-assignment of non-Key Personnel. Prior to re-deploying to other projects, at the completion of their assigned tasks on the Project, teams of its non-Key Personnel who are performing Services on-site at State facilities or who are otherwise dedicated primarily to the Project, Contractor will give the State at least ten (10) Business Days notice of the proposed re-deployment to give the State an opportunity to object to the re-deployment if the State reasonably believes such team's Contract responsibilities are not likely to be completed and approved by the State prior to the proposed date of re-deployment.

(d) Re-assignment of Personnel at the State's Request. The State reserves the right to require the removal from the Project of Contractor personnel found, in the judgment of the State, to be unacceptable. The State's request shall be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request shall be based on legitimate, good-faith reasons. Replacement personnel for the removed person shall be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed personnel, the State agrees to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any such incident with removed personnel results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Service will not be counted in **Section 2.076** for a time as agreed to by the parties.

(e) Staffing Levels.

(i) All staff requirements not specified in the applicable Statement of Work or State-approved project plan as State personnel will be supplied by Contractor. This includes secretarial, clerical and Contract administration support staff necessary for Contractor to perform its obligations hereunder.

(ii) Contractor shall provide sufficient personnel resources for the completion of Contract tasks indicated in Contractor's project plan approved by the State. If the level of personnel resources is insufficient to complete any Contractor Contract tasks in accordance with the Contract time schedule as demonstrated by Contractor's failure to meet mutually agreed to time schedules, Contractor shall promptly add additional qualified personnel resources to the performance of the affected tasks, at no additional charge to the State, in an amount sufficient to complete performance of Contractor's tasks in accordance with the Contract time schedule.

(f) Personnel Turnover. The Parties agree that it is in their best interests to keep the turnover rate of employees of Contractor and its Subcontractors who are performing the Services to a reasonable minimum. Accordingly, if the State determines that the turnover rate of such employees is excessive and so notifies Contractor, Contractor will meet with the State to discuss the reasons for the turnover rate and otherwise use commercially reasonable efforts to minimize such turnover rate. If requested to do so by the State, Contractor will submit to the State its proposals for reducing the turnover rate to an acceptable level. In any event, notwithstanding the turnover of personnel, Contractor remains obligated to perform the Services without degradation and in accordance with the State-approved Contract schedule.

(g) Location. All staff assigned by Contractor to work on the Contract will perform their duties either primarily at Contractor's offices and facilities or at State facilities. Without limiting the generality of the foregoing, Key Personnel will, at a minimum, spend at least the amount of time on-site at State facilities as indicated in the applicable Statement of Work. Subject to availability, selected Contractor personnel may be assigned office space to be shared with State personnel.



## 2.042 Contractor Identification

Contractor employees shall be clearly identifiable while on State property by wearing a State-issued badge, as required. Contractor employees are required to clearly identify themselves and the company they work for whenever making contact with State personnel by telephone or other means.

## 2.043 Cooperation with Third Parties

Contractor agrees to cause its personnel and the personnel of any Subcontractors to cooperate with the State and its agents and other contractors including the State's Quality Assurance personnel, and, as reasonably requested by the State, to provide to the State's agents and other contractors with reasonable access to Contractor's Project personnel, systems and facilities to the extent they relate to activities specifically associated with this Contract and will not interfere or jeopardize the safety or operation of the systems or facilities and provided Contractor receives reasonable prior written notice of such request. The State acknowledges that Contractor's time schedule for the Contract is very specific and agrees not to unnecessarily or unreasonably interfere with, delay or otherwise impeded Contractor's performance under this Contract with such requests for access.

## 2.044 Subcontracting by Contractor

- a. Contractor shall have full responsibility for the successful performance and completion of all of the Services and Deliverables. The State will consider Contractor to be the sole point of contact with regard to all contractual matters under this Contract, including payment of any and all charges for Services and Deliverables.
- b. Contractor shall not delegate any duties under this Contract to a Subcontractor unless the Department of Management and Budget, Office of Purchasing Operations has given written consent to such delegation. The State shall have the right of prior written approval of all Subcontractors and to require Contractor to replace any Subcontractors found, in the reasonable judgment of the State, to be unacceptable. The State's request shall be written with reasonable detail outlining the reasons for the removal request. Additionally, the State's request shall be based on legitimate, good-faith reasons. Replacement Subcontractor(s) for the removed Subcontractor shall be fully qualified for the position. If the State exercises this right, and the Contractor cannot immediately replace the removed Subcontractor, the State will agree to an equitable adjustment in schedule or other terms that may be affected by the State's required removal. If any such incident with a removed Subcontractor results in delay not reasonable anticipatable under the circumstances and which is attributable to the State, the applicable SLAs for the affected Work will not be counted in **Section 2.076** for a time agreed upon by the parties.
- c. In any subcontracts entered into by Contractor for the performance of the Services, Contractor shall require the Subcontractor, to the extent of the Services to be performed by the Subcontractor, to be bound to Contractor by the terms of this Contract and to assume toward Contractor all of the obligations and responsibilities that Contractor, by this Contract, assumes toward the State. The State reserves the right to receive copies of and review all subcontracts, although Contractor may delete or mask any proprietary information, including pricing, contained in such contracts before providing them to the State. The management of any Subcontractor will be the responsibility of Contractor, and Contractor shall remain responsible for the performance of its Subcontractors to the same extent as if Contractor had not subcontracted such performance. Contractor shall make all payments to Subcontractors or suppliers of Contractor. Except as otherwise agreed in writing by the State and Contractor, the State will not be obligated to direct payments for the Services other than to Contractor. The State's written approval of any Subcontractor engaged by Contractor to perform any obligation under this Contract shall not relieve Contractor of any obligations or performance required under this Contract. Attached as **Exhibit E** is a list of the Subcontractors, if any, approved by the State as of the execution of this Contract, together with a copy of the applicable subcontract.
- d. Except where specifically approved in writing by the State on a case-by-case basis, Contractor shall flow down the obligations in **Sections 2.040, 2.110, 2.150, 2.160, 2.171(c), 2.172(b), 2.180, 2.260,**



**2.276, 2.297** in all of its agreements with any Subcontractors.

- e. The Contractor shall select subcontractors (including suppliers) on a competitive basis to the maximum practical extent consistent with the objectives and requirements of the Contract.

### **2.045 Contractor Responsibility for Personnel**

Contractor shall be responsible for all acts and omissions of its employees, as well as the acts and omissions of any other personnel furnished by Contractor to perform the Services.

#### 2.050 State Standards

### **2.051 Existing Technology Standards**

The Contractor will adhere to all existing standards as described within the comprehensive listing of the State's existing technology standards at [http://www.michigan.gov/dit/0,1607,7-139-30639\\_30655---,00.html](http://www.michigan.gov/dit/0,1607,7-139-30639_30655---,00.html).

### **2.052 PM Methodology Standards**

The State has adopted a standard documented Project Management Methodology (PMM) for use on all Information Technology (IT) based projects. See the State's PMM website at <http://www.michigan.gov/projectmanagement>.

The Contractor shall use the State's PPM to manage this Contract. If the Contractor requires training on the PMM, those costs shall be the responsibility of the Contractor, unless otherwise stated.

### **2.053 Adherence to Portal Technology Tools**

The State has adopted the following tools for its Portal Technology development efforts:

- Vignette Content Management and personalization Tool
- Inktomi Search Engine
- E-Pay Payment Processing Module
- Websphere Commerce Suite for e-Store applications

Unless otherwise stated, Contractor must use the Portal Technology Tools to implement web content management and deployment efforts. Tools used for web-based application development must work in conjunction with Vignette and Inktomi. The interaction with Vignette and Inktomi must be coordinated with DIT, Enterprise Application Services Office, e-Michigan Web Development team.

Contractors that are compelled to use alternate tools must have received an exception from DIT, Enterprise Application Services Office, e-Michigan Web Development team, before this Contract is effective.

### **2.054 Acceptable Use Policy**

To the extent that Contractor has access to the State computer system, Contractor must comply with the State's Acceptable Use Policy, see <http://www.michigan.gov/ditservice/0,1607,7-179-25781-73760-- ,00.html>. All Contractor employees must be required, in writing, to agree to the State's Acceptable Use Policy before accessing the State system. The State reserves the right to terminate Contractor's access to the State system if a violation occurs.

#### 2.060 Deliverables

### **2.061 Ordering**

DIT will continue to oversee the use of this Contract by End Users. DIT may, in writing, delegate to agencies the authority to submit requests for certain services directly to the Contractor. DIT may also designate, in writing, some services as non-delegated and require DIT review and approval before agency acquisition. DIT will use Contractor provided management reports and periodic random agency audits to monitor and administer contract usage for delegated services.



## 2.62 Software

RESERVED

## 2.63 Hardware

RESERVED

### 2.064 Equipment to be New and Prohibited Products

(a) **Equipment to be New**

If applicable, all equipment provided under this Contract by Contractor shall be new where Contractor has knowledge regarding whether the equipment is new or assembled from new or serviceable used parts that are like new in performance or has the option of selecting one or the other. Equipment that is assembled from new or serviceable used parts that are like new in performance is acceptable where Contractor does not have knowledge or the ability to select one or other, unless specifically agreed otherwise in writing by the State.

(b) **Prohibited Products**

The State will not accept salvage, distressed, outdated or discontinued merchandise. Shipping of such merchandise to any State agency, as a result of an order placed against the Contract, shall be considered default by the Contractor of the terms and conditions of the Contract and may result in cancellation of the Contract by the State. The brand and product number offered for all items shall remain consistent for the term of the Contract, unless Purchasing Operations has approved a change order pursuant to **Section 2.106**.

### 2.070 Performance

#### 2.071 Performance, In General

The State engages Contractor to execute the Contract and perform the Services/provide the Deliverables, and Contractor undertakes to execute and complete the Contract in its entirety in accordance with the terms and conditions of this Contract and with the participation of State representatives as specified in this Contract.

#### 2.072 Time of Performance

- a. Contractor shall use commercially reasonable efforts to provide the resources necessary to complete all Services and Deliverables in accordance with the time schedules contained in the Statements of Work and other Exhibits governing the work, and with professional quality.
- b. Without limiting the generality of **Section 2.072(a)**, Contractor shall notify the State in a timely manner upon becoming aware of any circumstances that may reasonably be expected to jeopardize the timely and successful completion of any Deliverables/Services on the scheduled due dates in the latest State-approved delivery schedule and, in such event, shall inform the State of the projected actual delivery date.
- c. If Contractor believes that a delay in performance by the State has caused or will cause Contractor to be unable to perform its obligations in accordance with specified Contract time periods, Contractor shall notify the State in a timely manner and shall use commercially reasonable efforts to perform its obligations in accordance with such Contract time periods notwithstanding the State's failure. Contractor will not be in default for a delay in performance to the extent such delay is caused by the State.

#### 2.073 Liquidated Damages

The parties acknowledge that [certain event] will interfere with the timely and proper completion of the Contract, to the loss and damage of the State, and that it would be impracticable and extremely difficult to fix the actual damage sustained by the State as a result of any such delay. Therefore, Contractor and the State agree that in the case of any such [certain event] in respect of which the State does not elect to exercise its rights under **Section 2.191**, the State may assess liquidated damages against Contractor as specified in this



Section.

If [certain event] occurs, then the State shall be entitled to collect liquidated damages in the amount of \$5,000.00 and an additional \$100.00 per day for each day Contractor fails to remedy [certain event]

#### **2.074 Bankruptcy**

If Contractor shall file for protection under the bankruptcy laws, or if an involuntary petition shall be filed against Contractor and not removed within thirty (30) days, or if the Contractor becomes insolvent, be adjudicated bankrupt, or if it should make a general assignment for the benefit of creditors, or if a receiver shall be appointed due to its insolvency, and Contractor and/or its affiliates are unable to provide reasonable assurances that Contractor and/or its affiliates can deliver the services provided herein, the State may, without prejudice to any other right or remedy, terminate this Contract, in whole or in part, and, at its option, may take possession of the "Work in Process" and finish such Works in Process by whatever appropriate method the State may deem expedient. Contractor will fix appropriate notices or labels on the Work in Process to indicate ownership by the State. To the extent reasonably possible, materials and Work in Process shall be stored separately from other stock and marked conspicuously with labels indicating ownership by the State.

To secure the State's progress payments before the delivery of any services or materials required for the execution of Contractor's obligations hereunder, and any work which Contractor may subcontract in the support of the performance of its obligations hereunder, title shall vest in the State to the extent the State has made progress payments hereunder.

#### **2.075 Time is of the Essence**

The Contractor agrees that time is of the essence in the performance of the Contractor's obligations under this Contract.

#### **2.076 Service Level Agreements (SLAs)**

**RESERVED**

#### 2.080 Delivery and Acceptance of Deliverables

#### **2.081 Delivery of Deliverables**

**Attachment D** contains a list of the Deliverables to be prepared and delivered by Contractor including, for each Deliverable, the scheduled delivery date and a designation of whether the Deliverable is a document ("Written Deliverable") or a Custom Software Deliverable. All Deliverables shall be completed and delivered for State review and written approval and, where applicable, installed in accordance with the State-approved delivery schedule and any other applicable terms and conditions of this Contract.

Prior to delivering any Deliverable to the State, Contractor will first perform all required quality assurance activities, and, in the case of Custom Software Deliverables, System Testing to verify that the Deliverable is complete and in conformance with its specifications. Before delivering a Deliverable to the State, Contractor shall certify to the State that (1) it has performed such quality assurance activities, (2) it has performed any applicable testing, (3) it has corrected all material deficiencies discovered during such quality assurance activities and testing, (4) the Deliverable is in a suitable state of readiness for the State's review and approval, and (5) the Deliverable/Service has all Critical Security patches/updates applied.

In discharging its obligations under this Section, Contractor shall be at all times (except where the parties agree otherwise in writing) in compliance with Level 3 of the Software Engineering Institute's Capability Maturity Model for Software ("CMM Level 3") or its equivalent.

#### **2.082 Contractor System Testing**

Contractor will be responsible for System Testing each Custom Software Deliverable in Contractor's development environment prior to turning over the Custom Software Deliverable to the State for User Acceptance Testing and approval. Contractor's System Testing shall include the following, at a minimum, plus



any other testing required by CMM Level 3 or Contractor's system development methodology:

Contractor will be responsible for performing Unit Testing and incremental Integration Testing of the components of each Custom Software Deliverable.

Contractor's System Testing will also include Integration Testing of each Custom Software Deliverable to ensure proper inter-operation with all prior software Deliverables, interfaces and other components that are intended to inter-operate with such Custom Software Deliverable, and will include Regression Testing, volume and stress testing to ensure that the Custom Software Deliverables are able to meet the State's projected growth in the number and size of transactions to be processed by the Application and number of users, as such projections are set forth in the applicable Statement of Work.

Contractor's System Testing will also include Business Function Testing and Technical Testing of each Application in a simulated production environment. Business Function Testing will include testing of full work streams that flow through the Application as the Application will be incorporated within the State's computing environment. The State shall participate in and provide support for the Business Function Testing to the extent reasonably requested by Contractor. Within ten (10) days before the commencement of Business Function Testing pursuant to this Section, Contractor shall provide the State for State review and written approval Contractor's test plan for Business Function Testing.

Within five (5) Business Days following the completion of System Testing pursuant to **Section 2.080**, Contractor shall provide to the State a testing matrix establishing that testing for each condition identified in the System Testing plans has been conducted and successfully concluded. To the extent that testing occurs on State premises, the State shall be entitled to observe or otherwise participate in testing under this Section as the State may elect.

### **2.083 Approval of Deliverables, In General**

All Deliverables (Written Deliverables and Custom Software Deliverables) require formal written approval by the State, in accordance with the following procedures. Formal approval by the State requires that the Deliverable be confirmed in writing by the State to meet its specifications which, in the case of Custom Software Deliverables, will include the successful completion of State User Acceptance Testing, to be led by the State with the support and assistance of Contractor. The parties acknowledge that the approval process set forth herein will be facilitated by ongoing consultation between the parties, visibility of interim and intermediate Deliverables and collaboration on key decisions.

The State's obligation to comply with any State Review Period is conditioned on the timely delivery of Deliverables being reviewed. If Contractor fails to provide a Deliverable to the State in a timely manner, the State will nevertheless use commercially reasonable efforts to complete its review or testing within the applicable State Review Period.

Before commencement of its review or testing of a Deliverable, the State may inspect the Deliverable to confirm that all components of the Deliverable (e.g., software, associated documentation, and other materials) have been delivered. If the State determines that the Deliverable is incomplete, the State may refuse delivery of the Deliverable without performing any further inspection or testing of the Deliverable. Otherwise, the review period will be deemed to have started on the day the State receives the Deliverable and the applicable certification by Contractor in accordance with **Section 2.080**.

The State will approve in writing a Deliverable upon confirming that it conforms to and, in the case of a Custom Software Deliverable, performs in accordance with, its specifications without material deficiency. The State may, but shall not be required to, conditionally approve in writing a Deliverable that contains material deficiencies if the State elects to permit Contractor to rectify them post-approval. In any case, Contractor will be responsible for working diligently to correct within a reasonable time at Contractor's expense all deficiencies in the Deliverable that remain outstanding at the time of State approval.



If, after three (3) opportunities (the original and two repeat efforts), Contractor is unable to correct all deficiencies preventing State approval of a Deliverable, the State may: (i) demand that Contractor cure the failure and give Contractor additional time to cure the failure at the sole expense of Contractor; or (ii) keep this Contract in force and do, either itself or through other parties, whatever Contractor has failed to do, in which event Contractor shall bear any excess expenditure incurred by the State in so doing beyond the contract price for such Deliverable and will pay the State an additional sum equal to ten percent (10%) of such excess expenditure to cover the State's general expenses without the need to furnish proof in substantiation of such general expenses; or (iii) terminate this Contract for default, either in whole or in part by notice to Contractor (and without the need to afford Contractor any further opportunity to cure). Notwithstanding the foregoing, the State shall not use, as a basis for exercising its termination rights under this Section, deficiencies discovered in a repeat State Review Period that could reasonably have been discovered during a prior State Review Period.

The State, at any time and in its own discretion, may halt the UAT or approval process if such process reveals deficiencies in or problems with a Deliverable in a sufficient quantity or of a sufficient severity as to make the continuation of such process unproductive or unworkable. In such case, the State may return the applicable Deliverable to Contractor for correction and re-delivery prior to resuming the review or UAT process and, in that event, Contractor will correct the deficiencies in such Deliverable in accordance with the Contract, as the case may be.

Approval in writing of a Deliverable by the State shall be provisional; that is, such approval shall not preclude the State from later identifying deficiencies in, and declining to accept, a subsequent Deliverable based on or which incorporates or inter-operates with an approved Deliverable, to the extent that the results of subsequent review or testing indicate the existence of deficiencies in the subsequent Deliverable, or if the Application of which the subsequent Deliverable is a component otherwise fails to be accepted pursuant to **Section 2.080**.

#### **2.084 Process for Approval of Written Deliverables**

The State Review Period for Written Deliverables will be the number of days set forth in the applicable Statement of Work following delivery of the final version of the Written Deliverable (failing which the State Review Period, by default, shall be five (5) Business Days for Written Deliverables of one hundred (100) pages or less and ten (10) Business Days for Written Deliverables of more than one hundred (100) pages). The duration of the State Review Periods will be doubled if the State has not had an opportunity to review an interim draft of the Written Deliverable prior to its submission to the State. The State agrees to notify Contractor in writing by the end of the State Review Period either stating that the Written Deliverable is approved in the form delivered by Contractor or describing any deficiencies that must be corrected prior to approval of the Written Deliverable (or at the State's election, subsequent to approval of the Written Deliverable). If the State delivers to Contractor a notice of deficiencies, Contractor will correct the described deficiencies and within five (5) Business Days resubmit the Deliverable in a form that shows all revisions made to the original version delivered to the State. Contractor's correction efforts will be made at no additional charge. Upon receipt of a corrected Written Deliverable from Contractor, the State will have a reasonable additional period of time, not to exceed the length of the original State Review Period, to review the corrected Written Deliverable to confirm that the identified deficiencies have been corrected.

#### **2.085 Process for Approval of Custom Software Deliverables**

The State will conduct UAT of each Custom Software Deliverable in accordance with the following procedures to determine whether it meets the criteria for State approval – i.e., whether it conforms to and performs in accordance with its specifications without material deficiencies.

Within thirty (30) days (or such other number of days as the parties may agree to in writing) prior to Contractor's delivery of any Custom Software Deliverable to the State for approval, Contractor shall provide to the State a set of proposed test plans, including test cases, scripts, data and expected outcomes, for the State's use (which the State may supplement in its own discretion) in conducting UAT of the Custom Software Deliverable. Contractor, upon request by the State, shall provide the State with reasonable assistance and support during the UAT process.



For the Custom Software Deliverables listed in **Exhibit G**, the State Review Period for conducting UAT will be as indicated in **Exhibit G**. For any other Custom Software Deliverables not listed in **Exhibit G**, the State Review Period shall be the number of days agreed in writing by the parties (failing which it shall be forty-five (45) days by default). The State Review Period for each Custom Software Deliverable will begin when Contractor has delivered the Custom Software Deliverable to the State accompanied by the certification required by **Section 2.080** and the State’s inspection of the Deliverable has confirmed that all components of it have been delivered.

The State’s UAT will consist of executing test scripts from the proposed testing submitted by Contractor, but may also include any additional testing deemed appropriate by the State. If the State determines during the UAT that the Custom Software Deliverable contains any deficiencies, the State will notify Contractor of the deficiency by making an entry in an incident reporting system available to both Contractor and the State. Contractor will modify promptly the Custom Software Deliverable to correct the reported deficiencies, conduct appropriate System Testing (including, where applicable, Regression Testing) to confirm the proper correction of the deficiencies and re-deliver the corrected version to the State for re-testing in UAT. Contractor will coordinate the re-delivery of corrected versions of Custom Software Deliverables with the State so as not to disrupt the State’s UAT process. The State will promptly re-test the corrected version of the Software Deliverable after receiving it from Contractor.

Within three (3) business days after the end of the State Review Period, the State will give Contractor a written notice indicating the State’s approval or rejection of the Custom Software Deliverable according to the criteria and process set out in this **Section 2.080**.

**2.086 Final Acceptance**

“Final Acceptance” shall be considered to occur when the Custom Software Deliverable to be delivered has been approved by the State and has been operating in production without any material deficiency for fourteen (14) consecutive days. If the State elects to defer putting a Custom Software Deliverable into live production for its own reasons, not based on concerns about outstanding material deficiencies in the Deliverable, the State shall nevertheless grant Final Acceptance of the Project.

2.090 Financial

**2.091 Pricing – See section 1.502 – Final acceptance 2.092 Invoicing and Payment Procedures and Terms**

- (a) **Invoicing and Payment – In General**
  - (i) Each Statement of Work issued under this Contract shall list (or indicate by reference to the appropriate Contract Exhibit) the prices for all Milestone equipment and commodities to be provided, and the associated payment milestones and payment amounts.
  - (ii) Each Contractor invoice will show details as to charges by Milestone component and location at a level of detail reasonably necessary to satisfy the State’s accounting and charge-back requirements.
  - (iii) Correct invoices will be due and payable by the State, in accordance with the State’s standard payment procedure as specified in 1984 Public Act No. 279, MCL 17.51 et seq., within forty-five (45) days after receipt, provided the State determines that the invoice was properly rendered.
- (b) **Taxes** (See Section 2.305 and Article 3, Section 3.022-3.024 for additional)
 

The State is exempt from Federal Excise Tax, State and Local Sales Taxes, and Use Tax with respect to the sale to and use by it of tangible personal property. Such taxes shall not be included in Contract prices as long as the State maintains such exemptions. Copies of all tax exemption certificates shall be supplied to Contractor, if requested.
- (c) **Out-of-Pocket Expenses**

Contractor acknowledges that the out-of-pocket expenses that Contractor expects to incur in performing the Services/ providing the Deliverables (such as, but not limited to, travel and lodging, document reproduction and shipping, and long distance telephone) are included in



Contractor’s fixed price for each Statement of Work. Accordingly, Contractor’s out-of-pocket expenses are not separately reimbursable by the State unless, on a case-by-case basis for unusual expenses, the State has agreed in advance and in writing to reimburse Contractor for such an expense at the State’s current travel reimbursement rates. See [http://www.mi.gov/dmb/0,1607,7-150-9141\\_13132---,00.html](http://www.mi.gov/dmb/0,1607,7-150-9141_13132---,00.html) for current rates.

(d) **Pro-ration**

To the extent there are any Services that are to be paid for on a monthly basis, the cost of such Services shall be pro-rated for any partial month.

(e) **Antitrust Assignment**

The Contractor assigns to the State any claim for overcharges resulting from antitrust violations to the extent that those violations concern materials or services supplied by third parties to the Contractor, toward fulfillment of this Contract.

(f) **Final Payment**

The making of final payment by the State to Contractor does not constitute a waiver by either party of any rights or other claims as to the other party’s continuing obligations under the Contract, nor will it constitute a waiver of any claims by one party against the other arising from unsettled claims or failure by a party to comply with this Contract, including claims for Services and Deliverables not reasonably known until after acceptance to be defective or substandard. Contractor’s acceptance of final payment by the State under this Contract shall constitute a waiver of all claims by Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still unsettled.

**2.093 State Funding Obligation**

The State’s obligation under this Contract is payable only and solely from funds appropriated for the purpose of this Contract. Contractor acknowledges and agrees that all funds for payments after the end of the current fiscal year are subject to the availability of a legislative appropriation for the purpose of this Contract. Events of non-appropriation are addressed further in **Section 2.210** of this Contract.

**2.94 Holdback**

RESERVED

**2.095 Electronic Payment Availability**

Electronic transfer of funds is available to State contractors. Contractor is required to register with the State electronically at <http://www.cpexpress.state.mi.us>. Public Act 533 of 2004, requires all payments be transitioned over to EFT by October, 2005.

2.100 Contract Management

**2.101 Contract Management Responsibility**

- a. Contractor shall have overall responsibility for managing and successfully performing and completing the Services/Deliverables, subject to the overall direction and supervision of the State and with the participation and support of the State as specified in this Contract. Contractor’s duties will include monitoring and reporting the State’s performance of its participation and support responsibilities (as well as Contractor’s own responsibilities) and providing timely notice to the State in Contractor’s reasonable opinion if the State’s failure to perform its responsibilities in accordance with **Article 1, Attachment E** (Project Plan) is likely to delay the timely achievement of any Contract tasks.
- b. The Services/Deliverables will be provided by the Contractor either directly or through its affiliates, subsidiaries, subcontractors or resellers. Regardless of the entity providing the Service/Deliverable, the Contractor will act as a single point of contact coordinating these entities to meet the State’s



need for Services/Deliverables. Nothing in this Contract, however, shall be construed to authorize or require any party to violate any applicable law or regulation in its performance of this Contract.

### **2.102 Problem and Contract Management Procedures**

Problem Management and Contract Management procedures will be governed by the Contract and the applicable Statements of Work.

### **2.103 Reports and Meetings**

#### **(a) Reports**

Within thirty (30) days after the Effective Date, the parties shall determine an appropriate set of periodic reports to be issued by Contractor to the State. Such reports may include:

- i. Separately address Contractor's performance in each area of the Services;
- ii. For each area of the Services, assess the degree to which Contractor has attained or failed to attain the pertinent objectives in that area, including on-time completion and delivery of Deliverables;
- iii. Explain the reasons for any failure to achieve on-time completion and delivery of Deliverables and include a plan for corrective action where appropriate;
- iv. Describe any circumstances that Contractor anticipates will impair or prevent on-time completion and delivery of Deliverables in upcoming reporting periods;
- v. Include plans for corrective action or risk mitigation where appropriate and describe the status of ongoing problem resolution efforts;
- vi. Provide reports setting forth a comparison of actual hours spent by Contractor (including its augmented personnel and Subcontractors) in performing the Project versus hours budgeted by Contractor.
- vii. Set forth a record of the material personnel changes that pertain to the Services and describe planned changes during the upcoming month that may affect the Services.
- viii. Include such documentation and other information may be mutually agreed to verify compliance with, and meeting the objectives of, this Contract.
- ix. set forth an updated schedule that provides information on the status of upcoming Deliverables, expected dates of delivery (or redelivery) of such Deliverables and estimates on timing for completion of the Project.

#### **(b) Meetings**

Within thirty (30) days after the Effective Date, the parties shall determine an appropriate set of meetings to be held between representatives of the State and Contractor. Contractor shall prepare and circulate an agenda sufficiently in advance of each such meeting to give participants an opportunity to prepare for the meeting. Contractor shall incorporate into such agenda items that the State desires to discuss. At the State's request, Contractor shall prepare and circulate minutes promptly after a meeting.

### **2.104 System Changes**

Contractor is not responsible for and not authorized to make changes to any State systems without written authorization from the State. Any changes Contractor makes to State systems with the State's approval shall be done in accordance with applicable State procedures, including security, access and configuration management procedures.

### **2.105 Reserved**

### **2.106 Change Requests**

The State reserves the right to request from time to time, any changes to the requirements and specifications of the Contract and the work to be performed by the Contractor under the Contract. During the course of ordinary business, it may become necessary for the State to discontinue certain business practices or create Additional Services/Deliverables. At a minimum, to the extent applicable, the State would like the Contractor to provide a detailed outline of all work to be done, including tasks necessary to accomplish the



services/deliverables, timeframes, listing of key personnel assigned, estimated hours for each individual per task, and a complete and detailed cost justification.

If the State requests or directs the Contractor to perform any Services/Deliverables that are outside the scope of the Contractor’s responsibilities under the Contract (“New Work”), the Contractor must notify the State promptly, and before commencing performance of the requested activities, that it believes the requested activities are New Work. If the Contractor fails to notify the State before commencing performance of the requested activities, any such activities performed before notice is given by the Contractor shall be conclusively considered to be in-scope Services/Deliverables, not New Work.

If the State requests or directs the Contractor to perform any services or provide deliverables that are consistent with and similar to the Services/Deliverables being provided by the Contractor under the Contract, but which the Contractor reasonably and in good faith believes are not included within the Statements of Work, then before performing such services or providing such deliverables, the Contractor shall notify the State in writing that it considers the services or deliverables to be an Additional Service/Deliverable for which the Contractor should receive additional compensation. If the Contractor does not so notify the State, the Contractor shall have no right to claim thereafter that it is entitled to additional compensation for performing that service or providing that deliverable. If the Contractor does so notify the State, then such a service or deliverable shall be governed by the Change Request procedure in this Section.

In the event prices or service levels are not acceptable to the State, the Additional Services or New Work shall be subject to competitive bidding based upon the specifications.

(a) Change Requests

(i) State Requests

If the State should require Contractor to perform New Work, Additional Services or make changes to the Services that would affect the Contract completion schedule or the amount of compensation due Contractor (a “Change”), the State shall submit a written request for Contractor to furnish a proposal for carrying out the requested Change (a “Change Request”).

(ii) Contractor Recommendations

Contractor shall be entitled to propose a Change to the State, on its own initiative, should it be of the opinion that this would benefit the Contract.

(iii) Upon receipt of a Change Request or on its own initiative, Contractor shall examine the implications of the requested Change on the technical specifications, Contract schedule and price of the Deliverables and Services and shall submit to the State without undue delay a written proposal for carrying out the Change. Contractor’s proposal will include any associated changes in the technical specifications, Contract schedule and price and method of pricing of the Services. If the Change is to be performed on a time and materials basis, the Amendment Labor Rates shall apply to the provision of such Services. If Contractor provides a written proposal and should Contractor be of the opinion that a requested Change is not to be recommended, it shall communicate its opinion to the State but shall nevertheless carry out the Change as specified in the written proposal if the State directs it to do so.

(iv) By giving Contractor written notice within a reasonable time, the State shall be entitled to accept a Contractor proposal for Change, to reject it or to reach another agreement with Contractor. Should the parties agree on carrying out a Change, a written Contract Change Notice shall be prepared and issued under this Contract, describing the Change and its effects on the Services and any affected components of this Contract (a “Contract Change Notice”).

(v) No proposed Change shall be performed until the proposed Change has been specified in a duly executed Contract Change Notice issued by the Department of Management and Budget, Office of Purchasing Operations.

(vi) If the State requests or directs Contractor to perform any activities that Contractor believes constitute a Change, Contractor must notify the State that it believes the requested activities are a Change prior to commencing the performance of the requested activities. If Contractor fails to so notify the State prior to commencing performance of the requested activities, such activities shall be considered to be performed gratuitously by Contractor, and Contractor shall not have any right thereafter to assert any claim for additional compensation or time for the performance of such activities.



If Contractor commences performance of gratuitous services outside the scope of this Contract and subsequently elects to stop performing such out-of-scope services, Contractor must, at the request of the State, back out or reverse any changes resulting from such performance that would adversely affect the Contract.

## 2.107 Management Tools

Contractor will use an automated tool for planning, monitoring and tracking the Contract's progress. In addition, Contractor shall use automated project management tools as reasonably necessary to perform the Services, which tools shall include the capability to produce through the end of the Contract: (i) staffing tables with names of personnel assigned to Contract tasks, (ii) project plans showing tasks, subtasks, Deliverables and the resources required and allocated to each (including detailed plans for all Services to be performed within the next sixty (60) days, updated semi-monthly) and (iii) graphs showing critical events, dependencies and decision points during the course of the Contract. Any tool(s) used by Contractor for such purposes must produce information of a type and in a manner and format that will support reporting in compliance with the State's standard to the extent such information is described with reasonable detail in the Statements of Work and to the extent the related work is of sufficient project complexity and duration to warrant such reporting.

### 2.110 Records and Inspections

#### 2.111a Records and Inspections

- a. **Inspection of Work Performed.** The State's authorized representatives shall at all reasonable times and with ten (10) days prior written request, have the right to enter Contractor's premises, or any other places, where the Services are being performed, and shall have access, upon reasonable request, to interim drafts of Deliverables or work-in-progress. Upon ten (10) Days prior written notice and at all reasonable times, the State's representatives shall be allowed to inspect, monitor, or otherwise evaluate the work being performed and to the extent that such access will not reasonably interfere or jeopardize the safety or operation of the systems or facilities. Contractor must provide all reasonable facilities and assistance for the State's representatives.
- b. **Examination of Records.** Contractor agrees that the State, including its duly authorized representatives, until the expiration of seven (7) years following the creation of the material (collectively, the "Audit Period"), shall, upon twenty (20) days prior written notice, have access to and the right to examine and copy any of Contractor's books, records, documents and papers pertinent to establishing Contractor's compliance with the Contract and with applicable laws and rules, including the State's procurement rules, regulations and procedures, and actual performance of the Contract for the purpose of conducting an audit, examination, excerpt and/or transcription but the State shall not have access to any information deemed confidential to Contractor to the extent such access would require such confidential information to become publicly available. This provision also applies to the books, records, accounts, documents and papers, in print or electronic form, of any parent, affiliated or subsidiary organization of Contractor, or any Subcontractor of Contractor performing services in connection with the Contract.
- c. **Retention of Records.** Contractor shall maintain at least until the end of the Audit Period all pertinent financial and accounting records (including time sheets and payroll records, and information pertaining to the Contract and to the Services, equipment, and commodities provided under the Contract) pertaining to the Contract in accordance with generally accepted accounting principles and other procedures specified in this Section. Financial and accounting records shall be made available, upon request, to the State at any time during the Audit Period. If an audit, litigation, or other action involving Contractor's records is initiated before the end of the Audit Period, the records must be retained until all issues arising out of the audit, litigation, or other action are resolved or until the end of the Audit Period, whichever is later.
- d. **Audit Resolution.** If necessary, the Contractor and the State shall meet to review each audit report promptly after issuance. The Contractor will respond to each audit report in writing within thirty (30) days from receipt of such report, unless a shorter response time is specified in such



report. The Contractor and the State shall develop, agree upon and monitor an action plan to promptly address and resolve any deficiencies, concerns, and/or recommendations in such audit report.

### 2.112 Errors

- a. If the audit demonstrates any errors in the statements provided to the State, then the amount in error shall be reflected as a credit or debit on the next invoice and in subsequent invoices until the amount is paid or refunded in full. However, a credit or debit may not be carried for more than four (4) quarterly statements. If a balance remains after four (4) quarterly statements, then the remaining amount will be due as a payment or refund within forty-five (45) days of the last quarterly statement that the balance appeared on or termination of the contract, whichever is earlier.
- b. In addition to other available remedies, the difference between the payment received and the correct payment amount is greater than ten percent (10%), then the Contractor shall pay all of the reasonable costs of the audit.

### 2.120 State Responsibilities

#### 2.121 State Performance Obligations

- a. Equipment and Other Resources. To facilitate Contractor's performance of the Services/Deliverables, the State shall provide to Contractor such equipment and resources as identified in the Statements of Work or other Contract Exhibits as items to be provided by the State.
- b. Facilities. The State shall designate space as long as it is available and as provided in the Statement of Work, to house Contractor's personnel whom the parties agree will perform the Services/Deliverables at State facilities (collectively, the "State Facilities"). Contractor shall have reasonable access to, and unless agreed otherwise by the parties in writing shall observe and comply with all rules and regulations relating to, each of the State Facilities (including hours of operation) used by Contractor in the course of providing the Services. Contractor agrees that it will not, without the prior written consent of the State, use any State Facilities or access any State information systems provided for Contractor's use, or to which Contractor otherwise gains access in the course of performing the Services, for any purpose other than providing the Services to the State.
- c. Return. Contractor shall be responsible for returning to the State any State-furnished equipment, facilities and other resources when no longer required for the Contract in the same condition as when provided by the State, reasonable wear and tear excepted.
- d. Except as otherwise provided in **Section 2.220**, the State's failure to perform its responsibilities as set forth in this Contract shall not be deemed to be grounds for termination by Contractor. However, Contractor will not be liable for any default or delay in the performance of its obligations under this Contract to the extent such default or delay is caused by nonperformance of the State's obligations under this Contract, provided Contractor provides the State with reasonable written notice of such nonperformance and Contractor uses commercially reasonable efforts to perform notwithstanding the State's failure to perform. In addition, if the State's nonperformance of its responsibilities under this Contract materially increases the time required for Contractor's performance or Contractor's cost of performance, Contractor shall be entitled to seek an equitable extension via the Change Request process described in **Section 2.106**.

### 2.130 Security

#### 2.131 Background Checks

The Contractor shall authorize the investigation of its personnel proposed to have access to State facilities and systems on a case by case basis. The scope of the background check is at the discretion of the State and the



results will be used to determine Contractor personnel eligibility for working within State facilities and systems. Such investigations will include Michigan State Police Background checks (ICHAT) and may include the National Crime Information Center (NCIC) Finger Prints. Proposed Contractor personnel may be required to complete and submit an RI-8 Fingerprint Card for the NCIC Finger Print Check. Any request for background checks will be initiated by the State and will be reasonably related to the type of work requested.

All Contractor personnel will also be expected to comply with the State's security and acceptable use policies for State IT equipment and resources. See [http://www.michigan.gov/ditservice/0,1607,7-179-25781-73760--\\_00.html](http://www.michigan.gov/ditservice/0,1607,7-179-25781-73760--_00.html). Furthermore, Contractor personnel will be expected to agree to the State's security and acceptable use policies before the Contractor personnel will be accepted as a resource to perform work for the State. It is expected the Contractor will present these documents to the prospective employee before the Contractor presents the individual to the State as a proposed resource. Contractor staff will be expected to comply with all Physical Security procedures in place within the facilities where they are working.

#### 2.140 Reserved

#### 2.150 Confidentiality

##### **2.151 Freedom of Information**

All information in any proposal submitted to the State by Contractor and this Contract is subject to the provisions of the Michigan Freedom of Information Act, 1976 Public Act No. 442, as amended, MCL 15.231, et seq (the "FOIA").

##### **2.152 Confidentiality**

Contractor and the State each acknowledge that the other possesses and will continue to possess confidential information that has been developed or received by it. As used in this Section, "Confidential Information" of Contractor shall mean all non-public proprietary information of Contractor (other than Confidential Information of the State as defined below) which is marked confidential, restricted, proprietary or with a similar designation. "Confidential Information" of the State shall mean any information which is retained in confidence by the State (or otherwise required to be held in confidence by the State pursuant to applicable federal, state and local laws and regulations) or which, in the case of tangible materials provided to Contractor by the State pursuant to its performance under this Contract, is marked as confidential, proprietary or with a similar designation by the State. In the case of information of either Contractor or the State "Confidential Information" shall exclude any information (including this Contract) that is publicly available pursuant to the Michigan FOIA.

##### **2.153 Protection of Confidential Information**

The State and Contractor will each use at least the same degree of care to prevent disclosing to third parties the Confidential Information of the other as it employs to avoid unauthorized disclosure, publication or dissemination of its own confidential information of like character, but in no event less than reasonable care. Neither Contractor nor the State will (i) make any use of the Confidential Information of the other except as contemplated by this Contract, (ii) acquire any right in or assert any lien against the Confidential Information of the other, or (iii) if requested to do so, refuse for any reason to promptly return the other party's Confidential Information to the other party. Each party will limit disclosure of the other party's Confidential Information to employees and Subcontractors who must have access in order to fulfill the purposes of this Contract. Disclosure to, and use by, a Subcontractor is permissible where (A) use of a Subcontractor is authorized under this Contract, (B) such disclosure is necessary or otherwise naturally occurs in connection with work that is within such Subcontractor's scope of responsibility, and (C) Contractor obligates the Subcontractor in a written Contract to maintain the State's Confidential Information in confidence. At the State's request, any employee of Contractor and of any Subcontractor having access or continued access to the State's Confidential Information may be required to execute an acknowledgment that the employee has been advised of Contractor's and the Subcontractor's obligations under this Section and of the employee's obligation to Contractor or Subcontractor, as the case may be, to protect such Confidential Information from unauthorized use or disclosure.



## 2.154 Exclusions

Notwithstanding the foregoing, the provisions of this Section will not apply to any particular information which the State or Contractor can demonstrate (i) was, at the time of disclosure to it, in the public domain; (ii) after disclosure to it, is published or otherwise becomes part of the public domain through no fault of the receiving party; (iii) was in the possession of the receiving party at the time of disclosure to it without an obligation of confidentiality; (iv) was received after disclosure to it from a third party who had a lawful right to disclose such information to it without any obligation to restrict its further disclosure; or (v) was independently developed by the receiving party without reference to Confidential Information of the furnishing party. Further, the provisions of this Section will not apply to any particular Confidential Information to the extent the receiving party is required by law to disclose such Confidential Information, provided that the receiving party (i) promptly provides the furnishing party with notice of the legal request, and (ii) assists the furnishing party in resisting or limiting the scope of such disclosure as reasonably requested by the furnishing party.

## 2.155 No Implied Rights

Nothing contained in this Section shall be construed as obligating a party to disclose any particular Confidential Information to the other party, or as granting to or conferring on a party, expressly or impliedly, any right or license to the Confidential Information of the other party.

## 2.156 Remedies

Each party acknowledges that, if it breaches (or attempts or threatens to breach) its obligations under this Section, the other party may be irreparably harmed. Accordingly, if a court of competent jurisdiction should find that a party has breached (or attempted or threatened to breach) any such obligations, the non-breaching party shall be entitled to seek an injunction preventing such breach (or attempted or threatened breach).

## 2.157 Security Breach Notification

In the event of a breach of this Section, Contractor shall take (i) prompt corrective action to cure any such deficiencies and (ii) any action pertaining to such unauthorized disclosure required by applicable federal and state laws and regulations. Contractor and the State will cooperate to mitigate, to the extent practicable, the effects of any breach, intrusion, or unauthorized use or disclosure. Contractor shall report to the State in writing any use or disclosure of Confidential Information, whether suspected or actual, other than as provided for by the Contract within ten (10) days of becoming aware of such use or disclosure or such shorter time period as is reasonable under the circumstances.

## 2.158 Survival

The parties' respective obligations under this Section shall survive the termination or expiration of this Contract for any reason.

## 2.159 Destruction of Confidential Information

Promptly upon termination or cancellation of the Contract for any reason, Contractor shall certify to the State that Contractor has destroyed all State Confidential Information.

### 2.160 Proprietary Rights

#### 2.161a Ownership

**Ownership of Work Product by State.** All Deliverables shall be owned by the State and shall be considered works made for hire by the Contractor for the State. The State shall own all United States and international copyrights, trademarks, patents or other proprietary rights in the Deliverables.

**Vesting of Rights.** With the sole exception of any preexisting licensed works identified in **Exhibit J**, the Contractor shall assign, and upon creation of each Deliverable automatically assigns, to the State, ownership of all United States and international copyrights, trademarks, patents, or other proprietary rights in each and every Deliverable, whether or not registered by the Contractor, insofar as any such Deliverable, by operation of



law, may not be considered work made for hire by the Contractor for the State. From time to time upon State's request, the Contractor and/or its personnel shall confirm such assignment by execution and delivery of the assignments, confirmations of assignment, or other written instruments as the State may request. The State shall have the right to obtain and hold in its own name all copyright, trademark, and patent registrations and other evidence of rights that may be available for Deliverables.

### **2.162 Source Code Escrow**

State will accept Contractor's existing Escrow Agreement that is held with Brooks and Kushman P.C, Appendix I. The State acknowledges that they will be allowed to become a beneficiary of this agreement at no additional cost.

### **2.163 Rights in Data**

- a. The State will be and remain the owner of all data made available by the State to Contractor or its agents, Subcontractors or representatives pursuant to the Contract. Contractor will not use the State's data for any purpose other than providing the Services, nor will any part of the State's data be disclosed, sold, assigned, leased or otherwise disposed of to the general public or to specific third parties or commercially exploited by or on behalf of Contractor, nor will any employee of Contractor other than those on a strictly need to know basis have access to the State's data. Contractor will not possess or assert any lien or other right against the State's data. Without limiting the generality of this Section, Contractor shall only use personally identifiable information as strictly necessary to provide the Services and shall disclose such information only to its employees who have a strict need to know such information. Contractor shall comply at all times with all laws and regulations applicable to such personally identifiable information.
- b. The State is and shall remain the owner of all State-specific data pursuant to the Contract. The State may use the data provided by the Contractor for any purpose. The State will not possess or assert any lien or other right against the Contractor's data. Without limiting the generality of this Section, the State shall only use personally identifiable information as strictly necessary to utilize the Services and shall disclose such information only to its employees who have a strict need to know such information, except as provided by law. The State shall comply at all times with all laws and regulations applicable to such personally identifiable information. Other material developed and provided to the State shall remain the State's sole and exclusive property.

### **2.164 Ownership of Materials**

State and Contractor will continue to own their respective proprietary technologies developed before entering into the Contract. Any hardware bought through the Contractor by the State, and paid for by the State, will be owned by the State. Any software licensed through the Contractor and sold to the State, will be licensed directly to the State.

### **2.165 Standard Software**

If applicable and necessary, all Standard Software used in performing the Services shall be provided to the State under a separate license agreement between the State and the owner (or authorized licensor) of such software.

### **2.166 Pre-existing Materials for Custom Software Deliverables**

Neither Contractor nor any of its Subcontractors shall incorporate any preexisting materials (including Standard Software) into Custom Software Deliverables or use any pre-existing materials to produce Custom Software Deliverables if such pre-existing materials will be needed by the State in order to use the Custom Software Deliverables unless (i) such pre-existing materials and their owners are identified to the State in writing and (ii) such pre-existing materials are either readily commercially available products for which Contractor or its Subcontractor, as the case may be, has obtained a license (in form and substance approved by the State) in the name of the State, or are materials that Contractor or its Subcontractor, as the case may be, has the right to license to the State and has licensed to the State on terms and conditions approved by the State prior to using such pre-existing materials to perform the Services.



## 2.167 General Skills

Notwithstanding anything to the contrary in this Section, each party, its Subcontractors and their personnel shall be free to use and employ its and their general skills, know-how and expertise, and to use, disclose and employ any generalized ideas, concepts, know-how, methods, techniques or skills gained or learned during the course of performing the Services, so long as it or they acquire and apply the foregoing without disclosure of any confidential or proprietary information of the other party.

### 2.170 Warranties And Representations

## 2.171 Warranties and Representations

The Contractor represents and warrants:

- a. It is capable in all respects of fulfilling and shall fulfill all of its obligations under this Contract. The performance of all obligations under this Contract shall be provided in a timely, professional, and workman-like manner and shall meet the performance and operational standards required under this Contract.
- b. The Contract Appendices, Attachments and Exhibits identify the equipment and software and services necessary for the Deliverable(s) to perform and Services to operate in compliance with the Contract's requirements and other standards of performance.
- c. It is the lawful owner or licensee of any Deliverable licensed or sold to the State by Contractor or developed by Contractor under this Contract, and Contractor has all of the rights necessary to convey to the State the ownership rights or licensed use, as applicable, of any and all Deliverables. None of the Deliverables provided by Contractor to the State under this Contract, nor their use by the State, will infringe the patent, copyright, trade secret, or other proprietary rights of any third party.
- d. If, under this Contract, Contractor procures any equipment, software or other Deliverable for the State (including equipment, software and other Deliverables manufactured, re-marketed or otherwise sold by Contractor under Contractor's name), then in addition to Contractor's other responsibilities with respect to such items in this Contract, Contractor shall assign or otherwise transfer to the State or its designees, or afford the State the benefits of, any manufacturer's warranty for the Deliverable.
- e. The contract signatory has the power and authority, including any necessary corporate authorizations, necessary to enter into this Contract, on behalf of Contractor.
- f. It is qualified and registered to transact business in all locations where required.
- g. Neither the Contractor nor any Affiliates, nor any employee of either, has, shall have, or shall acquire, any contractual, financial, business, or other interest, direct or indirect, that would conflict in any manner or degree with Contractor's performance of its duties and responsibilities to the State under this Contract or otherwise create an appearance of impropriety with respect to the award or performance of this Agreement. Contractor shall notify the State within two (2) days of any such interest that may be incompatible with the interests of the State.
- h. Neither Contractor nor any Affiliates, nor any employee of either has accepted or shall accept anything of value based on an understanding that the actions of the Contractor or Affiliates or employee on behalf of the State would be influenced. Contractor shall not attempt to influence any State employee by the direct or indirect offer of anything of value.
- i. Neither Contractor nor any Affiliates, nor any employee of either has paid or agreed to pay any person, other than bona fide employees and consultants working solely for Contractor or such Affiliate, any fee, commission, percentage, brokerage fee, gift, or any other consideration,



contingent upon or resulting from the award or making of this Contract.

- j. The prices proposed by Contractor were arrived at independently, without consultation, communication, or agreement with any other bidder for the purpose of restricting competition; the prices quoted were not knowingly disclosed by Contractor to any other bidder; and no attempt was made by Contractor to induce any other person to submit or not submit a proposal for the purpose of restricting competition.
- k. All financial statements, reports, and other information furnished by Contractor to the State as part of its response to the RFP or otherwise in connection with the award of this Contract fairly and accurately represent the business, properties, financial condition, and results of operations of Contractor as of the respective dates, or for the respective periods, covered by such financial statements, reports, other information. Since the respective dates or periods covered by such financial statements, reports, or other information, there have been no material adverse change in the business, properties, financial condition, or results of operations of Contractor.
- l. All written information furnished to the State by or behalf of Contractor in connection with this Contract, including its bid, is true, accurate, and complete, and contains no untrue statement of material fact or omits any material fact necessary to make such information not misleading.
- m. It is not in material default or breach of any other contract or agreement that it may have with the State or any of its departments, commissions, boards, or agencies. Contractor further represents and warrants that it has not been a party to any contract with the State or any of its departments that was terminated by the State or such department within the previous five (5) years for the reason that Contractor failed to perform or otherwise breached an obligation of such contract.

## 2.172 Software Warranties

### (a) Performance Warranty

The Contractor represents and warrants that Deliverables, after Final Acceptance, will perform and operate in compliance with the requirements and other standards of performance contained in this Contract (including all descriptions, specifications and drawings made a part of the Contract) for a period of ninety (90) days. In the event of a breach of this warranty, Contractor will promptly correct the affected Deliverable(s) at no charge to the State.

### (b) No Surreptitious Code Warranty

The Contractor represents and warrants that no copy of licensed Software provided to the State contains or will contain any Self-Help Code or any Unauthorized Code as defined below. This warranty is referred to in this Contract as the "No Surreptitious Code Warranty."

As used in this Contract, "Self-Help Code" means any back door, time bomb, drop dead device, or other software routine designed to disable a computer program automatically with the passage of time or under the positive control of a person other than the licensee of the software. Self-Help Code does not include Software routines in a computer program, if any, designed to permit an owner of the computer program (or other person acting by authority of the owner) to obtain access to a licensee's computer system(s) (e.g. remote access via modem) for purposes of maintenance or technical support.

As used in this Contract, "Unauthorized Code" means any virus, Trojan horse, spy ware, worm or other Software routines or components designed to permit unauthorized access to disable, erase, or otherwise harm software, equipment, or data; or to perform any other such actions. The term Unauthorized Code does not include Self-Help Code. Unauthorized Code does not include Software routines in a computer program, if any, designed to permit an owner of the computer program (or other person acting by authority of the owner) to obtain access to a licensee's computer system(s) (e.g. remote access via modem) for purposes of maintenance or technical support.



In addition, Contractor will use up-to-date commercial virus detection software to detect and remove any viruses from any software prior to delivering it to the State.

(c) **Calendar Warranty**

The Contractor represents and warrants that all software for which the Contractor either sells or licenses to the State of Michigan and used by the State prior to, during or after the calendar year 2000, includes or shall include, at no added cost to the State, design and performance so the State shall not experience software abnormality and/or the generation of incorrect results from the software, due to date oriented processing, in the operation of the business of the State of Michigan.

The software design, to insure calendar year rollover compatibility, shall include, but is not limited to: data structures (databases, data files, etc.) that provide 4-digit date century; stored data that contain date century recognition, including, but not limited to, data stored in databases and hardware device internal system dates; calculations and program logic (e.g., sort algorithms, calendar generation, event recognition, and all processing actions that use or produce date values) that accommodates same century and multi-century formulas and date values; interfaces that supply data to and receive data from other systems or organizations that prevent non-compliant dates and data from entering any State system; user interfaces (i.e., screens, reports, etc.) that accurately show 4 digit years; and assurance that the year 2000 shall be correctly treated as a leap year within all calculation and calendar logic.

(d) **Third-party Software Warranty**

The Contractor represents and warrants that it will disclose the use or incorporation of any third-party software into the Deliverables. At the time of Delivery, the Contractor shall provide in writing the name and use of any Third-party Software, including information regarding the Contractor's authorization to include and utilize such software. The notice shall include a copy of any ownership agreement or license that authorizes the Contractor to use the Third-party Software.

**2.173 Equipment Warranty**

To the extent Contractor is responsible under this Contract for maintaining equipment/system(s), Contractor represents and warrants that it will maintain such equipment/system(s) in good operating condition and will undertake all repairs and preventive maintenance in accordance with the applicable manufacturer's recommendations for the period specified in this Contract.

The Contractor represents and warrants that the equipment/system(s) shall be in good operating condition and shall operate and perform to the requirements and other standards of performance contained in this Contract, when installed, at the time of Final Acceptance by the State, and for a period of one (1) year commencing upon the first day following Final Acceptance.

Within \_\_\_\_\_ business days of notification from the State, the Contractor shall adjust, repair or replace all equipment that is defective or not performing in compliance with the Contract. The Contractor shall assume all costs for replacing parts or units and their installation including transportation and delivery fees, if any.

The Contractor shall provide a toll-free telephone number to allow the State to report equipment failures and problems to be remedied by the Contractor.

The Contractor agrees that all warranty service it provides under this Contract shall be performed by original equipment manufacturer (OEM) trained, certified and authorized technicians.

The Contractor shall act as the sole point of contact for warranty service. The Contractor warrants that it shall pass through to the State any and all warranties obtained or available from the original equipment manufacturer, including any replacement, upgraded, or additional equipment warranties.



All warranty work shall be performed on the State of Michigan worksite(s).

### **2.174 Physical Media Warranty**

Contractor represents and warrants that each licensed copy of the Software provided by the Contractor is free from physical defects in the media that tangibly embodies the copy. This warranty does not apply to defects discovered more than thirty (30) days after that date of Final Acceptance of the Software by the State. This warranty does not apply to defects arising from acts of Excusable Failure. If the Contractor breaches this warranty, then the State shall be entitled to replacement of the non-compliant copy by Contractor, at Contractor's expense (including shipping and handling).

### **2.175a DISCLAIMER**

THE FOREGOING EXPRESS WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES AND EACH PARTY EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

### **2.176 Consequences for Breach**

In addition to any remedies available in law, if the Contractor breaches any of the warranties contained in this section, such breach may be considered as a default in the performance of a material obligation of this Contract.

### 2.180 Insurance

#### **2.181 Liability Insurance**

##### (a) Liability Insurance

The Contractor is required to provide proof of the minimum levels of insurance coverage as indicated below. The purpose of this coverage shall be to protect the State from claims which may arise out of or result from the Contractor's performance of services under the terms of this Contract, whether such services are performed by the Contractor, or by any subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable.

The Contractor waives all rights against the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents for recovery of damages to the extent these damages are covered by the insurance policies the Contractor is required to maintain pursuant to this Contract.

All insurance coverages provided relative to this Contract/Purchase Order are PRIMARY and NON-CONTRIBUTING to any comparable liability insurance (including self-insurances) carried by the State.

The insurance shall be written for not less than any minimum coverage specified in this Contract or required by law, whichever is greater.

The insurers selected by Contractor shall have an A.M. Best rating of A or better, or as otherwise approved in writing by the State, or if such ratings are no longer available, with a comparable rating from a recognized insurance rating agency. All policies of insurance required in this Contract shall be issued by companies that have been approved to do business in the State.

See [http://www.mi.gov/cis/0,1607,7-154-10555\\_22535---.00.html](http://www.mi.gov/cis/0,1607,7-154-10555_22535---.00.html).

Where specific limits are shown, they are the minimum acceptable limits. If Contractor's policy contains higher



limits, the State shall be entitled to coverage to the extent of such higher limits.

Before the Contract is signed by both parties or before the purchase order is issued by the State, the Contractor must furnish to the Director of Purchasing Operations, certificate(s) of insurance verifying insurance coverage (“Certificates”). The Certificate must be on the standard “accord” form or equivalent. **THE CONTRACT OR PURCHASE ORDER NO. MUST BE SHOWN ON THE CERTIFICATE OF INSURANCE TO ASSURE CORRECT FILING.** All Certificate(s) are to be prepared and submitted by the Insurance Provider. All Certificate(s) shall contain a provision indicating that coverages afforded under the policies WILL NOT BE CANCELLED, MATERIALLY CHANGED, OR NOT RENEWED without THIRTY (30) days prior written notice, except for ten (10) days for non-payment of premium, having been given to the Director of Purchasing Operations, Department of Management and Budget. The notice must include the Contract or Purchase Order number affected and be mailed to: Director, Purchasing Operations, Department of Management and Budget, P.O. Box 30026, Lansing, Michigan 48909. Failure to provide evidence of coverage, may, at the State’s sole option, result in this Contract’s termination.

The Contractor is required to pay for and provide the type and amount of insurance checked  below:

- 1. Commercial General Liability with the following minimum coverage:  
 \$2,000,000 General Aggregate Limit other than Products/Completed Operations  
 \$2,000,000 Products/Completed Operations Aggregate Limit  
 \$1,000,000 Personal & Advertising Injury Limit  
 \$1,000,000 Each Occurrence Limit  
 \$500,000 Fire Damage Limit (any one fire)

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSUREDS on the Commercial General Liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

- 2. If a motor vehicle is used to provide services or products under this Contract, the Contractor must have vehicle liability insurance on any auto including owned, hired and non-owned vehicles used in Contractor’s business for bodily injury and property damage as required by law.

The Contractor must list the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees and agents as ADDITIONAL INSUREDS on the vehicle liability certificate. The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company.

- 3. Workers’ compensation coverage must be provided in accordance with applicable laws governing the employees and employers work activities in the state of the Contractor’s domicile. If the applicable coverage is provided by a self-insurer, proof must be provided of approved self-insured authority by the jurisdiction of domicile. For employees working outside of the state of qualification, Contractor must provide appropriate certificates of insurance proving mandated coverage levels for the jurisdictions where the employees’ activities occur.

Any certificates of insurance received must also provide a list of states where the coverage is applicable.

The Contractor also agrees to provide evidence that insurance policies contain a waiver of subrogation by the insurance company. This provision shall not be applicable where prohibited or limited by the laws of the jurisdiction in which the work is to be performed.

- 4. Employers liability insurance with the following minimum limits:  
 \$100,000 each accident  
 \$100,000 each employee by disease  
 \$500,000 aggregate disease



- 5. Employee Fidelity, including Computer Crimes, insurance naming the State as a loss payee, providing coverage for direct loss to the State and any legal liability of the State arising out of or related to fraudulent or dishonest acts committed by the employees of Contractor or its Subcontractors, acting alone or in collusion with others, in a minimum amount of one million dollars (\$1,000,000.00) with a maximum deductible of fifty thousand dollars (\$50,000.00).
- 6. Umbrella or Excess Liability Insurance in a minimum amount of ten million dollars (\$10,000,000.00), which shall apply, at a minimum, to the insurance required in Subsection 1 (Commercial General Liability) above.
- 7. Professional Liability (Errors and Omissions) Insurance with the following minimum coverage: three million dollars (\$3,000,000.00) each occurrence and three million dollars (\$3,000,000.00) annual aggregate.
- 8. Fire and Personal Property Insurance covering against any loss or damage to the office space used by Contractor for any reason under this Contract, and the equipment, software and other contents of such office space, including without limitation, those contents used by Contractor to provide the Services to the State, up to the replacement value thereof, where such office space and its contents are under the care, custody and control of Contractor. Such policy shall cover all risks of direct physical loss or damage, including without limitation, flood and earthquake coverage and coverage for computer hardware and software. The State shall be endorsed on the policy as a loss payee as its interests appear.

**(b) Subcontractors**

Except where the State has approved in writing a Contractor subcontract with other insurance provisions, Contractor shall require all of its Subcontractors under this Contract to purchase and maintain the insurance coverage as described in this Section for the Contractor in connection with the performance of work by those Subcontractors. Alternatively, Contractor may include any Subcontractors under Contractor’s insurance on the coverage required in this Section. Subcontractor(s) shall fully comply with the insurance coverage required in this Section. Failure of Subcontractor(s) to comply with insurance requirements does not limit Contractor’s liability or responsibility.

**(c) Certificates of Insurance and Other Requirements**

Contractor shall furnish to the Office of Purchasing Operations certificate(s) of insurance verifying insurance coverage or providing satisfactory evidence of self-insurance as required in this Section (the “Certificates”). Before the Contract is signed, and not less than 20 days before the insurance expiration date every year thereafter, the Contractor shall provide evidence that the State and its agents, officers and employees are listed as additional insureds under each commercial general liability and commercial automobile liability policy. In the event the State approves the representation of the State by the insurer’s attorney, the attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.

Contractor shall maintain all required insurance coverage throughout the term of the Contract and any extensions thereto and, in the case of claims-made Commercial General Liability policies, shall secure tail coverage for at least three (3) years following the expiration or termination for any reason of this Contract. The minimum limits of coverage specified above are not intended, and shall not be construed; to limit any liability or indemnity of Contractor under this Contract to any indemnified party or other persons. Contractor shall be responsible for all deductibles with regard to such insurance. If Contractor fails to pay any premium for required insurance as specified in this Contract, or if any insurer cancels or significantly reduces any required insurance as specified in this Contract without the State’s written consent, at the State’s election (but without any obligation to do so) after the State has given Contractor at least thirty (30) days written notice, the State may pay such premium or procure similar insurance coverage from another company or companies; and at the State’s election, the State may deduct the entire cost (or part thereof) from any payment due Contractor, or Contractor shall pay the entire cost (or any part thereof) upon demand by the State.

2.190 Indemnification**2.191 Indemnification****(a) General Indemnification**

To the extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State from liability, including all claims and losses, and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties), accruing or resulting to any person, firm or corporation that may be injured or damaged by the Contractor in the performance of this Contract and that are attributable to the negligence or tortious acts of the Contractor or any of its subcontractors, or by anyone else for whose acts any of them may be liable.

**(b) Code Indemnification**

To the extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State from any claim, loss, or expense arising from Contractor's breach of the No Surreptitious Code Warranty.

**(c) Employee Indemnification**

In any and all claims against the State of Michigan, its departments, divisions, agencies, sections, commissions, officers, employees and agents, by any employee of the Contractor or any of its subcontractors, the indemnification obligation under the Contract shall not be limited in any way by the amount or type of damages, compensation or benefits payable by or for the Contractor or any of its subcontractors under worker's disability compensation acts, disability benefit acts or other employee benefit acts. This indemnification clause is intended to be comprehensive. Any overlap in provisions, or the fact that greater specificity is provided as to some categories of risk, is not intended to limit the scope of indemnification under any other provisions.

**(d) Patent/Copyright Infringement Indemnification**

To the extent permitted by law, the Contractor shall indemnify, defend and hold harmless the State from and against all losses, liabilities, damages (including taxes), and all related costs and expenses (including reasonable attorneys' fees and costs of investigation, litigation, settlement, judgments, interest and penalties) incurred in connection with any action or proceeding threatened or brought against the State to the extent that such action or proceeding is based on a claim that any piece of equipment, software, commodity or service supplied by the Contractor or its subcontractors, or the operation of such equipment, software, commodity or service, or the use or reproduction of any documentation provided with such equipment, software, commodity or service infringes any United States patent, copyright, trademark or trade secret of any person or entity, which is enforceable under the laws of the United States.

In addition, should the equipment, software, commodity, or service, or its operation, become or in the State's or Contractor's opinion be likely to become the subject of a claim of infringement, the Contractor shall at the Contractor's sole expense (i) procure for the State the right to continue using the equipment, software, commodity or service or, if such option is not reasonably available to the Contractor, (ii) replace or modify to the State's satisfaction the same with equipment, software, commodity or service of equivalent function and performance so that it becomes non-infringing, or, if such option is not reasonably available to Contractor, (iii) accept its return by the State with appropriate credits to the State against the Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.

Notwithstanding the foregoing, the Contractor shall have no obligation to indemnify or defend the State for, or to pay any costs, damages or attorneys' fees related to, any claim based upon (i) equipment developed based on written specifications of the State; or (ii) use of the equipment



in a configuration other than implemented or approved in writing by the Contractor, including, but not limited to, any modification of the equipment by the State; or (iii) the combination, operation, or use of the equipment with equipment or software not supplied by the Contractor under this Contract.

### **2.192 Continuation of Indemnification Obligations**

The Contractor's duty to indemnify pursuant to this Section continues in full force and effect, notwithstanding the expiration or early cancellation of the Contract, with respect to any claims based on facts or conditions that occurred prior to expiration or cancellation.

### **2.193 Indemnification Procedures**

The procedures set forth below shall apply to all indemnity obligations under this Contract.

- a. After receipt by the State of notice of the action or proceeding involving a claim in respect of which it will seek indemnification, the State shall promptly notify Contractor of such claim in writing and take or assist Contractor in taking, as the case may be, any reasonable action to avoid the imposition of a default judgment against Contractor. No failure to notify Contractor shall relieve Contractor of its indemnification obligations except to the extent that Contractor can demonstrate damages attributable to such failure. Within ten (10) days following receipt of written notice from the State relating to any claim, Contractor shall notify the State in writing whether Contractor agrees to assume control of the defense and settlement of that claim (a "Notice of Election"). After notifying Contractor of a claim and prior to the State receiving Contractor's Notice of Election, the State shall be entitled to defend against the claim, at Contractor's expense, and Contractor will be responsible for any reasonable costs incurred by the State in defending against the claim during such period.
- b. If Contractor delivers a Notice of Election relating to any claim: (i) the State shall be entitled to participate in the defense of such claim and to employ counsel at its own expense to assist in the handling of such claim and to monitor and advise the State about the status and progress of the defense; (ii) Contractor shall, at the request of the State, demonstrate to the reasonable satisfaction of the State, Contractor's financial ability to carry out its defense and indemnity obligations under this Contract; (iii) Contractor shall periodically advise the State about the status and progress of the defense and shall obtain the prior written approval of the State before entering into any settlement of such claim or ceasing to defend against such claim and (iv) to the extent that any principles of Michigan governmental or public law may be involved or challenged, the State shall have the right, at its own expense, to control the defense of that portion of such claim involving the principles of Michigan governmental or public law. Notwithstanding the foregoing, the State may retain control of the defense and settlement of a claim by written notice to Contractor given within ten (10) days after the State's receipt of Contractor's information requested by the State pursuant to clause (ii) of this paragraph if the State determines that Contractor has failed to demonstrate to the reasonable satisfaction of the State Contractor's financial ability to carry out its defense and indemnity obligations under this Section. Any litigation activity on behalf of the State of Michigan, or any of its subdivisions pursuant to this Section, must be coordinated with the Department of Attorney General. In the event the insurer's attorney represents the State pursuant to this Section, the insurer's attorney may be required to be designated as a Special Assistant Attorney General by the Attorney General of the State of Michigan.
- c. If Contractor does not deliver a Notice of Election relating to any claim of which it is notified by the State as provided above, the State shall have the right to defend the claim in such manner as it may deem appropriate, at the cost and expense of Contractor. If it is determined that the claim was one against which Contractor was required to indemnify the State, upon request of the State, Contractor shall promptly reimburse the State for all such reasonable costs and expenses.



## 2.200 Limits of Liability and Excusable Failure

### **2.201 Limits of Liability**

The Contractor's liability for damages to the State shall be limited to two times the value of the Contract or \$200,000 (for low risk contracts – Select a higher amount for moderate to high risk contracts) which ever is higher. The foregoing limitation of liability shall not apply to claims for infringement of United States patent, copyright, trademarks or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

The State's liability for damages to the Contractor shall be limited to the value of the Contract.

Neither the Contractor nor the State shall be liable to each other, regardless of the form of action, for consequential, incidental, indirect, or special damages. This limitation of liability shall not apply to claims for infringement of United States patent, copyright, trademark or trade secrets; to claims for personal injury or damage to property caused by the gross negligence or willful misconduct of the Contractor; to claims covered by other specific provisions of this Contract calling for liquidated damages; or to court costs or attorney's fees awarded by a court in addition to damages after litigation based on this Contract.

### **2.202 Excusable Failure**

Neither party will be liable for any default, damage or delay in the performance of its obligations under the Contract to the extent such default, damage or delay is caused by government regulations or requirements (executive, legislative, judicial, military or otherwise), power failure, electrical surges or current fluctuations, lightning, earthquake, war, water or other forces of nature or acts of God, delays or failures of transportation, equipment shortages, suppliers' failures, or acts or omissions of common carriers, fire; riots, civil disorders; strikes or other labor disputes, embargoes; injunctions (provided the injunction was not issued as a result of any fault or negligence of the party seeking to have its default or delay excused); or any other cause beyond the reasonable control of such party; provided the non-performing party and its Subcontractors are without fault in causing such default or delay, and such default or delay could not have been prevented by reasonable precautions and cannot reasonably be circumvented by the non-performing party through the use of alternate sources, workaround plans or other means, including disaster recovery plans.

In such event, the non-performing party will be excused from any further performance or observance of the obligation(s) so affected for as long as such circumstances prevail and such party continues to use its commercially reasonable efforts to recommence performance or observance whenever and to whatever extent possible without delay and provided further that such party promptly notifies the other party in writing of the inception of the excusable failure occurrence, and also of its abatement or cessation.

If any of the above-enumerated circumstances substantially prevent, hinder, or delay Contractor's performance of the Services/provision of Deliverables for more than ten (10) Business Days, and the State determines that performance is not likely to be resumed within a period of time that is satisfactory to the State in its reasonable discretion, then at the State's option: (a) the State may procure the affected Services/Deliverables from an alternate source, and the State shall not be liable for payment for the unperformed Services/ Deliverables not provided under the Contract for so long as the delay in performance shall continue; (b) the State may terminate any portion of the Contract so affected and the charges payable there under shall be equitably adjusted to reflect those Services/Deliverables terminated; or (c) the State may terminate the affected Statement of Work without liability to Contractor as of a date specified by the State in a written notice of termination to Contractor, except to the extent that the State shall pay for Services/Deliverables provided through the date of termination.

Contractor will not have the right to any additional payments from the State as a result of any Excusable Failure occurrence or to payments for Services not rendered/Deliverables not provided as a result of the Excusable Failure condition. Defaults or delays in performance by Contractor which are caused by acts or omissions of its Subcontractors will not relieve Contractor of its obligations under the Contract except to the



extent that a Subcontractor is itself subject to an Excusable Failure condition described above and Contractor cannot reasonably circumvent the effect of the Subcontractor's default or delay in performance through the use of alternate sources, workaround plans or other means.

### **2.203 Disaster Recovery**

Contractor and the State recognize that the State provides essential services in times of natural or man-made disasters. Therefore, except as so mandated by Federal disaster response requirements, Contractor personnel dedicated to providing Services/Deliverables under this Contract will provide the State with priority service for repair and work around in the event of a natural or manmade disaster.

#### 2.210 Termination/Cancellation by the State

The State may terminate this Contract without further liability or penalty to the State, its departments, divisions, agencies, offices, commissions, officers, agents and employees for any of the following reasons:

### **2.211 Termination for Cause**

- a. In the event that Contractor breaches any of its material duties or obligations under this Contract (including a Chronic Failure to meet any particular SLA as defined in **Section 2.076**), which are either not capable of or subject to being cured, or are not cured within the time period specified in the written notice of breach provided by the State (such time period not to be less than thirty (30) days), or pose a serious and imminent threat to the health and safety of any person, or the imminent loss, damage or destruction of any real or tangible personal property, the State may, having provided written notice of termination to Contractor, terminate this Contract in whole or in part, for cause, as of the date specified in the notice of termination.
- b. In the event that this Contract is terminated for cause, in addition to any legal remedies otherwise available to the State by law or equity, Contractor shall be responsible for all costs incurred by the State in terminating this Contract, including but not limited to, State administrative costs, reasonable attorneys' fees and court costs, and any reasonable additional costs the State may incur to procure the Services/Deliverables required by this Contract from other sources. Re-procurement costs shall not be considered by the parties to be consequential, indirect or incidental damages, and shall not be excluded by any other terms otherwise included in this Contract, provided such costs are not in excess of fifty percent (50%) more than the prices for such Service/Deliverables provided under this Contract.
- c. In the event the State chooses to partially terminate this Contract for cause, charges payable under this Contract will be equitably adjusted to reflect those Services/Deliverables that are terminated and the State shall pay for all Services/Deliverables for which Final Acceptance has been granted provided up to the termination date. Services and related provisions of this Contract that are terminated for cause shall cease on the effective date of the termination.
- d. In the event this Contract is terminated for cause pursuant to this Section, and it is determined, for any reason, that Contractor was not in breach of contract pursuant to the provisions of this section, that termination for cause shall be deemed to have been a termination for convenience, effective as of the same date, and the rights and obligations of the parties shall be limited to that otherwise provided in this Contract for a termination for convenience.

### **2.212 Termination for Convenience**

The State may terminate this Contract for its convenience, in whole or part, if the State determines that such a termination is in the State's best interest. Reasons for such termination shall be left to the sole discretion of the State and may include, but not necessarily be limited to (a) the State no longer needs the Services or products specified in the Contract, (b) relocation of office, program changes, changes in laws, rules, or regulations make implementation of the Services no longer practical or feasible, (c) unacceptable prices for



Additional Services or New Work requested by the State, or (d) falsification or misrepresentation, by inclusion or non-inclusion, of information material to a response to any RFP issued by the State. The State may terminate this Contract for its convenience, in whole or in part, by giving Contractor written notice at least thirty (30) days prior to the date of termination. If the State chooses to terminate this Contract in part, the charges payable under this Contract shall be equitably adjusted to reflect those Services/Deliverables that are terminated. Services and related provisions of this Contract that are terminated for cause shall cease on the effective date of the termination.

### **2.213 Non-Appropriation**

- a. Contractor acknowledges that, if this Contract extends for several fiscal years, continuation of this Contract is subject to appropriation or availability of funds for this Contract. If funds to enable the State to effect continued payment under this Contract are not appropriated or otherwise made available, the State shall have the right to terminate this Contract and all affected Statements of Work, in whole or in part, at the end of the last period for which funds have been appropriated or otherwise made available by giving written notice of termination to Contractor. The State shall give Contractor at least thirty (30) days advance written notice of termination for non-appropriation or unavailability (or such time as is available if the State receives notice of the final decision less than thirty (30) days before the funding cutoff).
- b. If funding for the Contract is reduced by law, or funds to pay Contractor for the agreed-to level of the Services or production of Deliverables to be provided by Contractor are not appropriated or otherwise made available, the State may, upon thirty (30) days written notice to Contractor, reduce the level of the Services or the change the production of Deliverables in such manner and for such periods of time as the State may elect. The charges payable under this Contract will be equitably adjusted to reflect any equipment, services or commodities not provided by reason of such reduction.
- c. In the event the State terminates this Contract, eliminates certain Deliverables, or reduces the level of Services to be provided by Contractor pursuant to this Section, the State shall pay Contractor for all Work-in-Process performed through the effective date of the termination or reduction in level, as the case may be and as determined by the State, to the extent funds are available. For the avoidance of doubt, this Section will not preclude Contractor from reducing or stopping Services/Deliverables and/or raising against the State in a court of competent jurisdiction, any claim for a shortfall in payment for Services performed or Deliverables finally accepted before the effective date of termination.

### **2.214 Criminal Conviction**

The State may terminate this Contract immediately and without further liability or penalty in the event Contractor, an officer of Contractor, or an owner of a 25% or greater share of Contractor is convicted of a criminal offense incident to the application for, or performance of, a State, public or private Contract or subcontract; convicted of a criminal offense, including any of the following: embezzlement, theft, forgery, bribery, falsification or destruction of records, receiving stolen property, attempting to influence a public employee to breach the ethical conduct standards for State of Michigan employees; convicted under State or federal antitrust statutes; or convicted of any other criminal offense which in the sole discretion of the State reflects upon Contractor's business integrity.

### **2.215 Approvals Rescinded**

The State may terminate this Contract without further liability or penalty in the event any final administrative or judicial decision or adjudication disapproves a previously approved request for purchase of personal services pursuant to Constitution 1963, Article 11, § 5, and Civil Service Rule 7-1. Termination may be in whole or in part and may be immediate as of the date of the written notice to Contractor or may be effective as of the date stated in such written notice.



## 2.216 Rights and Obligations upon Termination

- a. If this Contract is terminated by the State for any reason, Contractor shall (a) stop all work as specified in the notice of termination, (b) take any action that may be necessary, or that the State may direct, for preservation and protection of Deliverables or other property derived or resulting from this Contract that may be in Contractor's possession, (c) return all materials and property provided directly or indirectly to Contractor by any entity, agent or employee of the State, (d) in the event that the Contractor maintains title in Deliverables that is intended to be transferred to the State at the termination of the Contract, Contractor will transfer title in, and deliver to, the State, unless otherwise directed, all Deliverables intended to be transferred to the State at the termination of the Contract and which are resulting from the Contract (which shall be provided to the State on an "As-Is" basis except to the extent the amounts paid by the State in respect of such items included compensation to Contractor for the provision of warranty services in respect of such materials), and (e) take any action to mitigate and limit any potential damages, or requests for Contractor adjustment or termination settlement costs, to the maximum practical extent, including terminating or limiting as otherwise applicable those subcontracts and outstanding orders for material and supplies resulting from the terminated Contract.
- b. In the event the State terminates this Contract prior to its expiration for its own convenience, the State shall pay Contractor for all charges due for Services provided prior to the date of termination and, if applicable, as a separate item of payment pursuant to this Contract, for Work In Process, on a percentage of completion basis at the level of completion determined by the State. All completed or partially completed Deliverables prepared by Contractor pursuant to this Contract shall, at the option of the State, become the State's property, and Contractor shall be entitled to receive equitable fair compensation for such Deliverables. Regardless of the basis for the termination, the State shall not be obligated to pay, or otherwise compensate, Contractor for any lost expected future profits, costs or expenses incurred with respect to Services not actually performed for the State.
- c. Upon a good faith termination, the State shall have the right to assume, at its option, any and all subcontracts and agreements for services and deliverables provided under this Contract, and may further pursue completion of the Services/Deliverables under this Contract by replacement contract or otherwise as the State may in its sole judgment deem expedient.

## 2.217 Reservation of Rights

Any termination of this Contract or any Statement of Work issued under it by a party shall be with full reservation of, and without prejudice to, any rights or remedies otherwise available to such party with respect to any claims arising prior to or as a result of such termination.

## 2.218 Contractor Transition Responsibilities

In the event this contract is terminated, for convenience or cause, dissolved, voided, rescinded, nullified, expires or is otherwise rendered unenforceable, the Contractor agrees to comply with direction provided by the State to assist in the orderly transition of equipment, services, software, leases, etc. to the State or a third party designated by the State. In the event of termination or the expiration of this Contract, the Contractor agrees to make all reasonable efforts to effect an orderly transition of services within a reasonable period of time that in no event will exceed ninety (90) days. These efforts shall include, but are not limited to, the following:

- a. Personnel - The Contractor shall work with the State, or a specified third party, to develop a transition plan setting forth the specific tasks and schedule to be accomplished by the parties, to effect an orderly transition. The Contractor shall allow as many personnel as practicable to remain on the job to help the State, or a specified third party, maintain the continuity and consistency of the services required by this Contract. In addition, during or following the transition period, in the event the State requires the Services of the Contractor's subcontractors or vendors, as necessary to meet its needs, Contractor agrees to reasonably, and with good-faith, work with the State to use the Services of Contractor's subcontractors or vendors. Contractor will notify all of Contractor's



subcontractors of procedures to be followed during transition.

- b. Information - The Contractor agrees to provide reasonable detailed specifications for all Services/Deliverables needed by the State, or specified third party, to properly provide the Services/Deliverables required under this Contract. The Contractor will provide the State with asset management data generated from the inception of this Contract through the date on which this Contractor is terminated in a comma-delineated format unless otherwise requested by the State. The Contractor will deliver to the State any remaining owed reports and documentation still in Contractor's possession subject to appropriate payment by the State.
- c. Software. - The Contractor shall reasonably assist the State in the acquisition of any Contractor software required to perform the Services/use the Deliverables under this Contract. This shall include any documentation being used by the Contractor to perform the Services under this Contract. If the State transfers any software licenses to the Contractor, those licenses shall, upon expiration of the Contract, transfer back to the State at their current revision level. Upon notification by the State, Contractor may be required to freeze all non-critical changes to Deliverables/Services.
- d. Payment - If the transition results from a termination for any reason, reimbursement shall be governed by the termination provisions of this Contract. If the transition results from expiration, the Contractor will be reimbursed for all reasonable transition costs (i.e. costs incurred within the agreed period after contract expiration that result from transition operations) at the rates specified by **Exhibit D**. The Contractor will prepare an accurate accounting from which the State and Contractor may reconcile all outstanding accounts.

**2.219 State Transition Responsibilities**

In the event that this Contract is terminated, dissolved, voided, rescinded, nullified, or otherwise rendered unenforceable, the State agrees to perform the following obligations, and any others upon which the State and the Contractor agree:

- (a) Reconciling all accounts between the State and the Contractor;
- (b) Completing any pending post-project reviews.

2.220 Termination by Contractor

**2.221 Termination by Contractor**

If the State materially breaches its obligation to pay Contractor undisputed amounts due and owing under this Contract in accordance with **Section 2.090**, or if the State breaches its other obligations under this Contract to an extent that makes it impossible or commercially impractical for Contractor to perform the Services, and if the State does not cure the breach within the time period specified in a written notice of breach provided to the State by Contractor (such time period not to be less than thirty (30) days), then Contractor may terminate this Contract, in whole or in part based on Statement of Work for cause, as of the date specified in the notice of termination; provided, however, that Contractor must discharge its obligations under **Section 2.250** before any such termination.

2.230 Stop Work

**2.231 Stop Work Orders**

The State may, at any time, by written stop work order to Contractor, require that Contractor stop all, or any part, of the work called for by the Contract for a period of up to ninety (90) calendar days after the stop work order is delivered to Contractor, and for any further period to which the parties may agree. The stop work order shall be specifically identified as such and shall indicate that it is issued under this **Section 2.230**. Upon receipt of the stop work order, Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the stop work order during the period of



work stoppage. Within the period of the stop work order, the State shall either: (a) cancel the stop work order; or (b) terminate the work covered by the stop work order as provided in **Section 2.210**.

**2.232 Cancellation or Expiration of Stop Work Order**

If a stop work order issued under this **Section 2.230** is canceled or the period of the stop work order or any extension thereof expires, Contractor shall resume work. The parties shall agree upon an equitable adjustment in the delivery schedule, the Contract price, or both, and the Contract shall be modified, in writing, accordingly, if: (a) the stop work order results in an increase in the time required for, or in Contractor’s costs properly allocable to, the performance of any part of the Contract; and (b) Contractor asserts its right to an equitable adjustment within thirty (30) calendar days after the end of the period of work stoppage; provided that, if the State decides the facts justify the action, the State may receive and act upon a Contractor proposal submitted at any time before final payment under the Contract. Any adjustment will conform to the requirements of **Section 2.106**.

**2.233 Allowance of Contractor Costs**

If the stop work order is not canceled and the work covered by the stop work order is terminated for reasons other than material breach, such termination shall be deemed to be a termination for convenience under **Section 2.212**, and the State shall allow reasonable costs resulting from the stop work order in arriving at the termination settlement. For the avoidance of doubt, the State shall not be liable to Contractor for loss of profits because of a stop work order issued under this **Section 2.230**.

2.240 Reserved

2.250 Dispute Resolution

**2.251 In General**

Any claim, counterclaim, or dispute between the State and Contractor arising out of or relating to the Contract or any Statement of Work shall be resolved as follows. For all Contractor claims seeking an increase in the amounts payable to Contractor under the Contract, or the time for Contractor’s performance, Contractor shall submit a letter executed by Contractor’s Contract Administrator or his designee certifying that (a) the claim is made in good faith, (b) the amount claimed accurately reflects the adjustments in the amounts payable to Contractor or the time for Contractor’s performance for which Contractor believes the State is liable and covers all costs of every type to which Contractor is entitled from the occurrence of the claimed event, and (c) the supporting data provided with such an affidavit are current and complete to Contractor’s best knowledge and belief.

**2.252 Informal Dispute Resolution**

(a) All operational disputes between the parties shall be resolved under the Contract Management procedures developed pursuant to **Section 2.100**. If the parties are unable to resolve any disputes after compliance with such processes, the parties shall meet with the Director of Purchasing Operations, DMB, or designee, for the purpose of attempting to resolve such dispute without the need for formal legal proceedings, as follows:

- (i) The representatives of Contractor and the State shall meet as often as the parties reasonably deem necessary in order to gather and furnish to each other all information with respect to the matter in issue which the parties believe to be appropriate and germane in connection with its resolution. The representatives shall discuss the problem and negotiate in good faith in an effort to resolve the dispute without the necessity of any formal proceeding.
- (ii) During the course of negotiations, all reasonable requests made by one party to another for non-privileged information reasonably related to the Contract will be honored in order that each of the parties may be fully advised of the other’s position.
- (iii) The specific format for the discussions will be left to the discretion of the designated



State and Contractor representatives, but may include the preparation of agreed upon statements of fact or written statements of position.

(iv) Following the completion of this process within sixty (60) calendar days, the Director of Purchasing Operations, DMB, or designee, shall issue a written opinion regarding the issue(s) in dispute within thirty (30) calendar days. The opinion regarding the dispute shall be considered the State's final action and the exhaustion of administrative remedies.

(b) This **Section 2.250** will not be construed to prevent either party from instituting, and a party is authorized to institute, formal proceedings earlier to avoid the expiration of any applicable limitations period, to preserve a superior position with respect to other creditors, or pursuant to **Section 2.253**.

(c) The State will not mediate disputes between the Contractor and any other entity, except state agencies, concerning responsibility for performance of work pursuant to the Contract.

### **2.253 Injunctive Relief**

The only circumstance in which disputes between the State and Contractor will not be subject to the provisions of **Section 2.252** is where a party makes a good faith determination that a breach of the terms of the Contract by the other party is such that the damages to such party resulting from the breach will be so immediate, so large or severe and so incapable of adequate redress after the fact that a temporary restraining order or other immediate injunctive relief is the only adequate remedy.

### **2.254 Continued Performance**

Each party agrees to continue performing its obligations under the Contract while a dispute is being resolved except to the extent the issue in dispute precludes performance (dispute over payment shall not be deemed to preclude performance) and without limiting either party's right to terminate the Contract as provided in **Section 2.210** and **2.220**, as the case may be.

#### 2.260 Federal and State Contract Requirements

### **2.261 Nondiscrimination**

In the performance of the Contract, Contractor agrees not to discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, religion, national origin, ancestry, age, sex, height, weight, marital status, physical or mental disability. Contractor further agrees that every subcontract entered into for the performance of this Contract or any purchase order resulting from this Contract will contain a provision requiring non-discrimination in employment, as specified here, binding upon each Subcontractor. This covenant is required pursuant to the Elliot Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, *et seq.*, and the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, *et seq.*, and any breach of this provision may be regarded as a material breach of the Contract.

### **2.262 Unfair Labor Practices**

Pursuant to 1980 PA 278, MCL 423.231, *et seq.*, the State shall not award a Contract or subcontract to an employer whose name appears in the current register of employers failing to correct an unfair labor practice compiled pursuant to section 2 of the Act. This information is compiled by the United States National Labor Relations Board. A Contractor of the State, in relation to the Contract, shall not enter into a contract with a Subcontractor, manufacturer, or supplier whose name appears in this register. Pursuant to section 4 of 1980 PA 278, MCL 423.324, the State may void any Contract if, subsequent to award of the Contract, the name of Contractor as an employer or the name of the Subcontractor, manufacturer or supplier of Contractor appears in the register.

### **2.263 Workplace Safety and Discriminatory Harassment**

In performing Services for the State, the Contractor shall comply with the Department of Civil Services Rule 2-20 regarding Workplace Safety and Rule 1-8.3 regarding Discriminatory Harassment. In addition, the Contractor shall comply with Civil Service regulations and any applicable agency rules provided to the Contractor. For Civil Service Rules, see <http://www.mi.gov/mdcs/0,1607,7-147-6877---,00.html>.



## 2.270 Litigation

### **2.271 Disclosure of Litigation**

(a) Disclosure. Contractor must disclose any material criminal litigation, investigations or proceedings involving the Contractor (and each Subcontractor) or any of its officers or directors or any litigation, investigations or proceedings under the Sarbanes-Oxley Act. In addition, each Contractor (and each Subcontractor) must notify the State of any material civil litigation, arbitration or proceeding which arises during the term of the Contract and extensions thereto, to which Contractor (or, to the extent Contractor is aware, any Subcontractor hereunder) is a party, and which involves: (i) disputes that might reasonably be expected to adversely affect the viability or financial stability of Contractor or any Subcontractor hereunder; or (ii) a claim or written allegation of fraud against Contractor or, to the extent Contractor is aware, any Subcontractor hereunder by a governmental or public entity arising out of their business dealings with governmental or public entities. Any such litigation, investigation, arbitration or other proceeding (collectively, "Proceeding") must be disclosed in a written statement to the Contract Administrator within thirty (30) days of its occurrence. Details of settlements which are prevented from disclosure by the terms of the settlement may be annotated as such. Information provided to the State from Contractor's publicly filed documents referencing its material litigation will be deemed to satisfy the requirements of this Section.

(b) Assurances. In the event that any such Proceeding disclosed to the State pursuant to this Section, or of which the State otherwise becomes aware, during the term of this Contract would cause a reasonable party to be concerned about:

- (i) the ability of Contractor (or a Subcontractor hereunder) to continue to perform this Contract in accordance with its terms and conditions, or
- (ii) whether Contractor (or a Subcontractor hereunder) in performing Services for the State is engaged in conduct which is similar in nature to conduct alleged in such Proceeding, which conduct would constitute a breach of this Contract or a violation of Michigan law, regulations or public policy, then Contractor shall be required to provide the State all reasonable assurances requested by the State to demonstrate that:

(A) Contractor and/or its Subcontractors hereunder will be able to continue to perform this Contract and any Statements of Work in accordance with its terms and conditions, and

(B) Contractor and/or its Subcontractors hereunder have not and will not engage in conduct in performing the Services which is similar in nature to the conduct alleged in such Proceeding.

(c) Contractor shall make the following notifications in writing:

(1) Within thirty (30) days of Contractor becoming aware that a change in its ownership or officers has occurred, or is certain to occur, or a change that could result in changes in the valuation of its capitalized assets in the accounting records, Contractor shall notify the Office of Purchasing Operations.

(2) Contractor shall also notify the Office of Purchasing Operations within thirty (30) days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership or officers.

(3) Contractor shall also notify Purchasing Operations within thirty (30) days whenever changes to company affiliations occur.

### **2.272 Governing Law**

The Contract shall in all respects be governed by, and construed in accordance with, the substantive laws of the State of Michigan without regard to any Michigan choice of law rules that would apply the substantive law of any other jurisdiction to the extent not inconsistent with, or pre-empted by federal law.

### **2.273 Compliance with Laws**

Contractor shall comply with all applicable state, federal, and local laws and ordinances ("Applicable Laws") in providing the Services/Deliverables.



**2.274 Jurisdiction**

Any dispute arising from the Contract shall be resolved in the State of Michigan. With respect to any claim between the parties, Contractor consents to venue in Ingham County, Michigan, and irrevocably waives any objections it may have to such jurisdiction on the grounds of lack of personal jurisdiction of such court or the laying of venue of such court or on the basis of forum non convenience or otherwise. Contractor agrees to appoint agents in the State of Michigan to receive service of process.

2.280 Environmental Provision

**2.281 Reserved**

2.290 General

**2.291 Amendments**

The Contract may not be modified, amended, extended, or augmented, except by a writing executed by the parties.

**2.292 Assignment**

- a. Neither party shall have the right to assign the Contract, or to assign or delegate any of its duties or obligations under the Contract, to any other party (whether by operation of law or otherwise), without the prior written consent of the other party; provided, however, that the State may assign the Contract to any other State agency, department, division or department without the prior consent of Contractor and Contractor may assign the Contract to an affiliate so long as such affiliate is adequately capitalized and can provide adequate assurances that such affiliate can perform the Contract. Any purported assignment in violation of this Section shall be null and void. It is the policy of the State of Michigan to withhold consent from proposed assignments, subcontracts, or novations when such transfer of responsibility would operate to decrease the State's likelihood of receiving performance on the Contract or the State's ability to recover damages.
- b. Contractor may not, without the prior written approval of the State, assign its right to receive payments due under the Contract. In the event of any such permitted assignment, Contractor shall not be relieved of its responsibility to perform any duty imposed upon it herein, and the requirement under the Contract that all payments shall be made to one entity shall continue.

**2.293 Entire Contract; Order of Precedence**

- a. The Contract, including any Statements of Work and Exhibits, to the extent not contrary to the Contract, each of which is incorporated for all purposes, constitutes the entire agreement between the parties with respect to the subject matter and supersedes all prior agreements, whether written or oral, with respect to such subject matter and as additional terms and conditions on the purchase order shall apply as limited by **Section 2.061**.
- b. In the event of any inconsistency between the terms of the Contract and a Statement of Work, the terms of the Statement of Work will take precedence (as to that Statement of Work only); provided, however, that a Statement of Work may not modify or amend the terms of **Sections 2.110 through 2.220** of the Contract, which may be modified or amended only by a formal Contract amendment.

**2.294 Headings**

Captions and headings used in the Contract are for information and organization purposes. Captions and headings, including inaccurate references, do not, in any way, define or limit the requirements or terms and conditions of the Contract.

**2.295 Relationship of the Parties (Independent Contractor Relationship)**

The relationship between the State and Contractor is that of client and independent Contractor. No agent,



employee, or servant of Contractor or any of its Subcontractors shall be or shall be deemed to be an employee, agent or servant of the State for any reason. Contractor will be solely and entirely responsible for its acts and the acts of its agents, employees, servants and Subcontractors during the performance of the Contract.

**2.296 Notices**

(a) Any notice given to a party under the Contract shall be deemed effective, if addressed to such party as addressed below, upon: (i) delivery, if hand delivered; (ii) receipt of a confirmed transmission by facsimile if a copy of the notice is sent by another means specified in this Section; (iii) the third (3rd) Business Day after being sent by U.S. mail, postage pre-paid, return receipt requested; or (iv) the next Business Day after being sent by a nationally recognized overnight express courier with a reliable tracking system.

State:  
 Jacque Kuch  
 State of Michigan  
 Office of Purchasing Operations  
 Attention:  
 PO Box 30026  
 530 West Allegan  
 Lansing, Michigan 48909

with a copy to:  
 State of Michigan  
 Department of Information Technology  
 Attention: Ann Lindberg  
 Cadillac Place, Suite #9-350  
 3032 W. Grand Boulevard  
 Detroit, MI 48202

Contractor(s):  
 Name  
 Address

Either party may change its address where notices are to be sent by giving notice in accordance with this Section.

(b) **Binding Commitments**

Representatives of Contractor identified in **Exhibit I** shall have the authority to make binding commitments on Contractor’s behalf within the bounds set forth in such table. Contractor may change such representatives from time to time upon written notice.

**2.297 Media Releases and Contract Distribution**

(a) **Media Releases**

Neither Contractor nor the State will make any news releases, public announcements or public disclosures, nor will they have any conversations with representatives of the news media, pertaining to the Contract, the Services or the Contract without the prior written approval of the other party, and then only in accordance with explicit written instructions provided by that party. In addition, neither Contractor nor the State will use the name, trademarks or other proprietary identifying symbol of the other party or its affiliates without such party’s prior written consent. Prior written consent of the Contractor must be obtained from authorized representatives.

(b) **Contract Distribution**

Purchasing Operations shall retain the sole right of Contract distribution to all State agencies and local units of government unless other arrangements are authorized by Purchasing Operations.



### **2.298 Reformation and Severability**

Each provision of the Contract shall be deemed to be severable from all other provisions of the Contract and, if one or more of the provisions of the Contract shall be declared invalid, the remaining provisions of the Contract shall remain in full force and effect.

### **2.299 Consents and Approvals**

Except as expressly provided otherwise in the Contract, if either party requires the consent or approval of the other party for the taking of any action under the Contract, such consent or approval shall be in writing and shall not be unreasonably withheld or delayed.

### **2.300 No Waiver of Default**

The failure of a party to insist upon strict adherence to any term of the Contract shall not be considered a waiver or deprive the party of the right thereafter to insist upon strict adherence to that term, or any other term, of the Contract.

### **2.301 Survival**

Any provisions of the Contract that impose continuing obligations on the parties including the parties' respective warranty, indemnity and confidentiality obligations, shall survive the expiration or termination of the Contract for any reason. Specific references to survival in the Contract are solely for identification purposes and not meant to limit or prevent the survival of any other section.

### **2.302 Covenant of Good Faith**

Each party agrees that, in its dealings with the other party or in connection with the Contract, it shall act reasonably and in good faith. Unless stated otherwise in the Contract, the parties will not unreasonably delay, condition or withhold the giving of any consent, decision or approval that is either requested or reasonably required of them in order for the other party to perform its responsibilities under the Contract.

### **2.303 Permits**

Contractor shall obtain and pay any associated costs for all required governmental permits, licenses and approvals for the delivery, installation and performance of the Services. The State shall pay for all costs and expenses incurred in obtaining and maintaining any necessary easements or right of way.

### **2.304 Website Incorporation**

State expressly states that it will not be bound by any content on the Contractor's website, even if the Contractor's documentation specifically referenced that content and attempts to incorporate it into any other communication, unless the State has actual knowledge of such content and has expressly agreed to be bound by it in a writing that has been manually signed by an authorized representation of the State.

### **2.305 Taxes**

Vendors are expected to collect and pay all applicable federal, state, and local employment taxes, including the taxes defined in Section 3.022 for all persons involved in the resulting Contract.

The State may refuse to award a contract to any Vendor who has failed to pay any applicable State taxes. The State may refuse to accept Vendor's bid, if Vendor has any outstanding debt with the State. Prior to any award, the State will verify whether Vendor has any outstanding debt with the State.

### **2.306 Prevailing Wage**

The rates of wages and fringe benefits to be paid each class of individuals employed by the Contractor, its subcontractors, their subcontractors, and all persons involved with the performance of this Contract in privity of contract with the Contractor shall not be less than the wage rates and fringe benefits established by the Michigan Department of Labor and Economic Development, Wage and Hour Bureau, schedule of occupational classification and wage rates and fringe benefits for the local where the work is to be performed. The term Contractor shall include all general contractors, prime contractors, project managers, trade contractors, and all



of their contractors or subcontractors and persons in privity of contract with them.

The Contractor, its subcontractors, their subcontractors, and all persons involved with the performance of this contract in privity of contract with the Contractor shall keep posted on the work site, in a conspicuous place, a copy of all wage rates and fringe benefits as prescribed in the contract. You must also post, in a conspicuous place, the address and telephone number of the Michigan Department of Labor and Economic Development, the office responsible for enforcement of the wage rates and fringe benefits. You shall keep an accurate record showing the name and occupation of the actual wage and benefits paid to each individual employed in connection with this contract. This record shall be available to the State upon request for reasonable inspection.

If any trade is omitted from the list of wage rates and fringe benefits to be paid to each class of individuals by the Contractor, it is understood that the trades omitted shall also be paid not less than the wage rate and fringe benefits prevailing in the local where the work is to be performed.

### **2.307 Call Center Disclosure**

Contractor and/or all subcontractors involved in the performance of this Contract providing call or contact center services to the State must disclose the location of its call or contact center services to inbound callers. Failure to disclose this information shall be a material breach of this Contract.

### **2.308 Future Bidding Preclusion**

Contractor acknowledges that, to the extent this Contract involves the creation, research, investigation or generation of a future RFP; it may be precluded from bidding on the subsequent RFP. The State reserves the right to disqualify any bidder if the State determines that the bidder has used its position (whether as an incumbent Contractor, or as a Contractor hired to assist with the RFP development, or as a Vendor offering free assistance) to gain a leading edge on the competitive RFP.



**Attachment A  
Pricing**

Deliverables By Milestone	Totals	EEM	SDS
	\$2,885,000.00	\$1,293,895.00	\$1,591,105.00
<b>Milestone 1</b>	<b>\$78,365.00</b>	<b>\$31,341.00</b>	<b>\$47,024.00</b>
<b>Will be paid when Milestone 1 is completed and approved</b>			
Detailed Project Plan	\$3,973.00	\$1,588.00	\$2,385.00
Electronic Project Library	\$1,428.00	\$570.00	\$858.00
Quality Management Plan	\$952.00	\$380.00	\$572.00
Software Development Approach	\$1,009.00	\$404.00	\$605.00
Project Staffing and Location	\$2,620.00	\$1,048.00	\$1,572.00
Risk Management Plan	\$796.00	\$318.00	\$478.00
Issue Management Plan	\$796.00	\$318.00	\$478.00
Change Management Plan	\$794.00	\$316.00	\$478.00
Project Status Report	\$952.00	\$381.00	\$571.00
Delivery of Hardware and Software	\$65,045.00	\$26,018.00	\$39,027.00
<b>Milestone 2</b>	<b>\$60,032.00</b>	<b>\$24,453.00</b>	<b>\$35,579.00</b>
<b>80% paid when Milestone 2 is approved, 20% paid when Plans and docs are updated after Milestone 3</b>			
Documentation and Standards Plan	\$1,330.00	\$532.00	\$798.00
Requirements Validation & Gathering Plan			
Technical Architecture Plan	\$5,022.00	\$2,009.00	\$3,013.00
Equipment/Technology Acquisition Plan	\$2,511.00	\$1,005.00	\$1,506.00
Capacity Plan	\$7,533.00	\$3,013.00	\$4,520.00
Configuration Plan	\$1,256.00	\$502.00	\$754.00
Installation Plan	\$11,265.00	\$4,506.00	\$6,759.00
Training & Knowledge Transfer Plan	\$8,174.00	\$3,270.00	\$4,904.00
Test Plan			
Iteration #1	\$5,135.00	\$2,200.00	\$2,935.00
Iteration #2	\$5,135.00	\$2,200.00	\$2,935.00
Iteration #3	\$5,139.00	\$2,204.00	\$2,935.00
Data Conversion Plan	\$4,528.00	\$1,811.00	\$2,717.00
Application Turnover Plan	\$3,004.00	\$1,201.00	\$1,803.00
<b>Milestone 3</b>	<b>\$308,964.00</b>	<b>\$147,234.00</b>	<b>\$161,730.00</b>
<b>Will be paid when Milestone is completed and approved</b>			
Iteration #1			
Draft Technical Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Draft Business Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Iteration #2			
Draft Technical Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Draft Business Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Iteration #2			
Draft Technical Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Draft Business Requirements	\$34,330.00	\$16,360.00	\$17,970.00
Finalized Technical Requirements	\$34,328.00	\$16,358.00	\$17,970.00
Finalized Business Requirements	\$34,328.00	\$16,358.00	\$17,970.00
Final Scope Document	\$34,328.00	\$16,358.00	\$17,970.00
<b>Milestone 4</b>	<b>\$2,056,496.00</b>	<b>\$935,037.00</b>	<b>\$1,121,459.00</b>
<b>Paid by Iteration when Iteration is approved</b>			
<b>Iteration #1 -Total</b>	<b>\$592,085.00</b>	<b>\$269,415.00</b>	<b>\$322,670.00</b>
Logical & Physical Data Model	\$11,850.00	\$5,800.00	\$6,050.00
Data Dictionary	\$10,550.00	\$4,500.00	\$6,050.00



Technical Design	\$128,250.00	\$47,250.00	\$81,000.00
Technical Documentation	\$8,755.00	\$3,755.00	\$5,000.00
User Acceptance Test Cases	\$40,600.00	\$17,400.00	\$23,200.00
User Acceptance Testing	\$103,070.00	\$44,170.00	\$58,900.00
Source Code	\$285,420.00	\$145,000.00	\$140,420.00
Test Results	\$3,590.00	\$1,540.00	\$2,050.00
<b>Iteration #2 -Total</b>	<b>\$592,085.00</b>	<b>\$269,415.00</b>	<b>\$322,670.00</b>
Logical & Physical Data Model	\$11,850.00	\$5,800.00	\$6,050.00
Data Dictionary	\$10,550.00	\$4,500.00	\$6,050.00
Technical Design	\$128,250.00	\$47,250.00	\$81,000.00
Technical Documentation	\$8,755.00	\$3,755.00	\$5,000.00
Source Code	\$285,420.00	\$145,000.00	\$140,420.00
User Acceptance Test Cases	\$40,600.00	\$17,400.00	\$23,200.00
User Acceptance Testing	\$103,070.00	\$44,170.00	\$58,900.00
Test Results	\$3,590.00	\$1,540.00	\$2,050.00
<b>Iteration #3 -Total</b>	<b>\$872,326.00</b>	<b>\$396,207.00</b>	<b>\$476,119.00</b>
Logical & Physical Data Model	\$11,808.00	\$5,793.00	\$6,015.00
Data Dictionary	\$10,601.00	\$4,586.00	\$6,015.00
Technical Design	\$128,263.00	\$47,255.00	\$81,008.00
Technical Documentation	\$8,774.00	\$3,755.00	\$5,019.00
Source Code	\$284,945.00	\$144,525.00	\$140,420.00
User Acceptance Test Cases	\$40,591.00	\$17,396.00	\$23,195.00
User Acceptance Testing	\$103,052.00	\$44,171.00	\$58,881.00
Test Results	\$3,574.00	\$1,529.00	\$2,045.00
Training Docs	\$280,718.00	\$127,197.00	\$153,521.00
<b>Milestone 5</b>	<b>\$276,143.00</b>	<b>\$110,830.00</b>	<b>\$165,313.00</b>
<b>Will be paid when approved in 2 stages: 1) Production/Data Conversion and 2) Training</b>			
<b>Total for Production/ Data Conversion</b>	<b>\$57,065.00</b>	<b>\$22,827.00</b>	<b>\$34,238.00</b>
Production Environment	\$2,720.00	\$1,089.00	\$1,631.00
Data Conversion	\$54,345.00	\$21,738.00	\$32,607.00
<b>Total for Training</b>	<b>\$219,078.00</b>	<b>\$88,003.00</b>	<b>\$131,075.00</b>
User Training	\$11,751.00	\$4,700.00	\$7,051.00
Post-classroom Practice Exercise	\$15,914.00	\$6,366.00	\$9,548.00
Train the Trainers	\$11,751.00	\$4,700.00	\$7,051.00
Help Desk Guide	\$26,600.00	\$10,640.00	\$15,960.00
Pilot	\$153,062.00	\$61,597.00	\$91,465.00
<b>Milestone 6</b>	<b>\$105,000.00</b>	<b>\$45,000.00</b>	<b>\$60,000.00</b>
<b>Will be paid monthly</b>			
Month 1	\$8,750.00	\$3,750.00	\$5,000.00
Month 2	\$8,750.00	\$3,750.00	\$5,000.00
Month 3	\$8,750.00	\$3,750.00	\$5,000.00
Month 4	\$8,750.00	\$3,750.00	\$5,000.00
Month 5	\$8,750.00	\$3,750.00	\$5,000.00
Month 6	\$8,750.00	\$3,750.00	\$5,000.00
Month 7	\$8,750.00	\$3,750.00	\$5,000.00
Month 8	\$8,750.00	\$3,750.00	\$5,000.00
Month 9	\$8,750.00	\$3,750.00	\$5,000.00
Month 10	\$8,750.00	\$3,750.00	\$5,000.00
Month 11	\$8,750.00	\$3,750.00	\$5,000.00
Month 12	\$8,750.00	\$3,750.00	\$5,000.00



**Attachment A  
Deliverable Schedule**

<b>CEPI – EEM Project Milestones with associated deliverables required to meet the milestones</b>	
<b>PHASE 1 - Milestones 1, 2 and 3 - Planning and Detailed Requirements gathering (firm fixed price)</b>	
<b>MILESTONE 1</b>	
<b>Deliverables required to meet Milestone 1:</b>	<b>Completed and Approved</b>
Detailed Project Plan (including a communication plan)	
Electronic Project Library	
Quality Management Plan	
Software Development Approach	
Project Staffing and Location	
Risk Management Plan	
Issue Management Plan	
Change Management Plan	
Project Status Report	
<b>Total Cost for MILESTONE 1</b>	
<b>MILESTONE 2</b>	
<b>Deliverables required to meet Milestone 2:</b>	<b>Completed and Approved</b>
Documentation and Standards Plan	
Requirements Validation and Gathering Plan	
Technical Architecture Plan	
Equipment/Technology Acquisition Plan	
Capacity Plan	
Configuration Plan	
Installation Plan	
Training and knowledge transfer plan	
Test Plan	
Data Conversion Plan	
Application Turnover Plan	
<b>Total Cost for MILESTONE 2</b>	
<b>MILESTONE 3</b>	
<b>Deliverables required to meet Milestone 3:</b>	<b>Completed and Approved</b>
Draft of detailed Technical Requirements	
Draft of detailed Business Requirements	
Requirements Gathering Document	
Finalized detailed Technical Requirements Document	
Finalized detailed Business Requirements Document	
Final Scope Documentation	
<b>MILESTONE 4</b>	
<b>Deliverables required to meet Milestone 4</b>	<b>Completed and Approved</b>
Logical and Physical Data Model	



Data Dictionary	
Technical Design	
Technical Documentation	
Source Code and Artifacts	
Test Results	
User Acceptance Test Cases	
User Acceptance Testing	
Training Material	
Training Data	

Online User Aids	
<b>Total Cost for MILESTONE 4</b>	
<b>MILESTONE 5</b>	
<b>Deliverables required to meet Milestone 5:</b>	<b>Completed and Approved</b>
Production Environment	
Data Conversion	
User Training	
Post-classroom Practice Exercise	
Train the Trainers	
Help Desk Guide	
Pilot Michigan EEM/SDS Implementation	
Michigan SDS/EEM Implementation	
<b>Total Cost for MILESTONE 5</b>	

<b>Phase 3 – Milestones 6 - Transition to Independent State operation over a one year period</b>	
<b>MILESTONE 6</b>	
<b>Deliverables required to meet Milestone 6:</b>	<b>Completed and Approved</b>
Updated Turnover Plan	
Maintenance/Enhancement Support Document	
Final Turnover Plan	
Knowledge Transfer Reports	
Updated Application Source Code Artifacts	
Updated Documentations	
Transition Maintenance and Support	
<b>TOTAL FOR MILESTONE 6</b>	

<b>Phase 4 – Milestone 7 - Maintenance/Enhancements</b>	
<b>MILESTONE 7</b>	
Specific deliverables will be determined, documented and agreed upon by both parties, the State and Compuware, during the Transition and Maintenance Planning period.	



<b>CEPI –SDS Project</b>	
<b>Milestones with associated deliverables required to meet the milestones</b>	
<b>PHASE 1 - Milestones 1, 2 and 3 - Planning and Detailed Requirements gathering (firm fixed price)</b>	
<b>MILESTONE 1</b>	
<b>Deliverables required to meet Milestone 1:</b>	<b>Completed and Approved</b>
Detailed Project Plan (including a communication plan)	
Electronic Project Library	
Quality Management Plan	
Software Development Approach	
Project Staffing and Location	
Risk Management Plan	
Issue Management Plan	
Change Management Plan	
Project Status Report	
<b>Total Cost for MILESTONE 1</b>	
<b>MILESTONE 2</b>	
<b>Deliverables required to meet Milestone 2:</b>	<b>Completed and Approved</b>
Documentation and Standards Plan	
Requirements Validation and Gathering Plan	
Technical Architecture Plan	
Equipment/Technology Acquisition Plan	
Capacity Plan	
Configuration Plan	
Installation Plan	
Training and knowledge transfer plan	
Unit Test Plan	
Data Conversion Plan	
Application Turnover Plan to including a WBS	
<b>Total Cost for MILESTONE 2</b>	
<b>MILESTONE 3</b>	
<b>Deliverables required to meet Milestone 3:</b>	<b>Completed and Approved</b>
Draft of detailed Technical Requirements	
Draft of detailed Business Requirements	
Requirements Gathering Document	
Finalized detailed Technical Requirements Document	
Finalized detailed Business Requirements Document	
Final Scope Documentation	
<b>Total Cost for MILESTONE 3</b>	
<b>PHASE 2 –Milestones 4 and 5 -System Design, Development, Testing and Implementation (firm fixed price bid but can include up to 2000 hrs additional approved hours for increased scope and/ up to 2000 enhancements hours)</b>	



<b>MILESTONE 4</b>	
<b>Deliverables required to meet Milestone 4:</b>	<b>Completed and Approved</b>
Logical and Physical Data Model	
Data Dictionary	
Technical Design	
Technical Documentation	
Source Code and Artifacts	
Test Results	
User Acceptance Test Cases	
User Acceptance Testing	
Training Material	

Training Data	
Online User Aids	
<b>Total Cost for MILESTONE 4</b>	

<b>MILESTONE 5</b>	
<b>Deliverables required to meet Milestone 5:</b>	<b>Completed and Approved</b>
Production Environment	
Data Conversion	
User Training	
Post-classroom Practice Exercise	
Train the Trainers	
Help Desk Guide	
Pilot Michigan EEM/SDS Implementation	
Michigan SDS/EEM Implementation	
<b>Total Cost for MILESTONE 5</b>	

**Phase 3 – Milestones 6 - Transition to Independent State operation over a one year period**

<b>MILESTONE 6</b>	
<b>Deliverables required to meet Milestone 6:</b>	<b>Completed and Approved</b>
<b>MILESTONE 6</b>	
Updated Turnover Plan	
Maintenance/Enhancement Support Document	
Final Turnover Plan	
Knowledge Transfer Reports	
Updated Application Source Code Artifacts	
Updated Documentations	
Transition Maintenance and Support	
<b>Total Cost for MILESTONE 6</b>	

**Phase 4 – Milestone 7 - Maintenance/Enhancements**

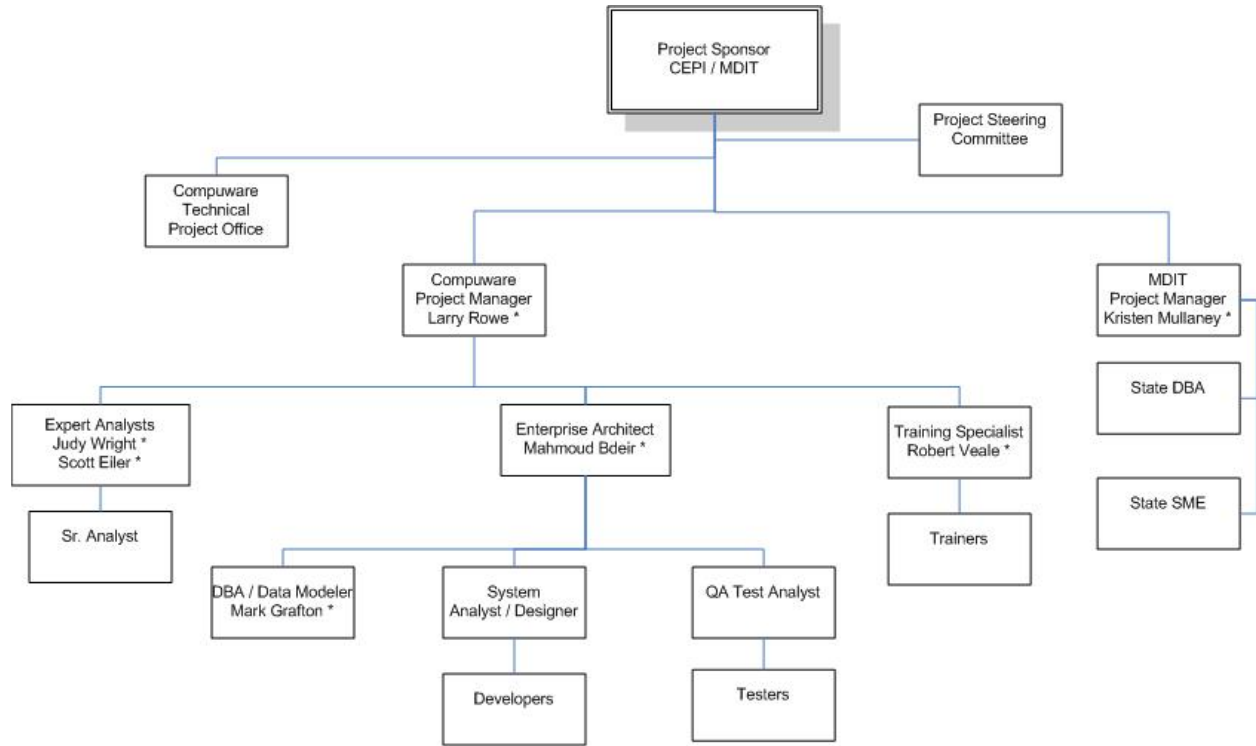
<b>MILESTONE 7</b>	
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Specific deliverables will be determined, documented and agreed upon by both parties, the State and Compuware, during the Transition and Maintenance Planning period.

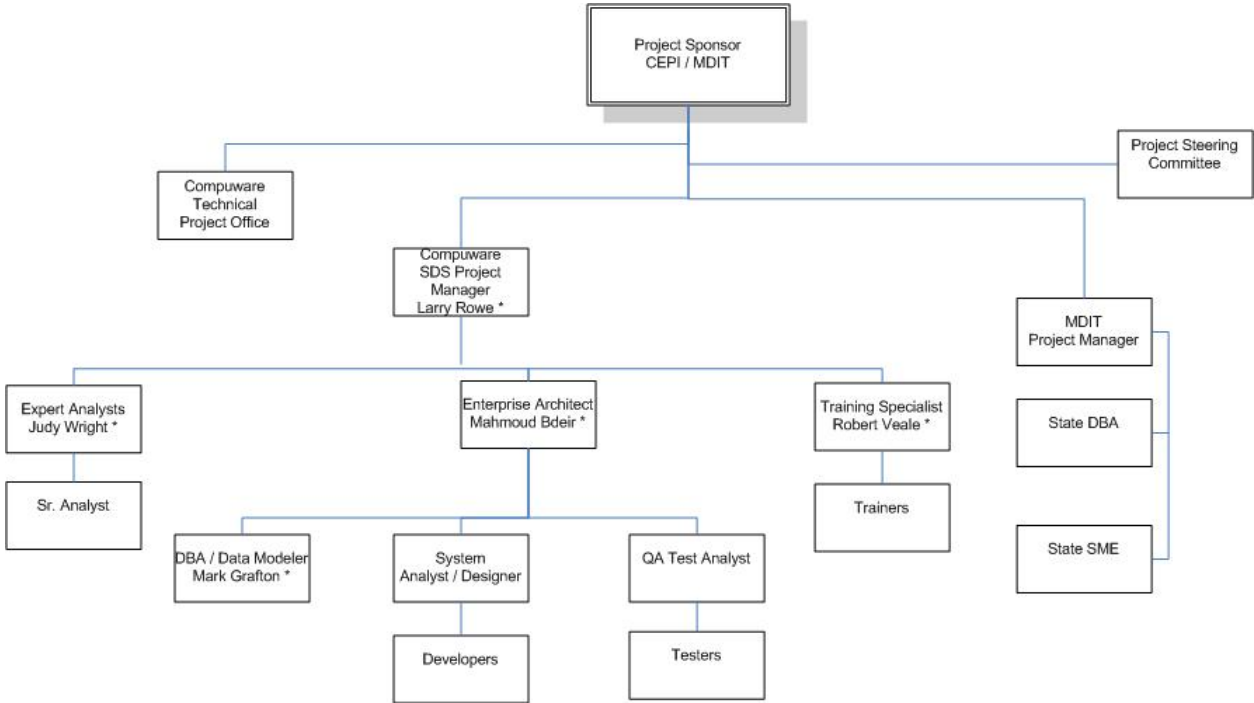
**Attachment C**

Organizational Chart, including Key Personnel

The section describes the project team for the CEPI project. The organization chart indicates the project team is comprised of both Compuware and CEPI team members. It shows key roles and their relationships. The Project Organization is shown as below:



\* Key Position



\* Key Position

The project team will include a Steering Committee, consisting of senior managers and executives from CEPI, MDIT and Compuware. In addition to the steering committee, Compuware’s Technical Project Office (TPO) will monitor the progress of the project. The TPO has responsibility for project oversight and reporting dashboard information to Compuware executive management.

**Key Resources Descriptions**

**Project Manager**

Larry Rowe will be the Project Manager. His duties will include creating and maintaining project plans (project schedule, communication plan, resource plan, risk plan, etc.), communicating with all stakeholders and team members, directing the work of project team members, and providing overall management and control of the project. Larry is a PMP-certified project manager with over 29 years of experience. He specializes in large-scale projects and has experience in managing projects in public education. Larry is currently a Compuware employee as required by the ITB and has been since 1997.

**Expert Analyst**

Judy Wright will fill the role of Expert Analyst on the project providing information regarding educational systems and data. Judy has extensive experience in education technology planning and administrative systems. Judy is involved with numerous education organizations including MSBO, MASA and MASB. Judy is a former member of the CEPI Advisory Board (2003 – 2006).

Scott Eiler will fill the role of Expert Analyst on the project providing information regarding educational systems and data. Scott has extensive experience in education technology planning. Scott has worked with CEPI in the past in a quality assurance role. Scott is also PMP certified.

**Database Administrator (DBA)**

Mark Grafton has over 12 years of experience as a DBA that includes designing, developing, and maintaining relational database management systems. During that time, he has developed standards and processes for deploying enterprise applications, built database servers, and converted legacy data among the other duties of a DBA. Mark's duties will include the analysis of database requirements, database generation, performance monitoring and tuning, problem resolution, installation and implementation of modifications and upgrades, and establish procedures for effective database operation, control, and recovery. Mark will also have data modeler responsibilities.

**Enterprise Architect**

Mahmoud Bdeir will be the person responsible for designing the system and application architecture. Mahmoud has worked as a systems architect for over six years of his 15 years in the IT field. He is a Microsoft Certified Professional in the .Net architecture and a Microsoft Certified Trainer in .Net. Mahmoud is one of the most highly qualified and knowledgeable individuals in .Net technology in the State.

**Training Specialist**

Robert Veale will be the person who will identify the training needs of participants, prepare training plans and schedules, develop course materials, prepare computerized training exercises, and conduct training sessions. Robert has over 5 years of experience in conducting technical training, technical support, and developing instructor-led training. Much of Robert's experience has been with web-based implementations.

**Non-Key Resource Descriptions****QA Test Analyst**

The QA Test Analyst role is to develop, establish, and enforce quality assurance standards and measures for the information technology services within an organization. The QA Test Analyst will oversee QA Testers. The QA Test Analyst will apply proven analytical and problem-solving skills to help validate IT processes through careful testing in order to maximize the benefit of business investments in IT initiatives.

**Systems Analyst/Designer**

The Systems Analyst/Designer role is to plan, design, develop, and launch efficient information systems and operations systems in support of core organizational functions. This individual will apply proven communication, analytical and problem-solving skills to help identify, communicate and resolve systems issues in order to maximize the benefit of IT systems investments.

**Data Modeler**

Develops data models to meet the needs of the organization's information systems. Manages the flow of information between State Departments through the use of relational databases. Maintains data integrity by working to eliminate redundancy and stays informed of the ways the organization uses its data.

**Tester**

The Systems/Software Application Tester role is to plan, design, architect, and deploy effective test suites and regimes for in-house product development, software application development, information system launches, and operations systems enhancements. This individual will apply proven analytical and problem-solving skills to help validate, verify, communicate, and resolve systems/software application issues through careful testing in order to maximize the benefit of IT investments and initiatives.

**Technical Writer**

The Technical Writer role is to develop written information about the organization's computing systems. Outputs will include a range of documents to be read by both technical and non-technical personnel across all Departments.

**Developer**



The Developer role is to code and unit test software programs and applications. This includes researching, designing, documenting, and modifying software specifications throughout the production life cycle. The Developer will also analyze and amend software errors in a timely and accurate fashion, and provide status reports where required.



## Appendix 1 Business and Interface Requirements

### School Code Master (SCM)

#### Current System Overview

The School Code Master (SCM) is the State of Michigan's database of school directory information for public and registered non-public educational entities. It contains the official identification numbers and basic contact information for the educational systems in Michigan. The data maintained in the SCM are used for mandated data submissions to the State and Federal government and are critical to meeting State and Federal requirements.

The SCM has a Web-based interface for public users to find basic information on schools/facilities and school districts within Michigan. In addition, the SCM database is utilized by multiple state agency program areas and applications, including all existing CEPI applications.

The SCM has three types of users:

- Public (can read data and download reports only)
- Authorized (can amend data about assigned entities)
- State Administrator (super user authority)

The public portion of the existing application is broken down into the following functional areas:

- School Directories – allows users to search for specific schools/facilities or districts. Search by:
  - School/Facility Name
  - District Name
  - City
  - County
  - Public School Academy
  - Code Number
- Power Search – allows users to search for schools/facilities using more detailed criteria.
- Reports – allows users to view five printer-friendly reports containing the information from the school directories (see Appendix 2 – Report Requirements).
- Mailing Lists & Mailing Labels – allows users to save a printer-friendly document containing mailing labels associated with your search results (see Appendix 2 – Report Requirements).
- Download Data Sets – provides users with eight preformatted .dbf files containing the information found in the school directories. Users can also create a customized DBF file.
  1. State – this is the complete State of Michigan School Code Master of open buildings (does not include closed buildings).
  2. Public – this consists of all public schools/facilities
  3. Private – this consists of all nonpublic K-12 schools/facilities
  4. ISD – this consists of intermediate school districts only
  5. ISDSCH – this consists of public K-12 schools administered directly by the ISD
  6. DIST – this consists of local school districts, including Local Education Agencies and Public School Academies
  7. PSA – this consists of public school academies
  8. Other – this consists of institutional facilities and institutions of higher education

In addition to the Public functional areas listed above, authorized users may request record changes, additions, or closings in the School Code Master. The State Administrator has the authority to approve or modify those requests. The authorized user functions include the following:



- My Schools/Facilities – these options allow the user to view information about schools/facilities or districts and, if so authorized, edit information about a school/facility, add a school/facility, or close a school/facility.
- Code Search – this option allows the user to search for a district or school/facility by code.
- Search by Name – this option allows the user to search for a district or school/facility by exact character string comparison.

The State Administrator functions include all Public functions plus the following:

- Change Requests – this option allows you to View new change requests and the change request history.
- Add a Record – this option allows you to add a new record to the database.
- Close a Record – this option allows you to close or approve the close of a school/facility.
- Code Search – this option allows you to search for a district or school/facility by code.
- Search by Name– this option allows you to search for a district or school/facility by name.

Requirements of New System (SCM)

**The vendor should conduct a detailed review of the current functionality of the existing SCM as outlined above, and, in consultation with CEPI, MDE, DLEG and DIT ensure that the basic functions of the current system are retained where desired. In addition, the functions below represent desired aspects to be incorporated into the future system.**

Education begins after birth and continues well into adult years for many citizens in the state, and the diversity of entities that deliver those services cannot be accommodated by the existing School Code Master. The following categorical breakdown provides a partial list of additional functionalities which should be considered in the system replacement proposed by the vendor awarded this contract:

**Education Entites and the Relationships Among Them**

1. The proposed system should contain the ability to accommodate all education related entities served by the State of Michigan from birth through grade 20. This includes the ability to flag by entity type and add new entity types as they are identified.
2. All functions in the application need to perform with efficiency regardless of district size. Michigan has districts that consist of very few entities and others that consist of over 200 entities.
3. Consortia and other groupings: The SCM replacement must contain an entity type or field designating an entity that participates as a part of a larger group as a particular type of educational consortium. Members of that consortium must be be able to be associated with other consortia entities.
4. SCM currently accommodates public and nonpublic K-12 data. The required system will expand this, allowing for entry of entities such as the following: home-school, daycare, higher education, non-school based services/programs, educational programs, virtual schools (internet based, e.g., virtual university).
5. Administrators of the system will be able to define new entity types without major design renovations to the application. For example, the state may need to define new entity types such as classrooms, programs, and facilities.
6. Currently, nonpublic schools are listed under the public school district. Accommodate a solution, that will allow non-publics to appear under their own “district” while retaining their relationship with the local district.
7. User interface will allow system administrators to enter State of Michigan districts and facilities via the user interface.

**System Utility and Functionality Enhancements**

8. The web interface for the new SCM system must support recent versions of the following browsers: Internet Explorer, Firefox, Netscape.



9. A variety of other state systems access SCM data. This information is accessible from database views in the SCM. These views combine the relational elements of the database into a table containing all of the entities in the database. This results in the correct information; however it is extremely slow. Because of this inefficiency, some systems have to use a table created from the view. These processes either run hourly or nightly, depending on the requirements of the system. The new system will provide a more efficient means of providing access to SCM views by other systems.
10. The new system will provide backward compatibility with existing views used by external systems while providing additional information through alternate views.
11. The new system will provide the ability to retrieve all of the details regarding an entity based on a specific date. Currently we only track current information or any change to the entity in an audit tracking table. The audit trail information is not presented in a usable format, and it is difficult to obtain the information by a query.
12. User Interface
  - a) In general, the user interface should reduce redundancy and extra keystrokes (e.g., if physical address and mailing address are the same, the user should not be required to type it in twice. The system should not allow non-numeric characters when entering phone/fax numbers).
13. Data elements in all user interface screens, reports, and export files should be reviewed with CEPI to evaluate whether additional fields should be added. A more detailed listing of the desired fields is available from CEPI. For example,
  - i) DBF files should have the name of PSA authorizer, not just code; same for Administrator Assignment and other fields.
  - ii) Add phone number and e-mail of authorized user to all pages displaying his/her name (e.g., add, close, change request history, etc.)
  - iii) Allow multiple contacts for an entity. Currently, only one contact is allowed.
14. A thorough change request history needs to be integrated into the replacement system. The current SCM inserts one row per change. The preferred method is to display all requested data changes for a single action. For example, currently if three grades are removed, and an administrator has changed, four separate entries are displayed in the change request history user interface. The preferred method will show one entry for all changes made for the request submitted. All changes must be recorded and viewable in the user interface.
15. District codes and recipient codes: For the existing K-12 education related entities in the School Code Master, the district code serves as the recipient code. Any agency receiving funds through the Michigan Department of Education's Grants Cash Management & Reporting System (GCMRS) must utilize a pre-defined recipient code. For ISDs and LEAs including PSAs the district code and the recipient code are the same. However, this is not the case with colleges and universities and other non-traditional education service delivery entities. Currently the recipient code for a college or university is determined by the county code, followed by three zeros, and then a five-digit building code. The replacement system needs to utilize an alternative method and may utilize a recipient code field. Note: CEPI and MDE must be consulted when determining any new district and/or recipient codes.
16. An improved hierarchical data structure for colleges and universities is required. The organization of each college must be taken into consideration when designing a systematic data structure for colleges and universities in the SCM replacement.
17. Review design of how grades are stored; the district entity has a record in the entity grade table for each grade level and educational setting. The new design should make it easier to report grades/settings and collect data specific to the entity.
18. The new system will provide the capability to track authorized grade range as well as actual grades reported for a particular school year. This capability will be based on a cross-walk with the student data system to ensure that student records are appropriately represented in the grades offered at a school (e.g., a PSA may have a K-6 charter [configuration] but due to small populations may have K-6 one year, K-3 the next year, K-4 another year, etc.). For example, the new SCM might contain a "cross-validation" field that displays the grades most recently reported for this particular entity in the SRSD during the most recent legislated count date.
19. The SCM replacement should allow for more than one function for ancillary facilities, and system administrators should be able to add to the current function list. (e.g., early childhood facility, instructional and/or non-instructional).



20. The new system would take into consideration the current design and uses of the existing database environment (e.g., existing tables and their relations) and how these are archived and utilized by other systems (e.g. MDE Office of Educational Assessment and Accountability, MDE Office of Special Education, MDE Grants Unit, MDE Office of State Aid and School Finance, other MDE offices, DLEG – Office of Career and Technical Education, DIT Center for Geographic Information, etc).
21. Provide the ability to schedule changes to an entity in advance. The user should be able to enter an 'as of' date that identifies when the requested changes are to take effect.
22. Provide offline processing options. Districts should be able to download their data, make desired changes and then upload all changes as a batch.
23. Portions of the numbering scheme used to identify educational entities must be maintained as they are embedded in numerous other existing systems.

### **Role-Based Access and Security**

24. The selected vendor will review the adequacy of current user roles for the system. In particular,
  - i) a means will exist for adding new roles.
  - ii) If a user needs access to more than one district, this will be achievable with one MEIS account (rather than requiring a separate MEIS account for each district).
  - iii) each role will return a correct entity list for that role (currently the ISD District Role does not return the correct entity list).
25. MDE Help Desk needs access to Authorized User pages without being assigned access to a school district. This role might also need to include the ability to edit/add users to the SCM system.
26. Review the current method of page security. The Web pages are designed to test if a user role exists. This is accurate under the current list of roles; however, if we add more roles, the user would be able to access pages that are outside of that role level. All secured pages should test for specific roles.
27. Modify security administration function so new roles may be created. (e.g., an authorizing agency for charter schools).
28. When users are removed, they are currently deleted from the system. These accounts should instead be inactivated to preserve modification history (i.e., an audit trail).
29. The SCM replacement will provide a system that integrates with the existing role-based security system. The state is migrating to an enterprise LDAP system that may be in place during the development of this application. The new system would allow multiple role types and roles for a single user account. This ability does not exist in current system.

### **Output – Search Options, Reports, Labels, Data sets, Contact Lists, E-mail**

30. Support XML, CSV, Excel, and other helpful data download formats.
31. “Build your own school/facility comma separated values (.csv) file” must be able to support large data sets. (e.g., all schools in the database).
32. The system must be capable of interfacing with the state's e-mail system in order to validate e-mail addresses (e.g. perhaps “pinging” to ensure an address is valid).
33. The system must be capable of automatically generating and sending an email confirmation to an authorized user and the superintendent for that user’s district following any addition, update or deletion of data by that authorized user.
34. The new system must provide offline processing options. For example districts should be able to download their data, make desired changes and then upload all changes as a batch.
35. Mailing list options should be more user-friendly and should allow for additional customization by the person generating the list (e.g., Dear “Math Coordinator”...).



[Single Record Student Data \(SRSD\)/ Unique Identification Code \(UIC\) Application \(referred to as the "SRSD/UIC Application"\).](#)  
[Current System Overview](#)

The Single Record Student Database (SRSD) is one of the multiple data sets managed by CEPI. CEPI is responsible for the collection and reporting of data about Michigan's Pre K-12 public schools and students.

Benefits provided through the SRSD application to the various participating agencies include:

- Data resource/collection area for the educational community
- Evaluate program effectiveness
- Disseminate accurate educational statistics via internet

The Single Record Student Data (SRSD) system collects and stores student data from the various School Districts in a single record format. The data are collected three times during the year (Fall, Spring and End of Year). The major functions of the current system are detailed below:

File Upload  
Error Check  
Audit FTE  
UIC assignment and resolution  
UIC Reports

**File Upload:** Single record student data files are uploaded via the internet. File content is in accordance with the SRSD manual. Current format is structured text.

**Error Check:** Files are validated with a downloadable application installed on the user's desktop. The validation occurs again after the file is uploaded to the state server.

**Audit FTE:** The state of Michigan disburses "Foundation Grant" amounts to the various school districts based on the student count in each school district. The process involves a physical count of the students at scheduled intervals within a calendar year. This process is defined as FTE reporting. Based on business rules, the process ensures that each student is only counted once. The MDE and ISD auditors work with the CEPI applications to conduct audits and resolve any discrepancies. FTE adjustments are currently made to aggregate level data only.

**UIC Assignment and Resolution:** To report student data, education departments must accurately and securely track each student. In 2003, Michigan implemented a unique student identification system. Each student is assigned a unique and secure number that moves with the student from grade to grade and school to school over the course of their academic career. This function validates and assigns Unique Identification Codes to students. Students unable to be uniquely identified are displayed in a user interface that permits resolution to occur.

**UIC Reports:** This component permits the download of PDF and text files. It is the means by which districts can download UICs for the purpose of updating local systems.

[Requirements of New System \(SRSD/UIC\)](#)

**The vendor should conduct a detailed review of the current functionality of the existing SRSD/UIC Application, and, in consultation with DIT/CEPI, ensure that the basic functions of the current system**



are retained where desired. In addition, the functions below represent desired aspects to be incorporated into the future system:

The following is a partial list of functionality which will be required:

### **Secure Submission**

1. The system will accommodate both bulk upload submissions as well as the real-time keying in and modification of single records.
2. The system must support the secure transfer and exchange of data over the Internet among educational entities using a number of file formats including XML and comma delimited.
3. The system must incorporate a web-based Error Check Program that provides feedback to districts immediately following their upload, retaining and expanding the current reporting capabilities of the downloadable Error Check program. The web-based solution must accommodate small, medium, large and metropolitan school districts. The solution must account for increased processing loads that will occur days prior to submission deadlines.
4. The new system will adhere to the following general flow for uploading batch files:
  - a. Secure upload will occur.
  - b. File will be error checked and reports provided for district review.
  - c. UICs resolution will occur (all records must have a UIC, and all records requiring resolution must be resolved before a file can be officially submitted).
  - d. Any errors must be corrected by the district in the district source systems and files must be re-uploaded.
  - e. Once the district is satisfied with the reports, all the records contain a valid UIC, and the file is error-free, the district may select "submit."
5. The new system must accommodate "Quick Response" data collection. This means the ability for the system to respond to requests for quickly needed data by adding new elements and providing capability for a response from districts (e.g., hurricane evacuees), either in bulk upload or individual mode. For example, the ability to collect basic matching information (last name, first name, gender, date of birth, UIC) along with whatever new data element is required.
6. The new system will integrate with the existing security authentication system (MEIS). The state is migrating to an enterprise LDAP system that may be in place during the development of this application. The new system would allow multiple role types and roles for a single user account (this ability does not exist in the current system). Also, the current application has additional securities based on role type and entity level. Role type describes the functions the user is able to perform (e.g., UIC resolution, FTE audit, file submission). Entity level describes the level of entities to which users have access. Currently these levels are building, district, state, ISD, and system administration. In addition, access to submit and update different data elements in the new system must be managed through differentiated role-based secure access. This will allow users to submit and edit only those particular data elements for which they have permissions.
7. The system will provide the option for users to replace or append to previously submitted batch files (a global on/off switch should be provided that allows system administrator to set this function on or off for all users).
8. The Educational Entity Master and the Student Data System should interoperate in such a way that allows the reporting of students attending a consortia (in terms of the system, a consortia denotes an entity from which students from multiple districts may be reported), state-sponsored entities, nonpublic entities, or ISD students located in the facilities of a constituent district, early childhood facilities, higher education.
9. Automated data exchange between local and state: (e.g., SIF Zone Integration Server configuration, web services automated data exchange). This functionality should include "submission" or getting data to the state, exchange of data from the state to the local, reporting and record maintenance scheduling when changes exist on either side of the exchange.

### **Record Maintenance**



10. Deduplication and Linking. The deduplication function in the current system compares the UIC master table against itself, thereby identifying possible duplicate students (same student with more than one UIC). The output is a report of possible matches. This function should be retained. However, the current function is inefficient. It is slow and times out for large districts. The new system would increase the efficiency of this function. Further, the new system will provide a means of integrating the results of deduplication with a potential linking function that will allow districts to link possible matches together. Finally, a current business process for linking does exist. Therefore, the linkages that have resulted from this process must be preserved.
11. Resolving Records. The new system must incorporate a process, based on but not necessarily identical to the current system, for identifying duplicate records, record matches, and students with multiple UICs. In addition to the current algorithm for matching (which incorporates Soundex), the new system would also incorporate "Smart" name search ("Bob" recognized as possible match for "Robert," "Jack" for "John", etc.).
12. Correcting Records. District users must be able to edit and update individual record data elements during specified periods. These periods may vary by field. Access to update different data elements must be managed through differentiated role-based access (i.e., the fields that can be modified will be based on a user's role).

### **Reporting**

13. Individual record error reports as well as aggregate summaries of the submitted data must be available to districts as an output of the online error checking process that follows initial upload.
14. An assortment of aggregate level summary reports must be available to districts within 24 hours of the official submission of their files to the state.
15. The error checking process should be able to access historical information for a UIC stored in the data warehouse, once the warehouse becomes available.
16. Student Tracking. A student tracking solution, to be designed in consultation with CEPI staff, will be provided that allows for the collection and display of a cumulative student history that includes, for example, demographic, enrollment, program participation, assessment scores, attendance data, and expulsion data. Student tracking must allow for the capacity of approximately three million students (including early childhood and post-secondary), while allowing for exponential growth. The system must accommodate a student who is in multiple districts simultaneously and students dual enrolled in high school and college.
17. The current system incorporates an Full Time Equivalency (FTE) Audit function that must be retained. FTE submitted by the districts are presented to the ISD auditors for review and audit. The data is currently presented and audited in the aggregate. The new system will provide a solution that allows the auditing of student level data rather than auditing at the aggregate level. In addition, the system will provide the means for submitting a narrative audit report that is synchronous with the audit changes.

### **General Functionality**

18. The web interface for the new system must support recent versions of the following browsers: Internet Explorer, Firefox, Netscape.
19. Since business rules are updated throughout the year (for example, field data code changes, field format changes, field additions/deletions, dependencies between fields), the proposed solution should be modular enough to allow for business rule updating by a DIT resource without major re-programming efforts.
20. The new system must take into consideration the current design and uses of the existing database environment (e.g., existing tables and their relations) and how these are archived and utilized by other systems (e.g. Office of Educational Assessment and Accountability, Office of Special Education, MDE, Career and Technical, etc). The new system must provide a transitional process that accommodates the current uses of these various tables (in particular, the "GoodStudentRecords" table).
21. The new system will provide a Web Service designed to render resolved UICs and other student data to various CEPI and MDE applications (for users with the required security). This service should contain



a library of functions accessible to these applications. The parameters regulating certain Web Service functions would accept, for example:

- a. student core field information in one document and return valid UICs for those students in a separate document.
- b. a list of students in one document and an XML schema in another document and then return student data in the schema format for the students in the first document.

A user interface should be included in the Web Service that allows for manual resolution of UICs and the download of the completed resolutions.

22. The system must interface with the State's email client in such a way as to automatically generate and send email notifications for select events.
23. All functions in the application need to perform with efficiency regardless of district size. Districts in Michigan range in size from 1 to 180,000 students. Total public K-12 students for the state approximate 1.8 million.
24. The solution will provide a scalable system that is initially capable of supporting at least 800 users and at least 300 concurrent users

### System Interface Requirements

The new system must interface with a number of other systems and applications. The following is a partial list of systems that will require an interface.

- MICIS – Michigan Compliance Information System (Office of Special Education and Early Intervention Services). This system is used to collect Special Ed information from districts. It is a single record system. The UIC code is currently a field in this database, although the two systems are not technically connected at this time.
- MiAccess (Michigan Department of Education, Office of Educational Assessment and Accountability): This is a single record system. It is similar to the MEAP system, except exists only for Special Ed students
- MEDS – Migrant Education Data System (Michigan Department of Education): This is a single record system for migrant students. The MEDS system has a direct connection to CEPI's UIC Master Table for acquiring and verifying UICs.
- MEGS – Michigan Electronic Grants System (Michigan Department of Education): This is an aggregate data system. All grant definitions and calculations are entered into this system, and all request and allocations are first entered here, and then passed onto the GCMRS system to aggregate and send to MAIN for payment.
- CTEIS – Career Technical Education Information System (Michigan Department of Labor and Economic Growth – Career and Technical Education): This is a single record system for all of the CTE (Vocational and Technical School) enrollments, outcomes, etc at an individual student level. The system is currently being transitioned to a web-based application. The UIC is a required field in the CTEIS system. Discussions are underway for providing access to CEPI's UIC Master table, such access to be implemented by Fall 2006.
- MEAP – Michigan Educational Assessment Program (Michigan Department of Education, Office of Educational Assessment and Accountability): This is a single record system that collects and reports assessment data (MEAP, ELPA, MME) for Michigan students. The UIC is a field (currently not required) in the MEAP system. The MEAP system has a direct connection to CEPI's UIC Master Table for acquiring and verifying UICs.
- MAERS (Michigan Department of Labor and Economic Growth – Office of Adult Education) – Michigan Adult Education Records System: One subsystem of the "1-Stop" service centers around the State, which serve the unemployed. The subsystems track individuals with requests for training, work/jobs, welfare and other services. Does not contain the UIC code.
- Merit – Michigan Merit Scholarship Program (Treasury): The Merit system collects and reports information on all students who are eligible to receive the MERIT scholarship for higher education studies. The allocation is based on their MEAP scores.
- Educational Data Exchange Network (EDEN). This is the federal initiative for the reporting of all educational data from the state. CEPI is responsible for the reporting of this data.



- TITLE I SES APPLICATION (Michigan Department of Education). This is a single record system for the collection of data related to supplemental services. These services are provided to students in Title I schools where the school has failed to make Adequate Yearly Progress. This system has a direct connection to CEPI's UIC Master table.
- Other State Agency Systems (e.g., Department of Community Health, Corrections, Department of Human Services).



## Appendix 2 Report Requirements

### Reports

**SRSD UIC Batch Summary Report:** A report that lists a summary of all the uploaded SRSD batches for the selected ISD and District. The report includes data for every batch submitted within an ISD. The report can be filtered by district or may be viewed for every district in the ISD, if the user's permissions allow. The report contains data regarding the current status of the batch (replaced batches are removed from the list), the date the batch was submitted, and statistics regarding the number of duplicates or matches found and how many new UICs were generated.

**Unresolved Possible Matches Report (PDF and Excel):** This report is presented to the user following Phase 1 and Phase 2 and gives the detail of all Unresolved Possible Matches still existing for that student for the selected ISD, the selected District, and Batches. The report presents basic data about the student which should allow you to decide whether there is a match with a student already in the system or if this is a new record.

**List of All New UICs (PDF and Excel):** Presents a list of all the newly generated UICs created in the batch submission for the selected ISD, District, and Batch ID.

**List of Positive Matches (PDF and Excel):** This report presents a list of the Positive Matches that the application found in the batch submission for the selected ISD, District, and Batch ID.

**List of System Generated UICs (PDF and Excel):** When users do not resolve duplicate UICs, the system automatically generates UICs for those records at the initiation of Phase 2. This report presents a list of those UICs that were generated by the application.

**List of Changed UICs (PDF and Excel):** This report provides a listing of students from the submitted file for whom the submitted UIC is different from the UIC assigned by the district resolver.

**List of Linked UICs (PDF and Excel):** Provides a listing of all students in a district who have UICs that are currently linked as either a primary or secondary UIC.

**Export File of all Submitted data with UICs:** This file may be downloaded from the "UIC Reports section" after all Phase 2 resolution has occurred. The system generates a text file that includes all the same batch data that was submitted and adds the new 10-character UICs assigned to each record.

**Export File of all new UICs:** The system generates a text file of all the newly generated UICs. This file is useful for schools to update their local systems.

**Export File of all Matched UICs:** The system generates a text file of all the positively matched records.

Additional Reports and Export Files:

- List of cross district claims for FTE auditor review.
- List of records that came in with an invalid UIC (both scenarios)
- Ad-hoc reporting



## School Code Master

- List of all public school districts (Local Education Agencies)
  - District Code
  - District Name
- List of all Intermediate School Districts
  - ISD Code
  - District Name
- List of all Intermediate School Districts with Local Education Agencies (LEAs) and Public School Academies (PSAs)
  - ISD Code
  - ISD Name
  - District Number
  - District Name
- List of all Public School Academies (PSAs)
  - ISD Code
  - ISD Name
  - District Code
  - School Code
  - School Name
- Listing of nonpublic schools
  - ISD Code
  - ISD Name
  - District Code
  - District Name
  - School Code
  - School Name
- Mailing Lists and Mailing Labels
  - Create a customized mailing list of schools, facilities, and their administrators that you can print or download in multiple file formats.



**Appendix 3**  
**List of Current Data Elements**

The following table is a list of the 125 fields contained in the current Single Record Student Database (SRSD). For additional information regarding the SRSD data elements please click on the “*Spring/EOY 2006 Data Field Descriptions*” link on the web page located at: [http://www.mi.gov/cepi/0,1607,7-113-986\\_10481---,00.html](http://www.mi.gov/cepi/0,1607,7-113-986_10481---,00.html).

<b>Field #</b>	<b>Name</b>	<b>Description</b>
<b>General</b>		
1	Operating ISD/ESA Number	These codes are the state-assigned ISD/ESA numbers. Enter into the field the code of the ISD/ESA that has the operating district or program the student is attending. If the student is attending an ISD/ESA outside of the resident ISD/ESA, use the code for the operating ISD/ESA in which the program the student is attending is located.
2	County Code	The county code in which the administrative or central office of the district in Field 3: Operating District Number is physically located. For public school academies, report the county code in which the PSA building is physically located.
3	Operating District Number	This is the state-assigned, five-digit code for the district submitting the student data. It is the district to which any applicable funds (state or federal) will be sent. All students for whom the district receives any state or federal funds should be reported.
4	Resident LEA Number	This is the state-assigned, five-digit code for the district or LEA (Local Education Agency) in which the student resides. This number may differ from the operating district if a student is enrolled in multiple districts (with total Full-Time Equivalency (FTE) less than or equal to "1.00"). The two numbers may also differ if a student takes part in a schools of choice program or attends a charter school/PSA or certain other programs.  For public school academies (PSAs), the resident local education agency (LEA) number is the five-digit code of the public school district in which the student resides. For instance, if a PSA student lives within the boundaries of the Detroit Public Schools, then the resident LEA number is Detroit's five-digit code. In the case of juvenile detention facilities operated by the ISD, the resident LEA number is the district in which the facility is located.
5	School or Facility	These codes are the state-assigned numbers in the official School Code Master. <i>This field is the primary key (i.e., the relational link) to all five core data sets in the MEIS warehouse.</i>
6	Student's Last Name	The student's last name as it appears on a birth certificate or legal document presented at time of enrollment.
7	Student's First Name	A name given at birth, baptism, naming ceremony, or through a legal change. Do <b>not</b> use nicknames or abbreviated names.
8	Student's Middle Initial	If the student does not have a middle initial, fill this field with a space. Many students do not have a middle initial; therefore, the field is frequently blank.
9	Date of Birth	The date of birth is the date as it appears on a birth certificate or other legal document presented at time of enrollment.
10	Gender Code	Indicate if the student is male or female. Use code M when the student is male. Use code F when the student is female.
11	City or Place of Birth	Enter the city or place of birth just as it appears on the student's birth certificate. When the city of birth cannot be verified, then the county or township of birth is to be used; when the city, county, or township is not verifiable, then the country of birth is to be used. In many cases the city of birth will be the city where the hospital is located. If the student was adopted, the city or place of adoption is acceptable. For foreign-born students, please use the country only. For example, "France" (correct) not "Paris, France" (incorrect).
12	Street Address	This is the street address where the student lives at the time of reporting or



		the student's last known street address of residence.
13	Name of City or Town	The name of the city or town where the student lives at the time of reporting or the student's last known city or town of residence.
14	Zip Code	The zip code of the location where the student lives at the time of reporting or the last known code of residence. If there is no four-digit extension, pad with five blanks (NNNNNbbbbb).
15	Student ID Number (Membership)	The student's Social Security number <b>or</b> the local district's student ID number may be placed in this field (with leading blanks). This is different from the unique identification code (UIC) in Field 124 generated by the Center for Educational Performance and Information (CEPI) as the student identifier.
16	FTE in General Education (Membership)	Refer to Section 6 of the current State School Aid Act and the Michigan Department of Education's Pupil Accounting Manual for Full Time Equivalency (FTE) instructions. Enter the FTE in this field. A student's FTE may range from "0.00" to "1.00" (both tenths or hundredths are allowed as long as the district is consistent in the use of either one).
17	Grade or Setting	Identify the grade level or the educational setting in which the student is enrolled.
18	Date of Enrollment	The month, day, and year of the first day the student enrolled in that district. If a student exits the district and then re-enrolls, the date of re-enrollment should be reported in this field.
19	Attendance	The three characters before the slash represent the number of days the student actually attended. The three characters after the slash represent the total possible days in attendance from the first day of school, the date of new enrollment, or the beginning of a program (e.g., summer school). (See Field 20: Date of Enrollment for more information on date of enrollment.) For the EOY count day, use the last day of school, not including summer school. <b>This field does not address instructional days clock hours.</b> For services that are not school-based (e.g., services provided in the home), report how many days out of the days available that the student received services.
20	Racial/Ethnic Code	First identify a racial group and then the ethnicity of the student (if Hispanic or Latino). A combination of codes with at least one primary and/or one or more secondary choices maybe reported.
21	Exit Status	Use only one code for the reason the student is no longer in the school district. If the student has transferred to another school within the same school district, the previous school should report an exit code of "19" and leave Field 24: Date Exited blank. This student should not appear in the previous school's subsequent submissions. If the student has been expelled but continues to receive services, report an exit code of "19" and complete fields 112-120. Use an exit code of "10" (in addition to completing fields 112-120) only for students who are expelled and no longer receive services from the school district.
22	Date Exited	The month, day, and year of the first day after the date a student last attended school, graduated, or became known officially to have left the educational setting. Place a date in this field corresponding to the day after the student left school or terminated his/her education program or service.
23	Course Enrollments	This field is used to identify which courses the student is attending at the time of this count.
24	Program Eligibility/Participation	This field is used to identify what type of categorical program/service the student is eligible for and enrolled in.
25	Student Residency (Membership)	For complete explanations of these codes see the <i>Residency Related Information</i> in the instruction manual for reporting State Aid FTE count ( <a href="http://www.michigan.gov/documents/Section-4_41427_7.pdf">http://www.michigan.gov/documents/Section-4_41427_7.pdf</a> ). Or go to <a href="http://www.michigan.gov/mde">http://www.michigan.gov/mde</a> . Select 'Programs and Offices' then 'State Aid and School Finance' from the left sidebar. Under "Publications," select "Pupil Accounting Manual."
26	Supplemental Nutrition Eligibility	The count is taken at the district in which the student is enrolled, not necessarily the school where the meal is received. The student need not



		actually receive a meal on the day this count is taken. Free milk or free/reduced-price meal eligibility is used to calculate awards for federal and state grants by the Michigan Department of Education.
27	Multiple Birth	This field is used to indicate that the student is part of a multiple birth <b>where siblings share all unique identifying characteristics including first and last name</b> . This field is not intended to identify every case of twins, triplets, etc. in the state. It is only intended to provide a distinguishing data element for instances where the cultural practice is to provide twins (triplets, etc.) of the same gender with the same first name. Each student from such a multiple birth is to have a uniquely different number in this field. We recommend using the birth order of the students. This field will be used by the state to "break ties" if two or more students are identified as being duplicates (i.e., they share <b>all</b> unique identifying information), yet it is known by the district that these students are not duplicates but instead are part of a multiple birth.
<b>Homeless</b>		
28	Homeless	For a student enrolled in your district who lacks a fixed, regular, and adequate residence, identify his/her most frequent primary nighttime residence.
<b>Special Education</b>		
29	Primary Disability	Primary disability areas are defined in the Michigan Administrative Rules for Special Education. A copy of the rules is available through the following web site: <a href="http://www.misd.net/SEMGTService/">http://www.misd.net/SEMGTService/</a> In order for students to be counted for special education, they must have a disability code. Do not confuse primary disability with classroom placement.
30	Additional Disability Characteristics	These are used to describe additional characteristics relating to the student's primary disability.
31	Date of IEP/Temporary Placement	The date of the student's most recent Individual Education Program (IEP), or, if a student who currently receives special education programs or services enrolls in a new school, the date the parent consents to placement or implementation of the previous IEP in the new school. An IEP is required by the U.S. Department of Education in order to qualify students for federal funding.
32	Date of Initial/Re-determination	The date of the student's most recent Individual Education Program Team meeting in which the student's eligibility or redetermination of eligibility was established on the IEP.
33	FTE in Section 52 (Membership)	This categorical area represents special education membership. All students who do not qualify as Section 53 students should be listed as Section 52. Enter the special education Full-Time Equivalency (FTE) in this field. A student's FTE may range from "0.00" to "1.00". (Both tenths or hundredths are allowed as long as the district is consistent in the use of either one.) Special education students are reported whether or not they generate a special education FTE.
34	FTE in Section 53 (Membership)	This categorical area represents Section 53 Membership:
35	Program Service Code	<i>The primary program must be listed first (in the left-most position). This first field becomes the program assignment for State Aid membership.</i> If a student receives more than three services, specify the three that occur most frequently. It is important to put the primary program service in the initial program services field first and then consecutively fill in the following program service fields. This field reports services used in calculating a student's special education FTE and must have a value for a district to receive state special education reimbursement.
36	Support Services	Support services for special education students. <i>The primary service must be listed first.</i> Be sure to use these codes for special education students only. To be counted as a special education service, a service must be part of the evaluation or re-evaluation process or included as services to be delivered as part of the student's IEP. It is important to put the primary service first and then consecutively fill in the following support service fields. If a student receives more than five of the above services, specify the



		five that occur most frequently.
37	Primary Educational Setting	Primary Educational Setting is utilized to report on the least restrictive environment (LRE) settings for children and youth participating in special education. The time spent in a primary educational setting is unrelated to Field 40: FTE in Section 52 and Field 41: FTE in Section 53. Time spent in a primary educational setting is not related to special education membership.
38	Exit/Completion Reason	The reason the student is no longer in special education since the last submission.
39	Date Exited or Completed	The month, day, and year of the first day after the date a student last attended school, graduated, or became known officially to have left the educational setting. Place a date in this field when the student left school or terminated his/her special education program or service.
40a	Number of Removals (Hearing Officer)	Specify the number of times, year to date, that the student was removed to an interim alternative educational setting based on special education hearing officer's determination. "9" is interpreted as "9 or more."
40b	Number of Removals (Weapons)	Specify the number of times, year-to-date, that the student was removed by school personnel to an interim alternative educational setting following a weapons offense. "9" is interpreted as "9 or more."
40c	Number of Removals (Drugs)	Specify the number of times, year-to-date, that the student was removed following a drug offense. "9" is interpreted as "9 or more."
40d	Number of out-of-school suspensions	Specify the number of separate times, year-to-date, that the student was subject to a single, long-term, out-of-school suspension for more than 10 days. "9" is interpreted as "9 or more."
41	Multiple short-term out-of-school suspensions	Record a "1" if the student was subject to multiple (10 days or less) out-of-school suspensions that together accumulate to a total of more than 10 days.
42	IDEA Headcount Claimant	Reserved Field (Formerly: Individuals with Disabilities Education Act Headcount Claimant)
<b>Early Childhood</b>		
43	Early Childhood Enrollment	Indicate the early childhood program(s) in which the child is participating. Up to five programs may be entered. Early childhood programs generally refer to programs intended for children from birth to kindergarten entry (that is, up to but not including kindergarten). Developmental/Retention Kindergarten students should be reported in Field 125: Program Eligibility/Participation II. NOTE: If student is being claimed for FTE, student must also be reported as "00" (kindergarten) in Field 19: Grade
44	Exit/Completion Reason	Primary reason why the child left or completed the early childhood program or service.
<b>Early On</b>		
45	Eligibility Code	Eligibility conditions are defined under Michigan Special Education Services and Part C of Individuals with Disabilities Education Act 97. In order for a child to be counted in codes "1" and "3," s/he must have an Individual Family Services Plan (IFSP).
46	Date of IFSP for Part C	The date of the child's most recent Individualized Family Service Plan (IFSP) should be placed in this field. This infant or toddler, birth through age 2, is eligible for Part C of Individuals with Disabilities Education Act, may be eligible for special education, and is receiving early intervention services according to an Individualized Family Service Plan (IFSP).
47	Primary Setting for Part C	The primary setting in which a child between the ages of birth through 2 years is receiving services. <i>The child is counted according to the type of program being received at a location, not the type of location</i>
48	Services Provided under IDEA Part C	Codes "801 to 817" indicate services provided in accordance with the child's Individual Family Services Plan (IFSP).
49	Exit/Completion Reason	Primary reason why the child left or completed the Early-On® program or service.
50	Date Exited or Completed	The month, day, year of the first day after the date the child last attended school, or became known officially to have left the special educational



		setting. Place a date in this field when the child left school or terminated his/her education program or service.
<b>Career and Technical Education</b>		
51	Student Population Category	Use this field to indicate the population categories to which students in state approved Career and Technical Education programs belong. The definitions of the terms used in this field were taken from the language in the Carl D. Perkins Vocational and Applied Technology Education Act or U.S. Department of Education Regulations. They refer to students participating in a state-approved career and technical education program.
52	Related Work Study	Type of program in which the student is participating. This is only for students in a state approved CTE program. This does not include work-study students as defined in Michigan's Special Education Administrative Rules.
53	CTE Approved Program	This field identifies the program and all standardized courses in which a student can be enrolled. Enter the approved CTE program combined Classification of Instructional Program (CIP) Code and Course Code(s) in which the student is enrolled in this field. The following list contains all standardized CIP Codes and Course Codes. Other course codes are acceptable pending approval of CTE consultant. If the course is not a standard course, but is an approved program, use the '00' course code.
54	CTE Follow-Up Program	This field identifies the CTE program in which the student has participated during the school year and which is most closely aligned with the student's future career goals. This field provides the data used for identifying students to be included in the annual follow-up survey of students who have completed an approved CTE wage-earning program. It also provides the unduplicated program enrollment and completion information required by 20 USC 2342.
55	Completion Status	Report current completion status. For end-of-year, select the most appropriate code for the program listed in Field 66: CTE Wage-Earning Program.
<b>Advanced and Accelerated</b>		
56	Program Model	This is the primary type of advanced and accelerated program in which the student is included.
57	Special Program Options	This is the educational approach used in the program for the student. List up to three approaches in the order of the amount of time spent in the program by this student.
<b>Limited English Proficient</b>		
58	Enrollment	The primary type of English language acquisition program in which the student is currently enrolled
59	Country of Origin	This field is for participants in the Refugee Children School Impact Grant. This is the country the parents/child fled because of persecution or fear of persecution on the basis of race, religion, nationality, or political opinion. Select the country from the ethnic list at the end of this section.
60	Primary Language	This is the student's primary or home language if a home language survey indicates that the language of the home is not English or the student's primary language is not English. This is a criterion used to determine eligibility for Section 41 and Title III funding. Select the language from the ethnic lists at the end of this section.
61	Reclassification Test	Identify the type of test used to classify or reclassify this student. A list of tests used most often appears on the next page.
62	Test Score	Indicate the English language proficiency level of this student according to the English Language Proficiency Scale above. Proficiency level is an interpretation based on test results and other objective indicators.
63	Exit Reason	Reason this student left the Limited English Proficiency program or service.
64	Date Exited	The month, day, and year that the student was no longer engaged in either a LEP or an ESL program or service.
<b>Immigrant/Refugee</b>		
64	Country of Immigration	This student has transitioned out of English language acquisition programs in the last two years, but was reclassified as LEP after transitioning. The



		reason for the reclassification may be classroom performance, state test performance, teacher recommendation, self-referral, parent request, or other.
66	Funding Participation	The type of funding which the student receives.
<b>Migrant</b>		
67	Date of Qualifying Move	The month, day and year of the move that qualifies the student for migrant education services.
68	Regular Term Instructional Services	This is the student's instructional service during the regular term. Include only those instructional services provided in whole or in part with Migrant Education Program (MEP) funds. Do not count the number of service interventions per student, such as the number of tutorial sessions in a given subject.
69	Regular Term Support Services	This is the student's type of support service during the regular term. Include only those support services provided in whole or in part with Migrant Education Program (MEP) funds. Do not count the number of service interventions per student, such as the number of guidance sessions or doctor visits per student.
70	Summer Term/Intersession Instructional Services	This is the student's instructional service during the summer term, intersession, or home based instruction. Include only those instructional services provided in whole or in part with MEP funds. Do not count the number of service interventions per student, such as the number of tutorial sessions in a given subject.
71	Summer Term/Intersession Support Services	This is the student's instructional service during the summer term, intersession, or home based instruction. Include only those instructional services provided in whole or in part with MEP funds. Do not count the number of service interventions per student, such as the number of tutorial sessions in a given subject.
72	Funding for Service/Program	Indicate the type of funding used for the program/service this student is receiving.
<b>Title I</b>		
73	TAS Instructional Services	This is the Title I instructional service received by the student in a Targeted Assistance Schools program. Include only those instructional services provided in whole or in part with Title I funds. School wide programs (SWP) are collected via the School Infrastructure Database (SID).
74	TAS Support Services	This is the Title I support service received by the student in a Targeted Assistance Schools program. Include only those support services provided in whole or in part with Title I funds.
<b>At-Risk</b>		
75	Instructional Services for At-Risk Students (Section 31a)	Identify up to six instructional services provided to the at-risk student with Section 31a funds. At-risk students are those who meet the Section 31a eligibility criteria and receive services funded by Section 31a (see State School Aid Act, section 388.1631a, paragraph 15).
76	Support Services for At-Risk Students (Section 31a)	Identify up to four support services provided to the at-risk student. At-risk students are those who meet the Section 31a eligibility criteria and receive services funded by Section 31a (see State School Aid Act, section 388.1631a, paragraph 15).
<b>Adult Education</b>		
77	Adult Education Participant Funding	The participant in adult education is funded through a state, or a state and federal funding source(s).
78	Adult Education FTE in July (State Membership)	Indicate the participant's program and FTE level(s). The first digit identifies the program of the participant. The next four digits are the FTE that the participant spends in each program area. A participant's FTE may be proportionally reported under a maximum of three of any of the program categories.
79	Adult Education FTE in September (State Membership)	Indicate the participant's program and FTE level(s). The first digit identifies the program of the participant. The next four digits are the FTE that the participant spends in each program area. A pupil's FTE may be proportionally reported under a maximum of three of any of the program categories.



80	Adult Education FTE in February (State Membership)	Indicate the participant's program and FTE level(s). The first digit identifies the program of the participant. The next four digits are the FTE that the participant spends in each program area. A pupil's FTE may be proportionally reported under a maximum of three of any of the program categories.
81	Adult Education FTE in April, (State Membership)	Indicate the participant's program and FTE level(s). The first digit identifies the program of the participant. The next four digits are the FTE that the participant spends in each program area. A pupil's FTE may be proportionally reported under a maximum of three of any of the program categories.
82	Diploma/GED Status (State Membership)	Participant is enrolled and attending a Department-approved program and the participant: 1 has received a General Education Development (GED) certificate, or 2 has received a high school diploma, or 3 has not received a GED and has not graduated from high school.
<b>Student Expulsion</b>		
83	Date Incident Occurred	The date used in this field is the day the incident that led to the expulsion occurred.
84	Date Expelled	The date the school board, its designee or hearing officer took action to expel the student from the district. For students with disabilities, expulsion also means exclusion for more than 10 days (long-term suspension) or for multiple short-term suspensions summing to more than 10 days from his or her educational program, class, transportation, or any aspect of programs or services identified in a student's IEP.
85	Length of Expulsion	The length of expulsion is the amount of time in instructional days that the student will be out of school because of the expulsion (i.e., the period of time in days for which the student was expelled). Use "888" if the expulsion was permanent. Use "185" if the expulsion was for a full school year.
86	Incident Type	The primary and most recent reason that led to the expulsion of the student:
87	Location of Incident	The location of the incident that precipitated the expulsion.
88	Time of Incident	Indicate whether the incident occurred before, during, or after school hours.
89	Estimated Cost of Property Damage	Indicate the estimated or actual cost of out-of-pocket expense to repair or replace the damaged property as required in MCL 380.1310a(2). The five-digit field is used for costs up to \$99,999.
90	Primary Victim of Incident	Indicate who the primary victim of the incident was.
91	Follow-Up after Expulsion	In addition to a referral to a law enforcement agency (as required in statute) indicate what activity was taken as a result of the expulsion.
<b>Single Record Submission</b>		
92	Date of Count	Use the count date (4th Wednesday in September, 2nd Wednesday in February)
93	UIC	This field contains the Unique Identification Code (UIC) produced by the Michigan Education Information System (MEIS).
94	Program Eligibility/Participation II	This field is used to identify what type of categorical program/service for which the student is eligible and enrolled.

The following table is a list of the 38 fields contained in the current School Code Master (SCM) file.

<u>Field #</u>	<u>Name</u>	<u>Description</u>
1	dcode	School District Number
2	bcode	School or Facility Number
3	type	Type of Educational Entity
4	chartcd	PSA Authorizer Number
5	isd	ISD/ESA Code
6	ctycode	County Code



7	geoloc	Geographical Location
8	offname	Official Name of Entity
9	addr1	Facility Street Address (Mailing)
10	addr2	Facility Street Address (Physical)
11	city1	Facility City (Mailing)
12	city2	Facility City (Physical)
13	zip1	Facility Zip Code (Mailing)
14	zip2	Facility Zip Code (Physical)
15	comname	Common Name of the School District
16	gradeset	Grades or Educational Setting in School/Facility
17	magnet	Magnet School
18	regcfc	Regional Configuration (Read-Only)
19	ein	Employer Identification Number (Read-Only)
20	nces	National Center for Education Statistics (NCES) Code
21	function	Function of Ancillary Facility
22	relorient	Religious Orientation
23	lname	Last Name of Facility Administrator
24	fname	First Name of Facility Administrator
25	midinit	Middle Initial
26	honorific	Title/Honorific of Facility Administrator
27	adassign	Administrative Assignment of Facility Administrator
28	telephone	Telephone Number of Facility Administrator
29	fax	Facsimile (Fax) Number of Facility
30	email	E-Mail Address of Facility Administrator
31	webaddr	Web Site Address of Entity
32	opendate	Date School or Facility Was Opened
33	closedate	Date School or Facility Was Closed
34	status	Current Status of Facility
35	ownership	Facility Ownership
36	hdcount	Headcount Flag (Internal Use Only)
37	history	Intersession History of the Facility
38	gradestring	Grades or Educational Setting in School Facility



**KEY PERSONNEL RESUME TEMPLATE**

<b>Proposed Resource Name:</b>		
<b>Proposed Role:</b>	<i>Example: Project Manager</i>	
Associated with: (check one):	Prime Bidder	Subcontractor
Percentage of Time to be allocated to Project:	Percentage of Project Time On-site: Percentage of Project Time Off-site:	

List the skills and experience that qualify the individual for the duties and responsibilities on this project for the proposed role. Please provide the year(s) the experience was acquired. Copy the experience requirements detailed in the RFP into the table below under the "Requirement" heading:

<b>Requirement</b>	<b>Bidder's Response</b>
<i>Examples: 10 years of experience managing large scale application development and implementation projects</i>	
<i>5 years of experience in the health/education/environmental field, implementing data management/decision support tools</i>	
<i>2 years of experience in managing a project using the vendor's proposed solution</i>	

List client references for work used to meet the requirements stated above, and all projects the proposed resource has worked on in the last three (3) years. A minimum of three (3) references are required. By submission of this information, the bidder and identified key person authorize the State of Michigan to contact references and previous employers provided to verify the accuracy of the information. Provide the identified information for each:

Start Date: <i>date started on project</i>	End Date: <i>date rolled off project</i>
Client/Project: <i>Client, with contact information, and project</i>	
Employer: <i>identify employer at the time of experience</i>	
Title/Percentage of time: <i>title of role on project and percentage of time spent on project</i>	
Description: <i>brief description of responsibilities for the project. Include software version</i>	

Start Date:	End Date:
Client/Project:	
Employer:	
Title/Percentage of time:	
Description:	

Start Date:	End Date:
Client/Project:	
Employer:	
Title/Percentage of time:	
Description:	

Certifications/Affiliations: *Description, including relevant dates*

The Bidder must submit a letter of commitment, signed by the identified resource, stating their commitment to work for the bidder/subcontractor on this project contingent on award of the bid.



**Appendix 5**  
**State of Michigan Approved Alternative Training Facilities**

The Contractor shall utilize State training facilities for facilitator-led classroom training. These facilities are available to any State of Michigan department without charge. All facilities are set up for Internet connection. It is recommended that reservations be made at least three months in advance of training. Depending on the rollout strategy, additional training facilities may be needed. If additional training facilities are needed the State will procure additional training sites. The Contractor must clearly mention its facility needs in the Training Plan.

Attached is the list of training facilities available to the Contractor to conduct training.



**OFFICE OF PROFESSIONAL DEVELOPMENT - TRAINING CENTER SITES AND CONTACTS**

**CADILLAC PLACE**

3038 W. Grand Blvd  
Suite CC350  
Detroit Michigan 48202  
Contact Person:  
**Phone: (313) 456-1927**  
**FAX: (313) 456-1926**  
**5 Computer rooms (4w/18; 1w/12)**  
**3 Classrooms; 1 conference room**  
**Video conferencing in Classrooms A**

**DEARBORN**

OPD Training Center  
2011 Bailey Street  
Dearborn, MI 48124  
**Phone: (313) 724-9004**  
**FAX: (313) 724-9002**  
Contact Person: Denise Costa  
**6 computer rooms (3 w/18; 1 w/14; 2 w/12)**  
**4 classrooms; 1 breakout room**  
**Videoconferencing in classroom 4**

**ESCANABA**

OPD Training Center  
2717 North Lincoln Road  
Escanaba, MI 49829  
Contact Person: Lorraine Novak  
Note: Training Center contact person is not  
Located on site.  
**Phone: (906) 789-0133**  
**FAX: (906) 789-0178**  
**1 computer room w/12; 1 classroom; 1 Breakout Rm**

**GAYLORD**

OPD Training Center  
Alpine Center Complex, 4th Floor  
800 Livingston Boulevard  
Gaylord, MI 49735  
Contact Person: David Woodworth  
**Phone: (989) 731-3139**  
**FAX: (989) 731-3454**  
**1 computer room w/12; 1 classroom; 1 breakout room**

**GRAND RAPIDS**

OPD Training Center  
Cascade Commons  
5321 28th Street Court, SE  
Grand Rapids, MI 49546  
Contact Person: Allen Stark  
**Phone: (616) 247-6385**  
**FAX: (616) 247-6337**  
**3 computer rooms: 1 w/18; 2 w/12; 1 classroom;**  
**1 breakout room**

**KALAMAZOO**

OPD Training Center  
Kalamazoo County DHS Office  
322 Stockbridge Avenue  
Kalamazoo, MI 49001  
Contact Person: Sharon Schnake  
**Phone: (269) 337-3656**  
**FAX: (269) 337-3654**  
**2 computer rooms w/12 each; 1 classroom;**  
**1 breakout room.**

**LANSING**

OPD Training Center  
7109 W. Saginaw Highway

Lansing, MI 48917  
**Phone: (517) 335-4701**  
**FAX: (517) 241-7607**  
**Section Manager: Al Kauffold**  
**Cell Phone: (517) 719-3203**  
**6 computer rooms: 1 w/18; 1 w/16; 4 w/12;**  
**2 classrooms; 2 conference rooms; 1 breakout room**  
**Videoconferencing: classroom 3D**  
**SAGINAW**  
OPD Training Center  
Vanguard Building, Suite 109 or 140  
4901 Town Center  
Saginaw, MI 48604  
Contact Person: Cathy Jean Meyers

Note: The center contact person is not located on site and should only be contacted in an emergency situation (desk phone: 989-758-1810 cell phone: 989-239-0640).

**Phone: (989) 249-0523**  
**FAX: (989) 249-0513**  
**3 computer rooms w/12 ea.; 1 classroom;**  
**1 conference room**

**CONTACT FOR ALL CENTERS**

Al Kauffold (517) 335-4701

**SCHEDULING FOR ALL CENTERS**

Connie Lawler (517) 373-3057

**NOTE: For computer related problems at the training centers, please call the HELP DESK at (517) 241-9700 or 800-968-2644.**

**All computer rooms have the number of computers as noted, plus one for the trainer.**

**All classrooms have a capacity of 30 to 35 seats.**

Video Conferencing capabilities available at all sites.

DHS ODP – Revised 02/2005



*CCSSO/CELT Decision Support  
Architecture Consortium (DSAC)*



*The State of Michigan  
Decision Support Solutions  
Report*

*March 21, 2005*

*This report was prepared for the*



*Prepared by  
CELT Corporation for submission  
under contract with  
the Council of Chief State School Officers*

*March 21, 2005*

*Publication of this document shall not be construed as  
endorsement of the views expressed in it by the Council of  
Chief State School Officers.*

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# Table of Contents

- 1.0 Executive Summary ..... 1
- 1.1 Introduction 1
- 1.2 Major Recommendations by Core Process 4
  - 1.2.1 Set Academic Standards and Curriculum4
  - 1.2.2 Administer Performance-based and Standardized Assessments 4
  - 1.2.3 Certify Educators 5
  - 1.2.4 Conduct Data Driven Analysis and Interventions and Manage Accountability Systems 5
  - 1.2.5 Manage Grants and Monitor Compliance 6
  - 1.2.6 Collect and Report Data 6
- 1.3 Recommended Projects 7
- 1.4 Summary Table of Scored Findings 9
- 2.0..... Existing and Target Environment  
..... 13
- 2.1 Core Process 1: Academic Standards and Curriculum 13
  - 2.1.1 Current State 13
  - 2.1.2 Target Environment 14
  - 2.1.3 Enabling Process Gap Analysis Table 15
  - 2.1.4 Technology 16
  - 2.1.5 Recommendations 17
- 2.2 Core Process 2: Administer Performance-Based and Standardized Assessments17
  - 2.2.1 Current State 18
  - 2.2.2 Target Environment 20
  - 2.2.3 Enabling Process Gap Analysis Table 20
  - 2.2.4 Technology 22
  - 2.2.5 Recommendations 22
- 2.3 Core Process 3: Certify Educators 24
  - 2.3.1 Current State 24
  - 2.3.2 Target Environment 25
  - 2.3.3 Enabling Process Gap Analysis Table 26
  - 2.3.4 Technology 28
  - 2.3.5 Recommendations 28



2.4 Core Process 4: Conduct Data Driven Analysis and Interventions, and Manage Accountability Systems 30

2.4.1 Current State 30

2.4.2 Target Environment 31

2.4.3 Enabling Process Gap Analysis Table 31

2.4.4 Technology 33

2.4.5 Recommendations 33

2.5 Core Process 5: Distribute Grants/Aid and Ensure Compliance 35

2.5.1 Current State 35

2.5.2 Target Environment 36

2.5.3 Enabling Process Gap Analysis Table 37

2.5.4 Technology 38

2.5.5 Recommendations 39

2.6 Core Process 6: Collect and Report Data 39

2.6.1 Current Environment 40

2.6.2 Target Environment 41

2.6.3 Enabling Process Gap Analysis Table 42

2.6.4 Technology 44

2.6.5 Recommendations 46

3.0..... Information Architecture ..... 48

3.1 Composite View of the Information Architecture 48

3.2 Comprehensive Technology Assessment 48

4.0..... Implementation Plan Summary ..... 55

4.1 Overview and Action Plan Assumptions 55

4.2 Five-Year Action Plan with Scenarios 60

4.3 Estimated Project Costs 60

5.0..... Appendices ..... 63

5.1 Appendix A: DSAC Framework and Rubrics 63

5.2 Appendix B: DSAC Knowledge Store URLs *(some are under construction at this time)* 72

5.3 Appendix C: Michigan State Background Data 73



List of Abbreviations and Acronyms

Acronym	Description
ACT	ACT, Inc., formerly American College Testing, Inc.
AYP	Adequate Yearly Progress
BOE	Body of evidence (portfolio of student accomplishment against standards)
CCSSO	Council of Chief State School Officers
CD	Compact disk
CEPI	Center for Educational Performance and Information
DIT	Department of Information Technology
DLEG	Department of Labor and Economic Growth
DMB	Department of Management and Budget
DSAC	Decision Support Architecture Consortium
DSS	Decision Support Systems
ELA	English Language Arts
ELPA	(Michigan) English Language Proficiency Assessment
ESL	English as a second language
ETL	Extract, transform, and load (re: data management)
FID	Financial Information Database (financial information on schools/LEAs)
GLCE	Grade Level Content Expectations
IDEA	Individual Disabilities in Education Act
IMS	Instructional Management System
ISD	Intermediate School Districts; Michigan has 57 ISDs
LDAP	Lightweight Directory Access Protocol
LEA	Local Education Agency; a.k.a. Districts; Michigan has 826 LEAs
MAIN	Michigan Administrative Information Network
MDE	Michigan Department of Education
MEAP	Michigan Education Assessment Program
MEGS	Michigan Electronic Grants System
MEIS	Michigan Education Information System
Merit	A student scholarship program housed within the Treasury Department



Acronym	Description
	and funded by the Tobacco Industry (Lawsuit) Settlement
MI-ACCESS	Michigan Alternate Assessment Program (for special education students)
MICIS	Michigan Compliance Information System (Special Ed)
MI CLIMB	Clarifying Language in Michigan Benchmarks (CD ROM and Web resource produced in 2002 based on 1995 state standards).
NAEP	National Assessment of Educational Progress
NCLB	No Child Left Behind
OPPS	Office of Professional Preparation Services
OSB	Office of State Budget, Department of Management and Budget
PMO	Project Management Office
PSA	Public School Academy
REP	Registry of Educational Personnel
SAMS	State Aid Management System
SCM	School Code Master (a.k.a. master list of Michigan educational facilities)
SEA	State Education Agency
SID	School Infrastructure Database (a.k.a. crime and safety database)
SIF	Schools Interoperability Framework
SIS	Student Information Management System (SIS)
SPED	Special Education
SPSS	Statistical Package for the Social Sciences
SRSD	Single Record Student Database (Michigan Student Information System)
STAR	Student Test and Achievement Repository (for state and national standardized test results and scholarship awards)
UIC	Unique Identification Code
US DOE	United States (Federal) Department of Education
WAN	Wide Area Network



### *Key Concepts, Constructs, and Definitions:*

Analytical Data Store (ADS) – A reporting view of the data that is designed for “slicing and dicing.” The data is aggregated and reflects summary data. Customized views can be developed for each agency program or operating unit. In addition, within ADS, the data can be integrated allowing for cross-subject views. See also *Data Mart and Data Warehouse*.

Architected Solution – An IT system built upon the foundation of the agency’s existing technology standards and architecture. Such solutions take full advantage of the technologies, operational processes, and technical expertise already in place across the agency, facilitating easier IT systems integration, maintenance, and support.

Architecture – A set of standards, guidelines, and statements of direction that constrain the design of information technology solutions for the purpose of eventual integration.

Balanced Scorecard Process – A systematic approach to project (particularly information technology project) high-level description, resource assignment, prioritization, and performance/delivery measurement. This process is proven to be effective in building consensus across an organization around project priorities and delivery efforts. It is both a non-technical and a rigorous management process.

Infrastructure – The backbone of IT delivery, the networks, communication services, operating systems, servers, desktops, and related platforms, products and services that provide IT capabilities to the end user.

Database – A structure and efficient mechanism for the storage, description, and management of discrete data elements and bodies of agency information.

Data Element – A discrete category of data, e.g., “age,” “ethnicity,” “test score.”

Data Mart – A subset of *Data Warehouse* data spun off to serve the specific data analysis needs of a subgroup of end users, such as a particular Agency program or operating unit, executive management, and so forth.

Data Warehouse – A centralized source of key agency data drawn from various *Systems of Record* and brought together for the purposes of data integration in line with the agency’s analysis and reporting requirements.

Decision Support System (DSS) – An IT-enabled system that facilitates the integration of critical agency information so that management may employ that information to inform planning and decision-making.

Extract, Transform, and Load (ETL) – The process and IT tools employed to draw out (extract) data from *Source Systems*, to systematically alter the data (transform) to conform with the database structure of the *Data Warehouse*, and to deposit (load) that data into the warehouse.



Metadata repository – This type of repository stores data about the data, including: descriptions of what kind of information is stored where, how it is encoded, how it is related to other information, where it comes from and how it is related to overall agency functional and operational activities.

Operational Data Store (ODS) – Typically the staging platform for data moving from *Source Systems* to a *Data Warehouse* or *ADS*. The data arrives in its most detailed state reflecting the most granular transactions.

Source System – Typically a transactional IT system, such as a financial, human resources, student information, or assessment management system, that feeds the agency's *DSS System* and *Data Warehouse*.

System of Record – See *Source System*.



## Executive Summary

### 1.1 Introduction

*“There is persuasive evidence that high expectations and a rigorous course of study, when organized and delivered effectively, can enhance student aspiration, motivation, **and** achievement...The [Commission on Higher Education and Economic Growth; a.k.a. the Cherry Commission] working group has reviewed compelling evidence that high expectations, delivered in an engaging, contextualized, personalized learning environment, pay dividends in terms of academic achievement and high rates of success at taking the next step to college and work....The future success of its residents depends on Michigan’s ability to raise the floor of preparation for **all** students, and make particular strides in raising achievement among racial minorities and within communities where achievement has been weak.”*

**— The Cherry Commission’s Report, Appendix D, page 82**

The State of Michigan has over its long history embraced a serious and substantial commitment to the education of its entire citizenry. Its world-renown public university system represents just one dimension of investment in quality educational programming. The fact that the State initiated high-stakes student assessments as early as the 1969 also speaks to the leadership’s ongoing use of formal measurement in assessing educational program performance and in focusing the spending of tax dollars. Even in more recent, fiscally lean times, the Michigan legislature has somewhat reduce State spending levels for school and student support while severely reducing expenditures in other government programs. As set forth forcefully by the Commission on Higher Education and Economic Growth, the State of Michigan continues to view its educational programs as the key to its social health and economic future.

To those ends, the Commission has recommended the creation of mechanisms for tracking the lifelong learning of Michigan citizens. Such a process would require those State agencies responsible for the delivery of educational programs to embrace a common, integrated approach to data management and data-driven decision-making, enabling *an engaging, contextualized, personalized learning environment* from pre-school all the way through university and adult education (i.e., pre-K to 20). This is a vast and challenging scope of activity given the disparate forms of source systems, data standards, data management practices, and government agencies that would fall within this envisioned process, especially in Michigan where the responsibilities for educational programs involve Michigan Department of Education (MDE), the Department of Labor and Economic Growth (DLEG), the State College and University System, the Department of Management and Budget (DMB), and the Department of Treasury, to name just a few. Indeed, of the twenty-six State Education Agencies examined to date by the Council of Chief State School Officers’ (CCSSO) Decision Support Architecture Consortium (DSAC), Michigan offers special structural challenges in devising an enabling decision support solution in line with the State’s educational program management objectives.

Interestingly enough, these very challenges afford Michigan a unique platform upon which to build a data-driven decision making capability. First and foremost, within the Office of State Budgets (OSB), Michigan now has a Center devoted exclusively to the collection, storage, and analysis of educational data. This Center for Educational Performance and Information (CEPI) stands independently of the many educational program providers that it seeks to serve. With



the general acceptance and support of its “customers” and with sufficient funding, CEPI could deliver the very enabling capabilities set forth as requirements in the *Cherry Commission Report*. Similarly, the State has centralized information technology services within a single Department of Information Technology (DIT). Like CEPI, DIT is positioned but not necessarily funded to provide a single integrated technology platform for a statewide decision support solution.

Furthermore, through a significant concerted effort, the MDE, CEPI, DIT, the States’ 826 local education agencies (LEAs), and fifty-seven (57) intermediate school districts (ISDs) have achieved some fairly significant milestones towards the establishment of a comprehensive decision support system for statewide education programs and learning management. In particular, one may point to the emerging Single Record Student Database (SRSD) and Unique (student) Identification Code (UIC) system for K-12 students as well as the well established Registry of Educational Personnel (REP) system for staff certification, the Michigan Education Assessment Program (MEAP) for K-12 assessment, and the MDE and State’s various Web sites for information sharing and service delivery. The time has now come to build on these important accomplishments to complete a comprehensive solution set for State of Michigan decision support of educational instruction/program management.

Through a partnership between the MDE, CEPI, DIT, and the Council of Chief State School Officers’ (CCSSO) Decision Support Architecture Consortium (DSAC), an external study team has worked with a cross section of SEA, LEA and other education process stakeholders to create an assessment and action plan to move Michigan beyond aforementioned foundational elements and towards information services that will more fully enable program delivery and learning for Michigan students.

In light of the federal mandates under the ***No Child Left Behind Act***, the timing of the DSAC study creates an outstanding opportunity for the MDE, CEPI, DIT, and those they serve to revisit their plans and redefine their direction in terms of the services that must now provide to a diverse, complex set of constituencies. This study will provide an information-technology roadmap to empower and enable effective and efficient LEA performance through the delivery by CEPI and its agency partners of a suite of centralized and highly purposeful data services. This report provides the details as to how the State can realize these objectives.

***From the outset, the DSAC study team would like to impress upon the readers of the Michigan study that the Consortium has taken a broad view of Agency data-driven decision making and its associated operational processes and information systems, implicit in the NCLB Act and IDEA but also aligned with a more comprehensive view of SEA roles and responsibilities. Our analytical framework which is both described in the Appendix of this report and in other documents shared with process stakeholders employs a systematic approach for decision support system assessments across the twenty-six SEAs now in the Consortium. While our recommendations are organized according to this framework, each member SEA is free to prioritize and act on these recommendations in keeping with its own needs and priorities. Furthermore, it is our view that the holistic approach of the DSAC study provides a broad perspective to better inform Agency choices around data management and decision support.***



Through Michigan's participation in the DSAC, a team of system experts from the CELT Corporation have conducted a thorough assessment of where Michigan stands in its efforts to establish a framework for decision-making to improve student performance. The team's observations are organized in terms of an analytical framework and architectural model, detailed in the Appendix of this document, employed to assess the State's preparedness, in terms of its own goals and objectives, for data-driven decision support.

### *Key Challenges*

Separate from the report's educational process focused observations, the DSAC team would also offer the following more general observations concerning the State's current capacity for data-driven decision support:

1. While the State's decision to encompass pre-K to 20 educational programs within the purview of its data-driven, decision support objectives aligns with its overall goals and objectives for Michigan educational programs, this choice adds even greater complexity to an already complex and high-risk undertaking.
2. Though the study team's sense of stakeholder effort, skills and abilities is very positive, the pressures of work and resource constraints have severely limited the time that MDE, CEPI, and DIT personnel may devote to the planning and implementation of new programs and services in response to the requirements of the *NCLB Act* and *IDEA*. The net result of these circumstances is a highly siloed approach to data management that works against the larger objectives of the State's decision support efforts. Furthermore, to realize the objectives identified in this planning document, more management resources are required to deliver a satisfactory decision support solution set.
3. Because the entire structure of key stakeholder organizations (e.g., MDE, CEPI, DIT) is relatively new in their respective current iterations to Michigan State government, there needs to be a stronger understanding and buy-in among those who need to collaborate across the envisioned data management process.
4. With all the various stakeholders in terms of statewide educational data management, there is no clear and decisive governance of the data management process, both in terms of overall policy at the executive level and more operational data stewardship among systems of record owners.
5. Similarly, there is no strong planning process that focuses on the inter-agency alignment of goals to action plans, resources, and metrics.
6. The current data management process lacks comprehensive rules for data management, presentation, and dissemination, including clearly defined roles and responsibilities among data stewards and end users. While CEPI could provide leadership and technical support in this regard, it needs to establish stronger bonds of cooperation and support with systems of record data owners. In 2004, the State of Michigan published an Information Technology Strategic Plan which defines the target technical architecture framework to support the State's government. DIT needs to finalize a recommendation for a technical architecture for CEPI's decision-support services aligned with the State's target architecture.
7. The overall effort lacks more formal partnering arrangements among the agency stakeholders (i.e. MDE, DLEG, CEPI, DIT, etc.).



8. Both existing Federal and State mandates as well as those implied and anticipated in the *Cherry Commission Report* lack the necessary human and financial resources within the MDE, CEPI, and DIT to get the job done.

In completing this study, the DSAC team firmly believes that an opportunity exists for CEPI to position itself as the enabling data management service to support Michigan in achieving its own and NCLB's educational performance standards. This study identifies the steps required to build and service this capability for the collaborative benefit of the State's LEAs and the students they serve. ***Like all of the SEA reports generated by DSAC, the Michigan study includes many components. Section 4 of this report suggests how these components might be staged and phased into operation over a five-year period. For this very reason, we first recommend the creation of a master data management plan that clearly prioritizes the sequencing of activities and the roles, responsibilities, and required resources associated with any decision support system rollout.*** We also encourage the State's educational leadership to consider a more comprehensive and robust approach to LEA data collection and decision support services. In constructing such an offering, its value to the State's Agencies, ISDs, and LEAs will become quite clear. By providing both the integrated data and tools for informed planning and decision making locally, a centralized CEPI service will both build the collaboration required to ensure the timely and accurate flow of data from Michigan schools and districts to the U.S. Department of Education, and ensure that the participating State Agencies, Departments, DIT, and CEPI receive the authorizations required to fund and maintain the undertaking.

### Major Recommendations by Core Process

This section provides descriptions of the report's recommendations to move from the current to the targeted environment within each of the DSAC model's six core SEA processes. Many of the recommendations involve the partnering of various Agencies and Departments, DIT, and CEPI to provide additional services that enable and strengthen local decision making and action at a cost far lower than if undertaken by an individual LEA. Please see Section 2.0 for a complete discussion.

#### Set Academic Standards and Curriculum

##### **Recommendations**

1. Establish grade-level and subject-specific content expectations as a database, converting existing static hardcopy and PDF documents to a dynamic, Web-based service accessible to educators across the State.
2. As an extension of this service, align curriculum resources – sample lessons, test plans, etc., with grade-level content expectations.
3. Deliver these Web-services through an educational services-portal (a.k.a. e-portal) that would also disseminate standards, curriculum, and benchmarking information.
4. Employ this e-portal as the platform for the incremental delivery of broad-based learning/instructional management services.

#### Administer Performance-based and Standardized Assessments



### *Recommendations*

1. Reengineer the MEAP process so that test results reach the appropriate schools and educators in a timelier manner, allowing for informed interventions in the same academic year as the exam.
2. Provide formative (a.k.a. interim) testing/benchmarking at the item level by grade; ensure that these new services align with grade level content expectations.
3. Create a library of test items based upon historical MEAP materials and distribute these test items via a searchable database running on the e-portal. Through a centralized service, the item test bank would be employed at the discretion of the LEA. To that end, leverage the test item resources already available through the Michigan Virtual University.
4. Collect formative test data as a CEPI data warehousing service to inform interventions at the LEA level, enabling data-driven educational reform at the district and school level. As a corollary to this service, redefine MDE field service strategies.
5. Use the e-portal to help identify and publicize LEA best practices in the use of assessment data for student and school improvement.

### Certify Educators

### *Recommendations*

6. Better integrate and secure educator and staff demographic, certification, endorsement, job assignment, and job history data. Within that service, require a UIC or PIC (some staff already have the PIC) for educators and staff as well as role-based authentication and permissions.
7. Track what teachers actually teach against where they work, their job history, and what they know (certificates and endorsements).
8. Map teacher assignments by school, by class, by student, and by student performance over time, employing said data locally to inform educator professional development planning.
9. Extend REP to accommodate educator electronic portfolios and the acceptance of electronic transcripts from institutions of higher education as the later become available.
10. Provide secure access via the e-portal to Certification records for the online correction of errors and other self-servicing features.

### Conduct Data Driven Analysis and Interventions and Manage Accountability Systems

### *Recommendations*

11. Provide an online AYP process tool set for LEA use that enables current school-specific assessment as well as district and State benchmarks' that rolls up AYP findings to the LEA and to the SEA level. Tools should integrate with data warehouse using presentation of data and automation to guide effective decision-making. Here again the DSAC team sees an opportunity to leverage e-portal services.
12. Deploy formative (interim) assessment services as a data-driven, proactive service offering to enable LEA action prior to the high stakes measurement cycle.



13. Track the development and implementation of school improvement plans, highlighting best LEA practices as to what interventions yielded what improvements.
14. Leverage these capabilities to address the data-driven decision-making, reporting, and data tracking needs for post secondary educational services and State job training programs per the recommendations of the Cherry Commission.

#### Manage Grants and Monitor Compliance

##### *Recommendations*

15. Streamline and rationalize existing processes and workflows, resulting in a single management system and the elimination of multiple and redundant data entry work.
16. Integrate the grants data collection process with CEPI's data services to eliminate redundant data capture.
17. Similarly, employ a single e-grant system to manage both State and Federal grants, affording access to current and historical financial information pertaining to SEA and LEA's grants in line with school and student performance, while saving maintenance funds over time.
18. The State should assess the merits of managing both grants and aid funding through a single information system that looks to SRSD for its student information but then adds in all of the necessary functionality to manage grants and aid application, distribution, and auditing processes.

#### Collect and Report Data

##### *Recommendations*

19. Through CEPI, deliver the data warehousing and data mart services platform required by State agencies and the LEAs.
20. In conjunction with this data management platform, provide an extensive but easy-to-use interface that will deliver to educational process stakeholders' information on a 24x7 basis via the Web through querying capabilities and more formal reporting.
21. To secure and provide access to the aforementioned database and Web-enabled services, establish a security and access control service based on both unique user authentication and the alignment of the UIC with specific system roles and permissions.
22. For owners of source data, data cleanup must become a priority. CEPI should provide assistance, direction, and support to these efforts as well as introduce an automated data clean-up processes.
23. Decision Support Systems (DSS) governance needs to quantify the ongoing benefits of its DSS solutions in terms of labor savings, staff redeployment, data quality, and the enhancement of data access and usability at the State Agency and LEA levels.



24. Leverage these capabilities to address the data-driven decision-making, reporting, and data tracking needs for post secondary educational services and State job training programs per the recommendations of the Cherry Commission.

Recommended Projects

The table below identifies and briefly describes the projects that are recommended by this report. Some of these are already in progress. For example, work is already underway to enhance the SRSD offering, to extend the use of UIC functionality, and to make MDE standards more widely accessible via the Web. The plan of action summarized below brings these and other tasks within a single, unified, and rationalized decision support architecture framework.

Table with 3 columns: Project No., Project Name, Project Description. It lists four projects: Project 1 (Data-Driven Decision Support Architecture Master Plan and Governance Structure), Project 1 (cont'd), Project 2 (Extension of the UIC Process to all Agency Systems of Record), and Project 3 (Extended Directory Services).



Project No.	Project Name	Project Description
		grade-level and subject-specific content, with the directory services function.
Project 4	Educational Portal (a.k.a. e-portal) as the core platform for a comprehensive Web-services strategy	<p>Create a master plan for Web-services that defines in detail comprehensive and complementary offerings, including:</p> <ul style="list-style-type: none"> <li>• virtual schools (course management)</li> <li>• grade-level and subject-specific content and supplement content (individual learning management)</li> <li>• online professional development for staff</li> <li>• digital content libraries, etc.</li> <li>• formative testing and test data banks</li> <li>• decision support service querying and report access; associated data clean-up activities.</li> </ul>
Project 5	MEAP Formative Assessments and Test Item Banks	<p>Develop a Web-based assessment platform delivered through e-portal which will provide a choice of diagnostic and formative assessments for use by districts. It will draw on the substantial number of released MEAP test items. Once a diagnostic/formative assessment is developed by a district, it can be delivered online or printed and scored, with the results posted online for further analysis. Remedial or extension resources can be recommended based on the results of the tests. This project might be best addressed through the statewide use of a learning management system working in conjunction with e-portal but for a start some modest enhancements to the existing MEAP services could serve as a pilot for the more extensive undertaking.</p>
Project 6	Architected Platform of Decision Support Services: Planning, Design and RFP Development	<p>Develop a comprehensive set of business (functional) and technical requirements for an end-to-end decision support system solution based upon DSAC's architectural frameworks and recommended standards. Assess existing DIT capabilities, services, and products in light of the emerging DSS requirements and where gaps exist, seek externally available products and services. Throughout this process ensure that stakeholders consider the total cost of ownership when selecting IT products and services.</p>
Project 7	Data Warehouse/Data Mart Platform	<p>Construct a data warehouse that stores the historical/time-stamped data concerning student information, student assessment, educator/staff job history, and certification, financial data, and so forth. Subsets of data by LEA and school should also be made available. Project will involve data modeling, data validation and cleansing, data transformation, and data transfer.</p>
Project 8	Data Reporting and Analysis Platform	<p>Construct a user-friendly tool set for self-directed data selection, analysis, and presentation by end users. The resulting service will allow stakeholders to select and analyze subsets of State data based upon their respective roles and permissions and to produce reports as needed.</p>
Project 9	School Improvement Planner (a.k.a. AYP Tool Kit)	<p>Provide each LEA/school with its own school improvement-planning tool through the e-portal that draws down aggregated high-stakes and formative assessment data to inform the intervention and planning processes to assist current state required process. This tool will be updated on a regular (at least</p>



Project No.	Project Name	Project Description
		annual) basis as MEAP data is made available so as to provide data-derived benchmarks and metrics for each school planning team. This same system would also roll-up both planning objectives and associated performance results to better inform the MDE interventions team as they plan for the allocation of intervention resources and other services to the LEAs and schools. Furthermore, the data derived from the School Improvement Planner will allow for the longitudinal tracking of LEAs over time and in relation to interventions, additional funding, the use of best practices, and so forth.
Project 10	e-Grants and Financial Data Enhancements	Reengineer and streamline the existing processes around a single unified database structure that relies upon, where appropriate, the CEPI operational data store for current student information, UICs, etc., and that allows for the tracking of State and Federal grants within one unified system.
Project 11	Project Management Office	To enable CEPI and stakeholders across Michigan State government to successfully deliver the aforementioned decision support system projects, DSAC will provide support and assistance to CEPI in associated IT architectural design, project management, and project delivery. These efforts will include a balanced scorecard process – i.e. a systematic approach to project (particularly information technology project) high-level description, resource assignment, prioritization, and performance/delivery measurement. This process is proven to be effective in building consensus across an organization around project priorities and delivery efforts. It is both a non-technical and a rigorous management process.

Summary Table of Scored Findings

The DSAC Project team has employed a rigorous, standards-based framework to assess Michigan’s readiness for statewide instruction and program enabling decision support. The Consortium’s model is diagnostic in nature and serves as a checklist in facilitating the field team’s assessment process. The actual application of this model for the State will depend upon the current condition of Michigan’s educational program policies, process, and available human, financial, and technical resources; the State’s targeted objectives; and its priorities in closing the gap between what is in place today and what Michigan wishes to achieve over the near term.

Each dimension of the State’s related data management and decision-support capabilities is scored on a four-point scale from “0” to “3.” The study team’s key findings are highlighted according to a color coded of green-yellow-red to signify our understanding of their relative strength within the context of the State’s overall capabilities. Red indicates an area in need of redress. Yellow indicates an area where considerable progress has been made, however, more work needs to be done. Green indicates an area of commendation and best practice. In brief, the table that follows summarizes the key recommendations of the Michigan study by the DSAC team.

Taken together, these metrics afford the study teams a balanced and consistent methodology in assessing individual Michigan educational goals and objectives against the organization’s



Phase I ~ Decision Support Architecture Consortium (DSAC) Report

current state of preparedness. Furthermore, these measures establish a method of comparison among State Departments of Education – not to rank one over another but rather to identify best practices to be emulated and areas of common need. In turn this information will help the CCSSO Decision Support Architecture Consortium team to focus our efforts in service of the Consortium’s membership.

The following is the DSAC team’s summary assessment of the Michigan’s **current** decision support capabilities **relative to its target environment** for each of the Consortium’s six-core process model, the respective seven enabling processes for each core process, and the twelve associated information technology application sub-systems. An explanation of the model and associated rubrics governing the scoring process may be found in Appendix A.

C o r e  P r o c e s s	Enabling Processes							Technology		
	1. Establish Policies	2. Provide Technical Assistance and Staff Development	3. Publish Information and Provide Communication	4. Manage Business Processes	5. Provide Enhanced Decision Support	6. Provide Organization/Staffing	7. Assess Funding Needs			
1 Set Academic Standards and Curriculum	1.5	2	2	1	0	1	0	0	State Curriculum Management	
2 Administer Assessments	2	2	1.5	1.5	1	1	1	1.1	State Assessment Results Management	
3 Certify Educators	3	2	2	2	1	1	1.5	2	Educator Certification Management	
4 Conduct Analysis/Interventions	2	2	1.5	1.5	1	0	0	0	Data Warehouse	
									0	Decision Support Tools
5 Distribute Grants/Aid and Ensure Compliance	2	2	2	1	1	1.5	1	2	Grant and Program Data Collection	
									2	End of Year Finance Data Collection
6 Collect and Report Data	2	2	2	2	2	1	0	2	Enterprise Directory + Security Portal	
									2.3	Student ID + Record Collection
									2	Safety and Discipline Information Data Collection
									2	Staff Record Collection & Highly Qualified Determination
									2	Facilities and Technology Plan Data Collection
									<b>Summary Scores</b>	
									2.1 2.0 1.8 1.5 1.0 0.9 0.6 1.5	

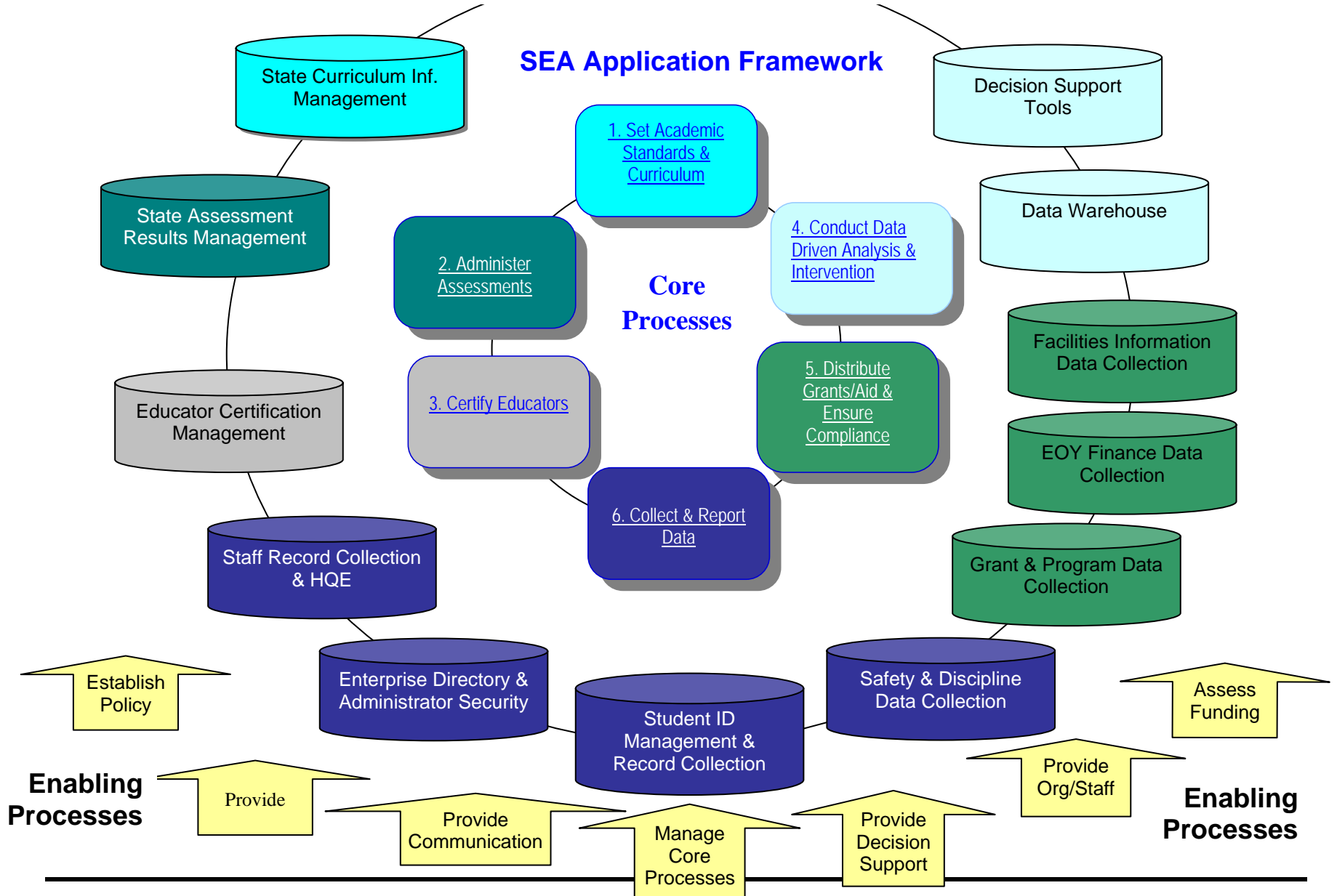
As should be immediately evident, there is a substantial gap across all six-core processes. Through the DSAC assessment tool it is clear that while in terms of policy, technical support, and processes, the MDE has at least adequate services in place, the team of State agencies jointly responsible for pre-K to 20 data-driven decision support are clearly deficient in terms of the staffing, funding levels, and decision support systems and tools required to support Michigan’s LEAs in the realization of the State’s educational goals for its students. In brief, this study’s representation provides a roadmap for closing the gap in MDE capabilities through the



proposed projects described in Section 4.0 of this report but only if the agencies involved also receive the necessary staffing and funding levels to both initiate and sustained these recommended services over time. The remainder of this report provides all of the details and supporting documentation of the MDE's current status, target environment, and the DSAC team's recommendations for each of the six core processes and their accompanying application components and enabling processes. To aid the reader in navigating this document, the DSAC framework diagram is shown below.



# Architecture for Decision Support



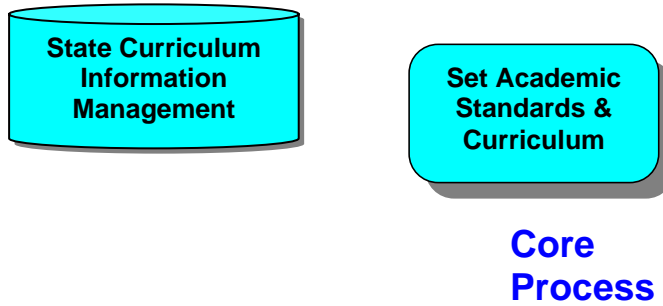


Existing and Target Environment

1.1 Core Process 1: Academic Standards and Curriculum

Application Framework Component: State Curriculum Management System (learning standards, courses). This process identifies, defines, refines, communicates, and monitors the State’s standards for learning by subject and grade. In some States this includes the naming of courses and the establishment of course requirements. This process may also include statewide textbook selection and the selection of instructional management tools for the LEAs to use.

SEA Application Framework



Current State

Within the State of Michigan, public education programming, and delivery enjoys a long and well-established history of local control. Thus while the Michigan Department of Education (MDE) does provide standards, curriculum frameworks, and benchmarks for most subject areas, LEAs and school systems are under no obligation to adopt them. Interestingly enough the responsibility for State standards and curriculum development falls to the MDE’s School Improvement Unit which has published these frameworks for the past ten years. Until recently the frameworks did not provide grade-level and subject-specific content expectations. There is work to be done in aligning these new Grade Level Content Expectations (GLCEs) with the instructional management and program delivery needs of the schools and with increasing rigorous assessment criteria of the MEAP process.

The recent reorganization of the MDE and its School Improvement Unit, in particular, have cast a sharp light on the gaps in current MDE offerings. The current system focuses primarily on disciplines which have secured federal funding, with other disciplines receiving lesser attention. Initially the standards were defined in multi-grade bands. The MDE now has grade-by-grade expectations to support testing every student every year (currently K-8) in line with the assessments strategy summarized in section 2.2 of this report. The Unit does offer both Web- and CD-based training for educators and school administrators for all standards and benchmarks now in place, but there is a need to replace/update instructional resources such as MICLIMB based on the older grade-span standards to provide the same kind of value for GLCEs.

LEAs are encouraged to use the curriculum frameworks in the development of their curriculum but their use is voluntary. The state requires all students to take its high stakes tests to assess the degree they are proficient with State standards. The



mandated assessments have led most LEAs to align their curriculum to the standards. If the State is not testing in each content area each year, MDE has no way of knowing if the districts are using the state curriculum standards in those areas.

*Target Environment*

Going forward, the MDE recognizes the need to structure all of the State's standards and curriculum by grade, by subject, by component and mastery indicators, aligning this content to student assessment, instructional resources, and teacher development. To facilitate adoption, the School Improvement Unit would like to offer online, interactive training and tools for educators to assist them in the building and delivery of lesson plans as well as related instructional/learning management tools; system. Similarly, the School Improvement Unit would like to see formative assessments integration with the curriculum development process. To enable this process the team would like to have access to a content/document management system for authoring standards, curriculum, and benchmarks and for sharing this content over the Web.

As part of the Unit's interventions strategy, they would like to maintain a portfolio of data for each school at risk so that they might follow the process of those schools over time against MEAP and other key indicators. With portfolio information in hand, the MDE would extend and focus its "coaches institute" of retired principals and other independent contractors to assist high priority schools. To make the best use of these resources and those already at hand, the MDE will also need a student performance management system that delivers data at the school level so that they may analyze grade level content mastery correlated to grade and subject-specific content expectations.



Enabling Process Gap Analysis Table

The table below assesses, relative to the seven enabling processes in the DSAC model, where the MDE stands relative to its target environment for Academic Standards and Curriculum. The table employs a rating system that ranges from “0” to “3” to address the degree to which each of the enabling processes, identified in the DSAC framework, support the target environment. The rating for each element is as follows:

- A score of “0” means that the enabling process is completely inadequate for meeting the target environment.
- A score of “1” means that the enabling process is partially adequate for meeting the target environment.
- A score of “2” means that the enabling process is satisfactory for meeting the target environment.
- A score of “3” means that the enabling process has already reached the target environment.

Set Academic Standards and Curriculum		
Enabling Process	Score	Status Relative to Target Environment
<i>Establish Policy</i>	1.5	<ul style="list-style-type: none"> <li>• Michigan legislation currently limits the scope of MDE involvement in curriculum development even though it would appear that the LEAs would prefer a larger role by the State.</li> </ul>
<i>Provide Technical Assistance and Professional Development</i>	2	<ul style="list-style-type: none"> <li>• While the MDE does provide, through Websites, CDs, paper documents, and workshops, some help to LEAs in the translation of standards into curriculum, most help has come instead from universities, colleges, and ISDs.</li> <li>• There is a need for more robust online resources that support exemplary standards-based instructional development and delivery.</li> <li>• Professional development and training opportunities and informational materials are available through the Web, but such offerings are modest in terms of their range and depth of coverage.</li> <li>• In general, the focus of these activities is toward those schools and districts who do not meet their AYP objectives.</li> </ul>



Set Academic Standards and Curriculum		
Enabling Process	Score	Status Relative to Target Environment
<i>Publish Information and Provide Communication</i>	2	<ul style="list-style-type: none"> <li>The SEA publishes standards information on its Web and encourages public as well as professional review and comment.</li> <li>The SEA uses content committees staffed by subject matter experts and extensive comment sessions, over an extended period of time, to develop standards, curriculum frameworks, and benchmarks.</li> </ul>
<i>Manage Core Process</i>	1	<ul style="list-style-type: none"> <li>A well-defined process for LEA, higher education, and other sources of input is in place.</li> <li>There is no data-based catalog of standards that defines grade-level and subject-specific content expectations nor are their mechanisms in place that tie this data to the assessment process to ensure alignment between educational programs as delivered and the associated measures of student performance.</li> <li>There is no process in place for tracking standards adoption; and, therefore, no involvement by other parties, such as institutions of higher education, in this process.</li> <li>The SEA has a process for reviewing and modifying standards against benchmarks, but not for curriculum. Curriculum is solely the domain of the LEAs.</li> </ul>
<i>Provide Enhanced Decision Support</i>	0	<ul style="list-style-type: none"> <li>There is no capability through which LEAs may mine GLCE standards and employ these to build curriculum, lesson plans, et al.</li> </ul>
<i>Provide Organization and Staffing</i>	1	<ul style="list-style-type: none"> <li>The new structure of the School Improvement Unit is just settling in.</li> <li>Even at this stage it is clear that the Unit is understaffed and not empowered to achieve the agenda that the MDE and the LEAs would like to see realized.</li> <li>The SEA does not monitor LEA standards compliance and curriculum development. These functions are all done at the LEA level without SEA involvement.</li> </ul>
<i>Assess Funding Needs</i>	0	<ul style="list-style-type: none"> <li>The SEA relies largely on external (primarily Federal) grants funding for any initiatives and even for some process maintenance. Because the federal focus of late has been accountability and assessment, resources have not been available for standards and curriculum development.</li> </ul>

Technology

The following describes the characteristics of the applications that support standards and curriculum for Michigan:



Associated System	Score	Status Relative to Target Environment
<i>Learning Standards Database</i>	0	<ul style="list-style-type: none"> <li>Not in place.</li> </ul>
<i>Education-portal</i>	0	<ul style="list-style-type: none"> <li>Though MEIS does provide secure access to authorized users of SRSD, REP, and SID and though Web sites (both Internet and Intranet) are in place for the sharing of static information, the web services envisioned as part of the MDE's target environment are not in place today.</li> </ul>

Recommendations

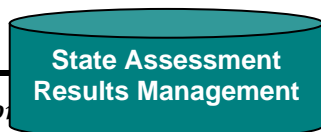
The following recommendations will help Michigan move from the current to the target environment:

- 25. Establish grade-level and subject-specific content expectations as a database, converting existing static hardcopy and PDF documents to a dynamic, Web-based service accessible to educators across the State.
- 26. As an extension of this service, align curriculum resources – sample lessons, test plans, etc., with grade-level content expectations.
- 27. Deliver these Web-services through an educational services-portal (a.k.a. e-portal) that would also disseminate standards, curriculum, and benchmarking information.
- 28. Employ this e-portal as the platform for the incremental delivery of broad-based learning/instructional management services.
- 29. Expand e-portal services to include a Web-based database application to develop and manage state curriculum frameworks and district curriculum through the creation, review, approval, publication, access, and search processes, and to allow for the creation and sharing of lesson plans aligned with State standards and district curriculum.
- 30. Extend the educator workspace within e-portal to accommodate lesson plan development and exchange, with linkage to standards and learning resources. It could also allow districts to construct, manage, and share their curriculum and align it to state standards.

**Core Process 2: Administer Performance-Based and Standardized Assessments**

**Application Framework Component:** State Assessment Results Management System. This is a process to define the performance criteria for students against State standards as well as a method for assessing and reporting each student's progress relative to these criteria.

**SEA Application Framework**





Assessment is a key component of the technology for instructional improvement since test results are the basis for a wide variety of activities from instructional interventions in the classroom to Adequate Yearly Progress (AYP) driven intervention at the state level.

### Current State

The State of Michigan has offered its students a comprehensive assessment process since the 1970's. As such the State is one of the most seasoned exemplars of high stakes testing in the country today. The Michigan Educational Assessment Process (MEAP) includes at least one annual high-stakes test in all core subjects (reading, writing and math) for grade levels 3 through 11, with a body of evidence (BOE) provided for each child to document that standards (skills based) are met for graduation. For adult education, the State assesses student readiness at entry to a course of training and then after 90 hours of instruction.

As a process, MEAP offers both multiple-choice and open-ended questions with the exams provided by and scored through a third-party service. At least summary student performance results are returned within eight weeks to schools and district administrators. Test results are provided by sub-group, school, grade, and district. Performance data is disaggregated to show the NCLB subgroups by school. Data is available to the student and teacher level. In theory for K-12, detailed test data is available prior to the end of the school year but for high schools that test in April/May, the results are not available until the summer. It should be noted that the process does not always deliver data in a timely manner. Some annual cycles have been so delayed that the students have moved on to another grade or school before their performance data reaches the school. In such instances, the data is merely discarded since it cannot be acted upon.

The MDE does not sponsor a formal interim or formative assessment process. However, many of the State's ISDs have entered into this type of effort, including the creation of item test banks. For the ISDs formative testing services is a source of revenue. There is no way to currently measure the benefit of these services that come and go with LEA support. The MDE does offer item test banks for high school students and also for students with disabilities (MiAccess). The MDE also accepts input from LEAs, ISDs, and schools as well as from panels of subject matter experts as they craft new MEAP test items.

The assessments for Michigan include/or will include:



Grade	3	4	5	6	7	8	9	10	11
English/Language Arts	Reading Only	✓	★	★	✓	★	★	★	✓
Math	★	✓	★	★	★	✓	★	★	✓
Science			✓			✓			✓
Social Studies			✓			✓			✓

Legend: ✓ - Current MEAP tests  
 ★ - Future MEAP tests

In the 2005/2006 academic year, the MDE will expand and change its assessment process through the following set of steps:

- In line with NCLB requirements, grades 3, 4, 5, 6, 7, and 8 will be tested in both math and ELA.
- The tests for elementary and middle schools will be held in October rather than January/February so as to provide data in a more timely manner for student interventions.
- Social studies tests will be moved to grades 6 and 9.
- Science tests will be moved to grades 5 and 8.



### Target Environment

Looking ahead, the MDE Educational Assessment and Accountability Unit plans to re-evaluate and change the pattern of high school testing by Spring of 2007 or sooner, depending upon the results of US DOE review of MEAP. In addition, the MDE plans to incorporate college entrance test content into its high school testing and will involve both ACT, Inc. and the College Board (for SAT exams) in this effort. This process in turn will need to be aligned with State standards and will necessarily impact criteria for the issuance of Merit Program awards.

The MDE also wishes to improve and broaden the assessment process for students with disabilities to encompass more skills and kinds of disabilities. While ESL learners have been assessed through MEAP since the mid-1970s, this has been an adhoc process. Going forward, as dictated by *NCLB* and *IDEA*, ESL assessment will become more comprehensive, systematic, and rigorous.

Most importantly, the MDE Educational Assessment and Accountability Unit would like to proceed with measuring student growth year to year, tracking performance across test cycles. This effort raises serious psychometric challenges to tracking and making meaningful comparisons in student progress across adjacent grades. The MDE also wants to invest in the measurement of college readiness among high school students through a formative/end-of-course assessment and feedback process. Similarly the MDE would also like to get more involved more broadly in statewide formative assessments in partnership with LEAs and ISDs. Many ISDs and LEAs look towards standardization and would appreciate a State standard or recommendation for formative assessments. To those ends the MDE Educational Assessment and Accountability Unit recognizes the need to invest further in process reengineering around student tracking, data collections, reporting, the universal adoption of the UIC, and an appropriate suite of analysis tools/services.

### Enabling Process Gap Analysis Table

The table below assesses, relative to the seven enabling processes in the DSAC model, where the MDE stands relative to its target environment for Administer Assessments. The table employs a rating system that ranges from “0” to “3” to address the degree to which each of the enabling processes, identified in the DSAC framework, support the target environment. The rating for each element is as follows:

- A score of “0” means that the enabling process is completely inadequate for meeting the target environment.
- A score of “1” means that the enabling process is partially adequate for meeting the target environment.
- A score of “2” means that the enabling process is satisfactory for meeting the target environment.
- A score of “3” means that the enabling process has already reached the target environment.



Administer Assessments		
Enabling Process	Score	Status Relative to Target Environment
<i>Establish Policy</i>	2	<ul style="list-style-type: none"> <li>A high stakes assessment process is defined by Michigan statute, defining the role of the SEA and the LEAs regarding annual assessments.</li> <li>There is no complementary policy governing formative/benchmark assessments. This objective is targeted for the future.</li> </ul>
<i>Provide Technical Assistance and Professional Development</i>	2	<ul style="list-style-type: none"> <li>The SEA does provide LEAs with training on how to use assessment data to improve student performance</li> <li>The SEA provides Web-based information and workshops and/or instruction in support of the assessment process and use of TestWiz.</li> <li>There are no Web-based course offerings that help LEAs or schools understand/interpret assessments.</li> </ul>
<i>Publish Information and Provide Communications</i>	1.5	<ul style="list-style-type: none"> <li>There is a formal process for communicating summary assessment results - hardcopy reports to the schools and districts and PDFs on a secure Website.</li> <li>Student specific/detailed results are not always available in a timely manner during the course of the current academic year; the timing of tests will change in response to this problem but process issues remain.</li> <li>There is a formal process for communicating changes to assessments and the assessment process to LEAs through a MDE listserv to school superintendents and MEAP coordinators. Website and help desk services are also available.</li> </ul>
<i>Publish Information and Provide Communications (cont'd)</i>		<ul style="list-style-type: none"> <li>The MDE offers six regional conferences a year that highlight process changes and a video conference to folks who manage the process in the schools.</li> </ul>
<i>Manage Core Process</i>	1.5	<ul style="list-style-type: none"> <li>The process is well managed and is communicated relying largely on an external vendor for actual testing and scoring results delivery.</li> <li>The timeliness of results delivery to the LEAs has been an issue, but proposed process changes may improve the timeliness of delivery.</li> </ul>
<i>Provide Enhanced Decision Support</i>	1	<ul style="list-style-type: none"> <li>LEAs receive the data as well as the TestWiz application to analyze assessment results locally. ISDs provide the training on TestWiz.</li> <li>Workshops are offered on data analysis, but the fact is that the MDE does not at present possess a data management infrastructure of the longitudinal analysis of assessment data at the individual student, teacher, and program offering level.</li> </ul>
<i>Provide Organization and Staffing</i>	1	<ul style="list-style-type: none"> <li>Current staffing are not sufficient in light of existing service offerings. Should the MDE adopt a formative testing/data bank of test items service, more analytical services, and/or an extension of ESL and SPED assessment services, more personnel will be required.</li> </ul>
<i>Assess Funding Needs</i>	1	<ul style="list-style-type: none"> <li>No mandate or funding for delivery and support of formative assessments. Any work in this area is funded entirely by the LEAs themselves without SEA participation and knowledge.</li> </ul>



Administer Assessments		
Enabling Process	Score	Status Relative to Target Environment
		<ul style="list-style-type: none"> <li>The SEA has adequate funding for MEAP development, delivery, and scoring for the present but would require additional funding to implement the programs recommended in this study.</li> </ul>

Technology

The following describes the characteristics of the applications that administer performance-based and standardized assessments for Michigan:

Associated System	Score	Status Relative to Target Environment
<i>MEAP</i>	1	<ul style="list-style-type: none"> <li>The execution of MEAP services is currently outsourced to Measurement, Inc. of Durham, NC.</li> <li>No data warehousing exists for longitudinal analysis and no support of the LEAs in their analysis of the data beyond TestWiz. Other than the higher-level summary analysis and scoring, little is done with the data by the LEA. For decision support purposes, more could be done with a data warehouse of exam results over time and with the right analytical tools.</li> </ul>
<i>Assessments Analysis Tool</i>	1	<ul style="list-style-type: none"> <li>TestWiz is proprietary software and difficult for some to use. TestWiz is particularly weak in its ability to display data, especially graphically. This tool needs to be replaced with either a service or tool set that allows for more complete integration with other student and school data via a data warehousing solution to enable assessment-driven decision support.</li> </ul>
<i>Formative Test Database</i>	0	<ul style="list-style-type: none"> <li>There is no statewide formative/benchmark assessment given or available at this time, although some LEAs and ISDs may pursue formative testing on their own.</li> </ul>
<i>Formative Testing Results Repository and Analytics</i>	0	<ul style="list-style-type: none"> <li>None in place at present.</li> </ul>

Recommendations

The following recommendations will help Michigan move from the current to the target environment:

31. Reengineer the MEAP process so that test results reach the appropriate schools and educators in a timelier manner, allowing for informed interventions in the same academic year as the exam.
32. Provide formative (a.k.a. interim) testing/benchmarking at the item level by grade; ensure that these new services align with grade level content expectations.



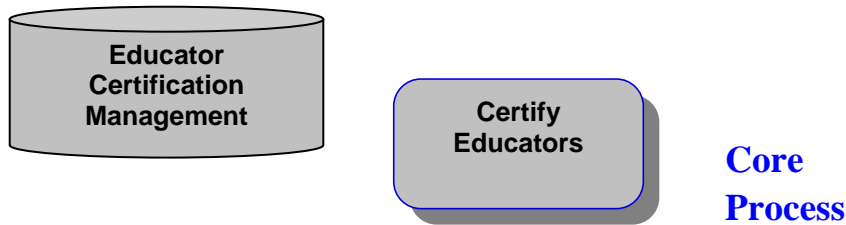
33. Create a library of test items based upon historical MEAP materials and distribute these test items via a searchable database running on the e-portal. Through a centralized service, the item test bank would be employed at the discretion of the LEA. To that end, leverage the test item resources already available through the Michigan Virtual University.
34. Collect formative test data as a CEPI data warehousing service to inform interventions at the LEA level, enabling data-driven educational reform at the district and school level. As a corollary to this service, redefine MDE field service strategies.
35. Use the e-portal to help identify and publicize LEA best practices in the use of assessment data for student and school improvement.
36. Offer a complimentary service to process and analyze formative test results so as to both inform MDE's own intervention services and to enable a more proactive approach among the LEAs themselves in working with at risk students, programs, and schools.
37. Introduce a tool set and a body of standard management reports for district and school administrators as well as for educators that allow these parties to examine the performance data for their respective cohorts of students. Provide associated, ongoing training and support for this new tool set – either directly or in partnership with the ISDs.
38. Through CEPI data warehousing services provide an integrated view of performance data against the backdrop of demographic and other key data elements.
39. Replace TestWiz with a Web-services delivery model for data analysis and report.
40. Deliver in a timely manner, MEAP results to the envisioned statewide school improvement-planning tool so as to inform local AYP planning efforts.
41. Tune and improve the UIC process to handle as many of the anomalies as possible, and reduce the manual interventions which are causing duplication and bad data. Consider implementing industry standard matching algorithms and software.



### Core Process 3: Certify Educators

**Application Framework Component:** Educator Certification Management. This is a process to document teacher and educational administrator competency levels as related to the State standards and to certify teachers who have achieved the proper level of competency.

### SEA Application Framework



#### Current State

Like most local control States, most of the responsibility for the hiring, monitoring, retaining, and compensating of educators and other school personnel in Michigan rests with the LEAs. By statute, the MDE is authorized to approve teacher preparation institutions that issue teaching certificates and to assure that teachers meet NCLB highly qualified requirements. This same body of law mandates that any and all Michigan public school educators must obtain “highly qualified” status if they are to be credentialed by the State. The two primary information systems employed to manage this process are License 2000 and the Registry of Educational Personnel (REP). The former tracks both certification and endorsement statuses while the latter tracks human resource data, teaching assignment history, professional development, highly qualified educator statuses and the like. The REP system also assigns a personnel identification code or PIC that is similar in function to the UIC for Michigan students.

Through License 2000, some thirty-three (33) State institutions of higher education send electronic or paper recommendation rosters of newly certified, recertified, and newly endorsed graduates to the MDE Office of Professional Preparation Services (OPPS). Out-of-state applicants must submit a formal transcript for certification and endorsement recognition directly to OPPS. At the current time, this process is only semi-automated, employing Microsoft Access Database templates, but the DIT has a project underway to rebuild the system with a Microsoft SQL Database backend and a Web services front end for both initial data entry and subsequent database updating and clean up. Communications of certifications and endorsements to Michigan schools is still handled manually by the teacher submitting the original employer’s copy of the teaching certificate to the appropriate school administrator. The Teacher Verification Web site is available for public access to view all teaching credentials and endorsements held by each Michigan educator.

The REP system stores a large body of information on each educator employed in the K-12 system. However, for the “highly qualified” (HQ) field, the only information that is



carried is either “Y” (yes) or “N” (no), leaving it to the LEA to make the appropriate determination of educator status and merely recording the final decision in the REP database. It should be noted that all teachers certified in Michigan since late 1992 are highly qualified to teach in both their major and minor fields of concentration. The Michigan Test for Teacher Certification (MTTO) Act as passed by the State legislature has made “highly qualified” a condition for certification. Going forward, the MDE plans to work with Michigan Colleges and Universities to establish a more formal process for their involvement in the HQ designation.

Recertification is entirely the responsibility of the individual educator, and typically, his/her school principal. Each Michigan certificate indicates when it will expire and, on the reverse side of the document, the process to be followed for recertification. There is no formal reminder process in place. However, it is common practice for the LEA administration to notify their teachers in the year that their certification expires. Currently the database includes approximately one hundred thousand (100,000) active teachers and an additional four hundred thousand (400,000) inactive teachers. There are processes in place for the mentoring of new teachers (i.e., those with less than three years of active experience) and requirements for ongoing professional development, but like so many things, these services are subject to the availability of LEA and school resources. The MDE Professional Preparation Services Unit does monitor compliance with these regulations but because the auditing process is enforced by a consultant assigned to this responsibility, our sense is that the auditing process is not rigorously enforced.

### Target Environment

The certification process is largely self-funded through applicant fees. To better manage its resources and its plans for systems development, the MDE Professional Preparation Services Unit requires a system that models the volume of State certifications and re-certifications and hence projections of Unit revenues. This same tool set will allow the Unit to project education supply and demand needs by school based upon data (or a report) from the MDE Office Professional Preparation Services.



Such a system could assist the MDE Professional Preparation Services Unit in helping LEAs to address staffing shortages, especially in those areas requiring specialized skills.

Educator credentials are already available over the Web but this service will be expanded to accommodate online error correction and updates. Furthermore, the entire system requires more effective monitoring and reporting capabilities as well as the capacity for online application and payment processing.

Lastly, the certification process requires a better infrastructure for mentoring and induction so as to enable LEAs to provide mentor assignment and associated online professional development. The MDE will employ a "Teacher Quality Enhancement" grant to construct an infrastructure to provide online professional development, mentoring, and induction. Currently some of these services are hosted and available through the ASSIST Online modules of the Michigan Virtual University. These efforts will eventually lead to an extension of the Michigan Educator Talent Bank as part of a larger strategy for developing, recruiting, and retaining new educators with the right skills, especially in the areas of science and math.

#### Enabling Process Gap Analysis Table

The table below assesses, relative to the seven enabling processes in the DSAC model, where the MDE stands relative to its target environment for Certify Educators. The table employs a rating system that ranges from "0" to "3" to address the degree to which each of the enabling processes, identified in the DSAC framework, support the target environment. The rating for each element is as follows:

- A score of "0" means that the enabling process is completely inadequate for meeting the target environment.
- A score of "1" means that the enabling process is partially adequate for meeting the target environment.
- A score of "2" means that the enabling process is satisfactory for meeting the target environment.
- A score of "3" means that the enabling process has already reached the target environment.



Certify Educators		
Process	Score	Status Relative to Target Environment
<i>Establish Policy</i>	3	<ul style="list-style-type: none"> <li>Existing policies clearly define SEA and LEA roles and responsibilities.</li> <li>Policies clearly align with NCLB.</li> <li>LEA responsibilities in designating “highly qualified” teachers” is defined.</li> </ul>
<i>Provide Technical Assistance and Professional Development</i>	2	<ul style="list-style-type: none"> <li>Both public and private institutions of higher education in Michigan offer pre-service and in-service programs that align with the MDE’s definition of highly qualified teachers and administrators. These programs are reviewed by the MDE, and must be approved by the State Board in order to offer teacher certification courses.</li> <li>MDE online professional services are provided to help teachers with the certification process. While certification can occur online, all course work is classroom based.</li> </ul>
<i>Publish Information and Provide Communications</i>	2	<ul style="list-style-type: none"> <li>Paper process; largely left to the individual educator and his/her school administrator.</li> <li>The MDE Website provides information on all aspects of certification and recertification.</li> </ul>
<i>Manage Core Process</i>	2	<ul style="list-style-type: none"> <li>License 2000 has automated much of the certification process as it applied to Michigan degree programs; out-of-state programs still involve a paper-based application and data input process.</li> <li>Teacher assistance with the “highly qualified” process occurs at the LEA level. SEA does provide regional workshops and a telephone help desk for technical assistance.</li> </ul>
<i>Provide Enhanced Decision Support</i>	1	<ul style="list-style-type: none"> <li>Decision making largely rests with the LEA and is paper based.</li> <li>The information systems enabling License 2000 and REP do not at present lend themselves to trend analysis and analytical modeling.</li> </ul>
<i>Provide Organization/Staffing</i>	1	<ul style="list-style-type: none"> <li>Recruitment and retention are LEA responsibilities.</li> <li>There is no real capacity of a MDE audit function to ensure compliance with State statues regarding certification and HQ status. This process is now under development.</li> </ul>
<i>Assess Funding Needs</i>	1.5	<ul style="list-style-type: none"> <li>Funding is adequate to ensure ongoing operations of the existing program.</li> <li>Funding is not in place should the State wish to incentivize recruitment and retention of educators in fields and subject specialization facing severe shortages, such as science and math.</li> </ul>



Technology

The following describes the characteristics of the applications that support the certification of educators for Michigan:

Associated System	Score	Status Relative to Target Environment
<i>License 2000</i>	1.5	<ul style="list-style-type: none"> <li>Meets all basic needs, but should be integrated with REP and other systems.</li> <li>Would benefit from analytical capabilities that could be provided outside the system through CEPI services.</li> </ul>
<i>REP</i>	1.5	<ul style="list-style-type: none"> <li>Meets all basic needs, but should be integrated with License 2000 and other systems.</li> <li>The system tracks the employment history of educators and staff within the State educational system and, as such, could serve as a system of record for tracking educator assignments among Michigan LEAs.</li> </ul>
<i>Michigan Virtual University and the Learning portal</i>	3	<ul style="list-style-type: none"> <li>Best in class delivery of online, self-paced training as developed by Michigan’s public university system, itself a best-in-class model of publicly funded higher education.</li> <li>Offerings include a wide range of continuing education courses for educators and school administrators.</li> <li>Credits are provided towards recertification and towards endorsements.</li> </ul>

Recommendations

The following are the recommendations that are necessary to support movement from the current to the target environment.

42. Better integrate and secure educator and staff demographic, certification, endorsement, job assignment, and job history data. Within that service, require a “UIC” or PIC (some staff already have the PIC) for educators and staff as well as role-based authentication and permissions.
43. Track what teachers actually teach against where they work, their job history, and what they know (certificates and endorsements).
44. Map teacher assignments by school, by class, by student, and by student performance over time, employing said data locally to inform educator professional development planning.
45. Extend REP to accommodate educator electronic portfolios and the acceptance of electronic transcripts from institutions of higher education as the later become available.
46. Provide secure access via the e-portal to Certification records for the online correction of errors and other self-servicing features.



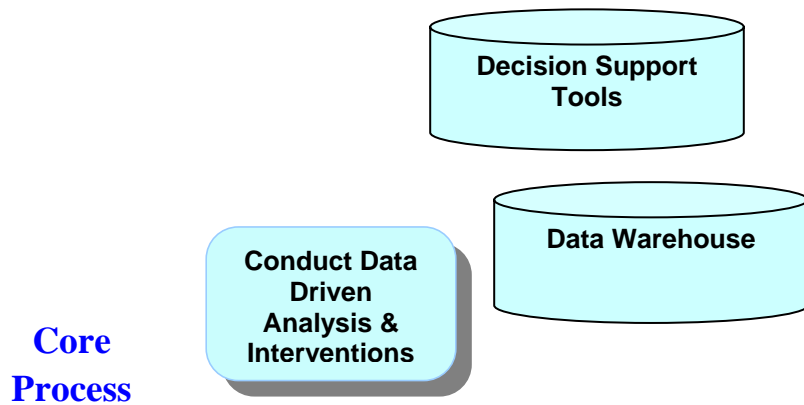
47. Enroll higher education university research centers in the more detailed analysis of the data that emerges from the expansion of License 2000 and REP and its integration through CEPI services with State MEAP and intervention data to inform policymaking, staff training and development programs, and the investment of State education dollars.
48. Integrate University e-transcripts for educators and staff into the envisioned License 2000 data repository and process once it is practical to do so by establishing a standard for the transmission of e-transcripts to the MDE as part of its Web-enabled certification process.
49. Align data in License 2000, REP, MEAP, and other programmatic data to inform individual educator performance assessments and professional development plans, once data is available, that links teachers to the student performance of those they teach.



Core Process 4: Conduct Data Driven Analysis and Interventions, and Manage Accountability Systems

Application Framework Component: Decision Support Tools and Data Warehouse - This is the process for collecting and analyzing assessment data to identify and conduct interventions at the school, classroom, and student level. This process also includes defining expected performance levels for districts, schools, and teachers, and holding them accountable for achieving these levels, with appropriate rewards for success and as such draws on other SEA/LEA data, such as financial, personnel, educator, and school data, drawn from the SEA's data warehouse.

SEA Application Framework



Current State

As part of a series of major MDE reorganizations, the Department has recently established a School Improvement Unit whose responsibilities encompass State-wide K-12 standards, curriculum frameworks and benchmarks; oversight of MDE interventions among schools at risk; and MDE support of LEA AYP planning and reporting processes. Though the current organizational context of MDE responsibilities in these areas is new, the underlying processes are well established. In section 2.1 of the report, we have previously reviewed the standards components of the MDE School Improvement Unit. Here we will consider the data driven analysis and intervention aspects of the Unit's mandate.

Well-defined State regulations mandate a process that guides all MDE interventions, including proper access to and use of student data. Accountability for performance is held at the LEA and not the SEA level. The MDE Educational Assessment and Accountability Unit oversees the State high stakes test (MEAP), leaving the MDE School Improvement Unit with the responsibility for the school intervention process itself. The Michigan Legislature and not MDE actually provides intervention awards at the school level, but not at the individual teacher level, for school actions taken and progress made against AYP plans. For each LEA, student MEAP assessment data is made available



through a downloadable file via the MDE secure portal and a computer program (TestWiz) is made available at no cost to analyze the student performance data.

Each school completes a report card per MDE specifications as to its progress against its particular AYP plan. The MDE School Improvement Unit provides support and direction to LEAs as they address the AYP process and also offers programs through the Michigan Virtual University and its Learning Portal to supplement these efforts.

There is no database structure to examine performance data longitudinally across the State by school, and LEA. On the other hand, there is a well-established process for intervention support once a school is identified as not meeting its AYP Plan goals. MDE currently offers an automated AYP planning tool, "MiPlan." MDE is looking at a variety of options for enhancing the school improvement planning process and providing an upgraded school improvement tool. In brief, the information technology systems and human resources available at the MDE level to assist Michigan LEAs and schools at risk are very limited, a situation that the new School Improvement Unit would like to remedy. MDE provides MI-Map, a paper-based tool kit and process guide for school improvement.

#### Target Environment

The MDE School Improvement Unit and its Office of Interventions would like to take a portfolio approach in its offerings to LEAs and schools, employing decision support capabilities to highlight common areas of need and the interventions that yield the best results. To this end, the Unit requires an accessible database of student, teacher, and financial performance data. The data warehousing solution discussed elsewhere in this report would enable this capability by capturing and aggregating time-stamped data concerning student performance, educator quality, resources, and the like; and then providing tools for the analysis and display of this processed information. The data warehouse would also serve as the backend to any move towards "value-added" analysis of student learning, education programs, et al.

At the same time, many LEAs could use an automated AYP Planning process tool that integrates with MEAP, MI-Access and ESL assessment output and that readily identifies where each school in their district stands vis-à-vis State and Federal performance standards. Such a tool would also facilitate the proactive planning of improvements at the school level, raising the overall level of school performance without recourse to the limited people resources and interventions available through the MDE. From a reporting and compliance standpoint, this same tool set could roll up information to the district and State level for decision-making, program participation, and accreditation.

#### Enabling Process Gap Analysis Table

The table below assesses, relative to the seven enabling processes in the DSAC model, where the MDE stands relative to its target environment for Conduct Data Analysis, Interventions/Accountability. The table employs a rating system that ranges from "0" to "3" to address the degree to which each of the enabling processes, identified in the



DSAC framework, support the target environment. The rating for each element is as follows:

- A score of “0” means that the enabling process is completely inadequate for meeting the target environment.
- A score of “1” means that the enabling process is partially adequate for meeting the target environment.
- A score of “2” means that the enabling process is satisfactory for meeting the target environment.
- A score of “3” means that the enabling process has already reached the target environment.

<b>Conduct Data Analysis, Interventions/Accountability</b>		
<b>Process</b>	<b>Score</b>	<b>Status Relative to Target Environment</b>
<i>Establish Policy</i>	2	<ul style="list-style-type: none"> <li>• Current legislation clearly defines the roles and responsibilities of all parties involved in the intervention process and appear to satisfy the needs of all stakeholders.</li> </ul>
<i>Provide Technical Assistance and Professional Development</i>	2	<ul style="list-style-type: none"> <li>• While some services exist, these are focused on the schools of greatest need and are limited in terms of their scope and subject matter focus.</li> <li>• The SEA does avail itself of online, Web-based services – both through the MDE and the Michigan Virtual University to assist those schools in need.</li> </ul>
<i>Publish Information and Provide Communications</i>	1.5	<ul style="list-style-type: none"> <li>• The interventions process is driven by annual MEAP results as aggregated at the LEA and school level and as shared with LEAs and schools through the established mechanisms cited in section 2.2 of this report.</li> </ul>
<i>Manage Core Process</i>	1.5	<ul style="list-style-type: none"> <li>• Only the weakest performing schools are serviced at present.</li> <li>• There are few to no services for those schools that operate at a level slightly above the bottom tier.</li> <li>• Formative/interim testing processes are not employed at this time.</li> </ul>
<i>Provide Enhanced Decision Support</i>	1	<ul style="list-style-type: none"> <li>• The TestWiz tool has limited utility and its implementation as a service is suboptimal.</li> <li>• Little support and no other database or analytical services and tools are provided to LEA.</li> <li>• Performance data is not employed to inform educator performance nor does it influence educator pay.</li> <li>• The MDE does not currently provide automated AYP planning tools.</li> </ul>
<i>Provide Organization</i>	0	<ul style="list-style-type: none"> <li>• The interventions team appears to be understaffed and</li> </ul>



Conduct Data Analysis, Interventions/Accountability		
Process	Score	Status Relative to Target Environment
<i>and Staffing</i>		<p>clearly without the resources, systems, and services to expand its positive impact across Michigan LEAs.</p> <ul style="list-style-type: none"> <li>LEAs receive data, but the MDE has no means to determine what they do with it other than through observing subsequent school performance measures against AYP targets.</li> </ul>
<i>Assess Funding Needs</i>	0	<ul style="list-style-type: none"> <li>The MDE has very limited resources for interventions. Those resources that are available come directly from the State legislation.</li> </ul>

Technology

The following describes the characteristics of the applications that support data analysis and interventions for Michigan:

Associated System	Score	Status Relative to Target Environment
<i>Assessments Analysis Tool</i>	1	<ul style="list-style-type: none"> <li>TestWiz – compiles, sorts categorizes test data; provided to LEA’s with Assessment data sets.</li> <li>The product is proprietary and difficult to use for some. Limited training and support provided by the MDE to the LEAs. TestWiz is particularly weak in its ability to display data, especially graphically. This tool needs to be replaced with either a service or tool set that allows for more complete integration with other student and school data via a data warehousing solution to enable assessment-driven decision support.</li> </ul>
<i>AYP Planning</i>	0	<ul style="list-style-type: none"> <li>The MDE should provide a common online data-driven AYP Planning Tool for all LEAs that would in turn assist the MDE in focusing its limited resources while also enabling the schools, their LEAs and possibly their ISDs to provide proactive intervention services to those schools in greatest need.</li> </ul>
<i>“Value-Added” Determinations</i>	0	<ul style="list-style-type: none"> <li>No system is currently in place. The MDE should pursue this new service offering as resources and time allow.</li> </ul>

Recommendations

The following are the recommendations to move from the current to the target environment:

50. Provide an AYP process tool set for LEA use that enables current school-specific assessment as well as district and State benchmarks that rolls up AYP findings to the LEA and to the SEA level. Tools should integrate with the data warehouse, using presentation of data and automation to guide effective



decision-making. Here again the DSAC team sees an opportunity to leverage e-portal services.

51. Deploy formative (interim) assessment services as a data-driven, proactive service offering to enable LEA action prior to the high stakes measurement cycle, enabling data-driven, proactive interventions by the schools and LEAs themselves.
52. Track the development and implementation of school improvement plans, highlighting best LEA practices as to what interventions yielded what improvements.
53. Create scaled services for school and district administrators with more self-directed, automated tools that help identify and direct improvements based upon performance trending data.
54. Enable LEA and school staffs to proactively address data-informed performance issues before these issues necessitate intervention by the MDE through Web-based training in performance data analysis and interventions best practices.
55. Employ the envisioned CEPI data warehouse to generate separate “data marts” or customized subsets of data for each of Michigan’s 826 LEAs.
56. Provide a user-friendly tool set in conjunction with the CEPI data warehouse and the LEA data marts for end user self-directed querying and ad hoc reporting, freeing MDE personnel for more high-value contributions.
57. Provide a decision support tool set to assist the Interventions team in focusing their resources in servicing schools and resources.
58. Leverage these capabilities to address the data-driven decision-making, reporting, and data tracking needs for post secondary educational services and State job training programs per the recommendations of the Cherry Commission.

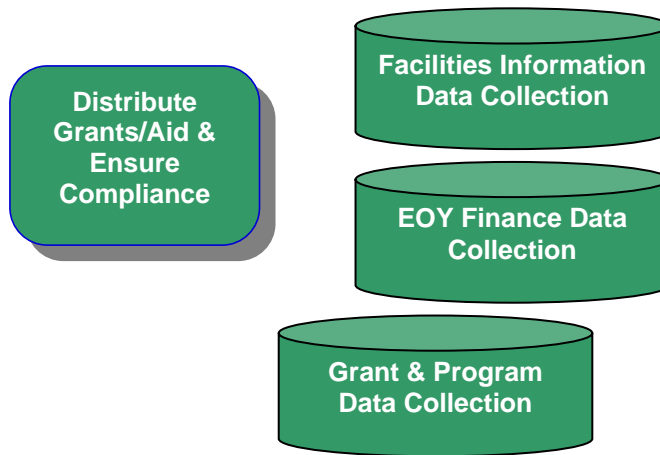


Core Process 5: Distribute Grants/Aid and Ensure Compliance

Application Framework Components: Facilities Information Data Collection, EOY Finance Data Collection, Grant, and Program Data Collection. This is the process for collecting data and distributing funding to school districts either as direct State aid or through State or Federal grants. Grants may be either competitive or based on entitlement formulas. This process also ensures compliance with Federal and State requirements (such as Title I compliance).

SEA Application Framework

Core Process



Current State

MDE has two offices, each with their own systems and processes, coordinating Core Process 5: Distribute Grants/Aid and Ensure Compliance:

- Grant Coordination and School Support (GCSS) facilitates Federal and some State (Michigan School Readiness Program, Section 31a Program Report and Section 31a/32e Flexibility and Section 57.1/57.3 Advanced and Accelerated) funded grants. GCSS uses the Michigan Electronic Grants System (MEGS), supporting various program offices in MDE and other State agencies. In addition, child nutrition programs are managed with separate systems.
- School Aid and School Finance employs the State Aid Management System (SAMS) for the management of other State grants.

Program Offices determine allocations and GCSS assists with Superintendent approval. The State Aid System is a separate office and system. In both cases, allocation formulas are based on federal or state legislation. This family of services includes federal entitlements, such as vocational education, Title 1, and special education funding. Separately, the Office of School Aid and Finance administers aid funding to Michigan schools, from such appropriations as the State School Aid Act, and the Child Nutrition Application Program.



Though many Federal and State grants data are maintained on the Michigan Electronic Grants Systems (MEGS), some State grants processes remain paper based. The CEPI Single Record Student Database (SRSD) help define ISD, LEA and individual school eligibility for grants based student census data and governing regulations. With this information in hand, the MDE Grants Coordination and School Support Unit manages disbursements and payments. Most grant processes and allocation formulas are defined rigorously at the State or Federal level and communicated to the ISDs, LEAs, and schools both via MDE Web sites and State and Federal publications. Video conferencing, special semi-annual conferences, a monthly newsletter and special focused announcement (e.g. for charter school grants) are employed to supplement these efforts.

For its part, the Office of State Aid and School Finance employs its own State Aid Management System (SAMS) and not MEGS for the management of its data. SAMS does download aggregate data from CEPI but it does not use nor has use for any student data and therefore does not use UIC.

The rules of accountability tend to be program specific and are overseen by the appropriate program area as well as through the Grants Coordination and School Support Unit and the Office of State Aid and School Finance. Where appropriate and necessary, some grants (mostly Federal) may be applied for by ISDs, LEAs and schools online through MEGS while others (most State grants) require a paper applications and manual workflow process. Typically, distributions occur in a timely manner and little to no unused funds are ever returned to the Federal government. Both the MDE and other State agencies audit LEA and school grant distributions to ensure compliance with allocation formulas, eligibility definitions, and other grant requirements.

In terms of data management, the Grants Coordination and School Support Unit asks districts for aggregate student data and does not collect individual student data. They do not employ CEPI as their source of student data but do draw some data from a variety of sources such as SCM, SRSD. GCSS does not use or need the UIC because they do not at present capture/use individual student information. Instead they use a truncated version of the unique school identifier from the School Identification Database which may cause problems eventually as school ID numbers exceed the truncated allotment in MEGS but only perhaps in a claims system for Food and Nutrition (outside MEGS). They are currently working on the fix.

### Target Environment

In the best of all worlds, the MEGS grants management system would track all aspects of the grant process, from the ISD/LEA/school application process to final audits, and would provide management and compliance reporting capabilities in line with Federal, *NCLB*, *IDEA*, and Michigan State standards. For its part SAMS could stand-alone or could be integrated with MEGS in some manner to provide a holistic view of school and LEA funding sources. Under the envisioned CEPI data-driven decision-making capability, grants/aid data could be integrated with student performance data, et al., allowing educators to better understand the relationship between grants and aid funding and student performance improvement.



As an outcome of this integration effort, the MDE team would find itself in a better position to understand the relationship between grants/aid funding and school and student performance. It is also likely that the Office of State Aid and School Finance would benefit further from this arrangement and its partnership with CEPI. In the end, this arrangement will assist the MDE to better target future discretionary funding in line with the greatest needs of the LEAs and their schools.

Through Web-services automation, the Grants Coordination and School Support Unit could transform its function to provide another dimension to the process of funds allocation based upon an alignment of funding with performance improvement as well as with those process driven by formulaic driven legislation. This mechanism should help all ISDs and LEAs but especially the State’s smaller districts as well as to ensure that Michigan obtains and retains all of the grants funding to which its schools and students are entitled.

Enabling Process Gap Analysis Table

The table below assesses, relative to the seven enabling processes in the DSAC model, where the MDE stands relative to its target environment for Distribute Grants/Aid and Ensure Compliance. The table employs a rating system that ranges from “0” to “3” to address the degree to which each of the enabling processes, identified in the DSAC framework, support the target environment. The rating for each element is as follows:

- A score of “0” means that the enabling process is completely inadequate for meeting the target environment.
- A score of “1” means that the enabling process is partially adequate for meeting the target environment.
- A score of “2” means that the enabling process is satisfactory for meeting the target environment.
- A score of “3” means that the enabling process has already reached the target environment.

<b>Distribute Grants/Aid and Ensure Compliance</b>		
<b>Process</b>	<b>Score</b>	<b>Status Relative to Target Environment</b>
<i>Establish Policy</i>	2	<ul style="list-style-type: none"> <li>• There are clear policies and procedures in place that are uniformly enforced across the state concerning the allocation of funds/grants to LEAs and schools.</li> </ul>
<i>Provide Technical Assistance and Professional Development</i>	2	<ul style="list-style-type: none"> <li>• The MDE Grants Coordination and School Support Unit and the Office of State Aid and School Finance provide a wide range of mechanisms that engage ISDs, LEAs and schools in its grant/aid awards and distribution services.</li> </ul>
<i>Publish Information and Provide Communications</i>	2	<ul style="list-style-type: none"> <li>• The grants/aid process is well publicized through the MDE Website, conferences, publications, and other media events.</li> </ul>



Distribute Grants/Aid and Ensure Compliance		
Process	Score	Status Relative to Target Environment
<i>Manage Core Process</i>	1	<ul style="list-style-type: none"> <li>The underlying processes within the Grants Coordination and School Support Unit are somewhat siloed. For example, the Grants process takes on a series of different workflows depending upon the granting agency and the nature of the grant. All in all, the processes are labor intensive, redundant from the LEAs point of view, and do not always make the best use of limited MDE resources.</li> <li>MEGS has reduced labor and redundancy, and the GCSS planning processes focus resources and improvements upon top priorities.</li> <li>Reporting cycles for MEGS are at variance with those for the SRSD system. This barrier is easily resolved to accommodate data sharing and the streamlining of system operations and support.</li> </ul>
<i>Provide Enhanced Decision Support</i>	1	<ul style="list-style-type: none"> <li>The data management tools and online processes available within the Office of State Aid and School Finance and the Grants Coordination and School Support Unit are limited and do not offer a platform to achieve the Unit's long-term vision.</li> </ul>
<i>Provide Organization and Staffing</i>	1.5	<ul style="list-style-type: none"> <li>See the statement on "manage core processes" above.</li> <li>There is insufficient resource given to the audit and review function.</li> </ul>
<i>Assess Funding Needs</i>	1	<ul style="list-style-type: none"> <li>Funding of service is adequate for the range of services now in place but the department requires added resources if it is to provide expand, data-driven, Web-based, service delivery.</li> <li>Or it could partner more strongly with CEPI and DIT to achieve the desired decision-support enabled outcomes.</li> </ul>

Technology

The following describes the characteristics of the applications that support grant management for Michigan:

Associated System	Score	Status Relative to Target Environment
<i>Michigan Electronic Grants System (MEGS)</i>	1	<ul style="list-style-type: none"> <li>The grants distribution process is managed using either paper processes or MEGS. The latter does obtain nightly updates of data from the SCM and annual update from SRSD on <i>Gun_free Reporting</i>. But these processes do not optimize the data collection/management processes within their respective functions. MEGS does not employ the UIC as a core linking data element. In addition, MEGS does not collect data at the individual student level so that it can be rolled up for analysis. While none of this may matter today, these limitations will have an impact in terms of the State's ability to create a DSS that correlates student performance with a variety of environmental factors, including funding.</li> <li>This is not a system where the numbers are auditable; one needs to return to the LEAs for verification of data.</li> <li>From a technical standpoint, MEGS – which is built on SQL 2000 and</li> </ul>



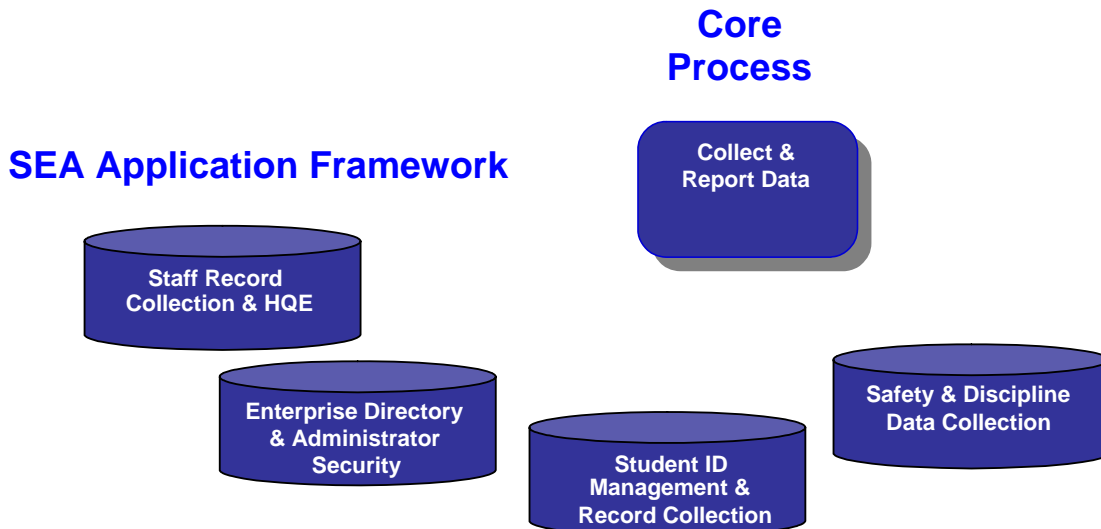
Associated System	Score	Status Relative to Target Environment
		Microsoft Active Server Pages – appears to be flexible enough for greater collaboration and data/resource sharing between MEGS and SRSD.

Recommendations

- 59. Streamline and rationalize existing processes and workflows, resulting in a single management system and the elimination of multiple, redundant data entry work from the LEA perspective.
- 60. To that end, integrate the grants data collection process with CEPI's data services to eliminate redundant data capture.
- 61. Similarly, employ a single e-grant system to manage both State and Federal grants, affording access to current and historical financial information pertaining SEA and LEA's grants in line with school and student performance.
- 62. If necessary, obtain a new e-Grants system, potentially adapting the software developed and successfully deployed by a fellow member of the DSAC consortium. Consider partnering with other DSAC member States in modeling and developing an integrated grants/aid system solution.
- 63. Gather data on grants and other funding sources within the envisioned data-warehousing environment to analyze the effectiveness of current investment strategies and to redirect resources in an informed manner. Employ these CEPI-based services to better manage the Grants Coordination and School Support Unit and to fulfill its mandate.
- 64. Make grant and financial data part of the overall MDE data model and eventually make them available for analytical purposes (beyond aggregate level funding information) in the data warehouse along with student related data to inform school, district, and State decision making.
- 65. As part of a long-term data management strategy, the State should assess the merits of managing both grants and aid funding through a single information system that looks to SRSD for its student information but then adds in all of the necessary functionality to manage grants and aid application, distribution, and auditing processes.

**Core Process 6: Collect and Report Data**

**Application Framework Components:** Enterprise Directory and Administrator Security, Student ID Management and Record Collection, Safety, and Discipline Data Collection. This is the process for collecting student, educator, and program/organization data from school districts relative to all aspects of educational program information.



Current Environment

With the fairly recent establishment of CEPI, the State of Michigan has formed a single authority for the collection, management, and servicing of educational data. Given the size of Michigan’s student and education/staff populations, the complexity of the local and State organizational framework within which services are provided, and the Legislature’s mandate to embrace pre-K through 20 educational programs within a single, data-driven decision support system, CEPI has much to accomplish.

In its brief history, CEPI has proceeded with the institutionalization of a unique student identifier (the UIC) across those constituencies serviced by MDE (i.e. K-12) and an operational data store (ODS) for enterprise student data (again K-12). The CCSSO Decision Support Architecture Consortium (DSAC) would characterize these activities as foundational to the construction of a complete and comprehensive decision support solution of Michigan educational data. To achieve these ends, the CEPI team has partnered on the one hand with DIT for technical resources and support and on the other hand with the various operating units of the MDE and the State’s LEAs and ISDs for source system data.

In the view of the DSAC team, the current accomplishments of CEPI in these regards are substantive and substantial. However, both CEPI and its partners are seriously under-resourced to realize their ultimate goal, a decision support system that encompasses the instructional management and learning experience needs of the States pre-K-20 student population. While the current interagency model may work, it will only deliver partial solutions unless all of those agencies who own systems of record join in and play by the same game plan and rules. For example, all State student information systems must adopt the UIC as the key linking record for individual (student, educator, and staff) identities. A master plan for data feeds and data outputs is required to marry with the operational needs of the agencies and operating units served by



CEPI's decision support services. This plan needs to encompass MDE, DLEG, OMB, the State college and University system, and other key stakeholders. For that matter, a process is required whereby executive level policy on data and the operational stewardship of data management and quality control are coordinated for the State as a whole.

CEPI has made good progress towards the desired end state. No single unit of State government holds the answers. Instead, the governance and ongoing management of this effort must be built upon a collaborative model where roles and responsibilities are clearly defined and where each player does his/her part to support a Statewide solution. Furthermore, it is unlikely that CEPI, DIT, or any other Michigan agency has sufficient expertise to get the job done. It is the hope of the DSAC team, that the Michigan decision support systems effort will leverage the knowledge and expertise of the Consortium and the best practices and even the systems of sister States as it proceeds with its important work.

### Target Environment

The establishment of the envisioned data-driven decision support system for the State of Michigan pre-K to 20 education community will require many different layers of effort. First and foremost, under the aegis of CEPI, the State requires a master data management plan that considers source systems, data elements and their definitions, business rules, workflows, and reporting requirements, and an information technology architecture that defines the technical layers of the decision support system solution. Next, CEPI will need to work in close coordination with a governance structure that will in turn enforce and enable the data management plan as well as address issues that rise during its implementation.

DSS process governance occurs at three levels:

- *Strategic level* – through a *Data Policy Committee* comprised of the agency's executive management team, DIT representatives, and perhaps representative ISD and LEA members, to define the requirements and levels of performance for the DSS, to address matters of data policy and to resolve process issues that divide the *Data Managers Working Group*.
- *Tactical level* – through a *Data Managers Working Group* comprised of those parties primarily responsible for the agency's *systems of record* (a.k.a. *source systems*), including the student information, assessment, certification, financial, human resources, and other systems, and appropriate DIT representatives to identify and work with the *Data Management Project Team* on the detailed design, features and services of the DSS, to define data standards and data management best practices for the agency as a whole, to address issues associated with data standardization and management, and to escalate as needed issues to the *Data Policy Committee*.
- *Operational level* – through a *Data Management Project Team* comprised of both agency operational process and technical data management experts, including from within DIT to build the repositories for both *metadata* and data, to construct the mechanisms for data extraction, transformation and integration, to oversee



data collection, clean-up and transformation, to design and initiate the agency's DSS services, tools and reporting mechanisms that in turn leverage the agency's new data management platform, and to provide training and support during the start-up and transition phases of the agency's DSS offering.

The aforementioned steps are essential to the ultimate realization of a DSS solution for the State of Michigan.

With these plans and structures in place, CEPI and its partners will construct all the necessary components of a decision support system and related processes, including:

- Establishing and staffing a project team.
- Building a comprehensive metadata directory for all of the data elements to be associated with the pre-K to 20 data warehouse, including data definitions and associated business rules and valid values.
- Building a relational data model that accommodates all the data as defined in the metadata directory
- Extending the operational data store (ODS) as the staging area for source system data.
- Constructing a system for data validation and data-clean-up within source systems.
- Extracting transforming, and loading data from source systems into the ODS.
- Constructing a data warehouse (a.k.a. analytical data store) and its associated business rules to capture and store "frozen" sets of data at prescribed cycle times.
- Develop data marts, query tools, and standard reports in support of end user requirements.
- Provide end user training and support for DSS services.

The key to all of this work is to first reach a general agreement to and commitment from key stakeholders for the overall data management strategy and then to build an incremental approach into rollout of DSS services, beginning with a "kernel" of key student data drawn from a limited number of source systems and then growing this base. Given the scope of the State's DSS aspirations, the phasing of work is essential for a positive outcome.

#### Enabling Process Gap Analysis Table

The table below assesses, relative to the seven enabling processes in the DSAC model, where the MDE stands relative to its target environment for Collect and Report Data. The table employs a rating system that ranges from "0" to "3" to address the degree to which each of the enabling processes, identified in the DSAC framework, support the target environment. The rating for each element is as follows:

- A score of "0" means that the enabling process is completely inadequate for meeting the target environment.



- A score of “1” means that the enabling process is partially adequate for meeting the target environment.
- A score of “2” means that the enabling process is satisfactory for meeting the target environment.
- A score of “3” means that the enabling process has already Collect and Report Data reached the target environment.



Collect and Report Data		
Process	Score	Status Relative to Target Environment
<i>Establish Policy</i>	2	<ul style="list-style-type: none"> <li>The policies in place to govern and enable data collection, security, and confidentiality meet all local, State and Federal requirements.</li> </ul>
<i>Provide Technical Assistance and Professional Development</i>	2	<ul style="list-style-type: none"> <li>CEPI and the MDE provide an adequate amount of Web-based information and online training about data collection, processes, and services, mostly pertaining to SRSD functionality.</li> <li>The DIT Client Service Center provides additional support.</li> </ul>
<i>Publish Information and Provide Communications</i>	2	<ul style="list-style-type: none"> <li>The MDE and CEPI employ both public and intranet Websites to promote effective data collection processes and quality data collection. This service adequately meets current needs especially when supplemented by IS and IT help desk services.</li> </ul>
<i>Manage Core Process</i>	2	<ul style="list-style-type: none"> <li>For the collection and consolidation of student information, the SRSD has all the necessary process components in place, albeit that some of these processes for data collection can be cumbersome and occasionally error-prone for the LEAs.</li> <li>No integrative data collection process is in place for some aspects of staff, and grants, facilities, and financial resource data.</li> </ul>
<i>Provide Enhanced Decision Support</i>	1	<ul style="list-style-type: none"> <li>Most essential reporting for NCLB and IDEA is achievable through existing systems, but with a considerable amount of effort both at the LEA and SEA level.</li> <li>More sophisticated, longitudinal analysis will require an investment in data integration services, data warehousing, and data marts, especially if these services are to inform decision making at the LEA and school level.</li> </ul>
<i>Provide Organization and Staffing</i>	1	<ul style="list-style-type: none"> <li>The partnership of MDE, DIT, and CEPI is understaffed for the challenge. At the same time there is redundancy among the various MDE and CEPI data collection and processing services.</li> <li>To achieve their goals and objectives in light of NCLB and in their effort to better serve the LEAs, the MDE needs to realign its resources around comprehensive data warehousing and analytical services.</li> <li>MDE, DIT, and CEPI will require further training and development to meet this objective.</li> </ul>
<i>Assess Funding Needs</i>	0	<ul style="list-style-type: none"> <li>At present the funding is not in place to both implement the envisioned decision support systems and to maintain the associated ongoing services.</li> <li>The automated solutions identified in this study should result in the enhanced productivity and effectiveness of existing MDE personnel, allowing the Agency to take on some of their new decision support roles and responsibilities without a corresponding increase in staff.</li> </ul>

Technology

The following describes the characteristics of the applications that support the collection of data for Michigan.



Associated System	Score	Status Relative to Target Environment
Data Warehouse	0	<ul style="list-style-type: none"> <li>No services in place.</li> </ul>
Decision Support Tools	0	<ul style="list-style-type: none"> <li>No services in place.</li> </ul>
Enterprise Directory Services	0	<ul style="list-style-type: none"> <li>No services in place.</li> </ul>
Student ID and Information Systems – the Unique Identification Code (UIC)	2	<ul style="list-style-type: none"> <li>CEPI maintains a statewide unique identifier system for all students, employing a standard personal demographics matching algorithm to ensure uniqueness. Unfortunately, the system has not been adopted by all agency users for their data systems, and suffers from some matching algorithm problems.</li> <li>CEPI also maintains a statewide student information management system (SRSD) for the operational management of student data and for the linking of student demographic information with assessment and other student specific data. Each LEA must comply with a data transfer format established by CEPI.</li> </ul>
Student ID and Information Systems (cont'd)	2	<ul style="list-style-type: none"> <li>SRSD must be collected more frequently (ongoing basis) to support various CEPI customer needs. SRSD must also become the standard among agencies for the single, shared source of core student demographic data.</li> <li>SRSD is an excellent operational data store built on the State's standard DB platform, Microsoft SQL. The platform has the capability to serve as a data warehousing, storing, tracking, and correlating longitudinal data. However, the system is not designed for this purpose. Over time, the existing design will become a serious barrier to information management and decision support. There is great benefit and utility in leaving SRSD as an operational data store for student information and creating, along side SRSD, a data warehouse for the long-term storage and manipulation of State educational data.</li> </ul>
Special Education Data Collection	2	<ul style="list-style-type: none"> <li>Special Education (SPED) data is collected and processed through MICIS, a system owned by the MDE but managed and supported by IIS. The system meets many of the immediate needs of the SPED Unit but still lacks a number of key fields.</li> <li>SPED has its own unique student identification system</li> <li>CEPI's SRSD database is expanding to both encompass more SPED data fields and the December collection of SDEP data.</li> <li>Reporting cycles within the SPED process have led the Office to maintain separate systems for reporting. This may no longer prove necessary once the CEPI's operational and analytical data store services are fully in place. However, SPED like most MDE programs will need to retain its own transactions systems to enable day-to-day SPED operations.</li> </ul>
Safety and Discipline Information Collection - School Infrastructure Database (SID)	2	<ul style="list-style-type: none"> <li>Another best in class application.</li> <li>Each and every State educational property is listed with its own unique ID number (a.k.a. School Code Master Number), but needs to hold historical data in order to be useful for longitudinal analysis.</li> </ul>



Associated System	Score	Status Relative to Target Environment
		<ul style="list-style-type: none"> <li>The system captures crime and safety data, facilities data, and related management information. SID is current for K-12 data only.</li> </ul>
<i>Staff Record Collection and Highly Qualified Determination</i>	2	<ul style="list-style-type: none"> <li>The system tracks the employment history of educators and staff within the State educational system and, as such, could serve as a system of record for tracking educator assignments among Michigan LEAs.</li> <li>The "HQ" categorization is a "yes/no" field with no detail but could be extended to provide more useful source data.</li> <li>Also need to standardize on the unique staff identifier, to be consistent or the same as the UIC.</li> </ul>
<i>End of Year Finance Data – the Financial Information Database (FID) and the Michigan Administrative Information Network (MAIN)</i>	3 (for FID)  2 (for MAIN)	<ul style="list-style-type: none"> <li>FID is a new service of CEPI that captures all key year-end financial data. This product, as maintained by DIT, is made from industrial strength technologies and will integrate well with other data services envisioned by CEPI.</li> <li>The service will also run within an e-portal framework once that service comes online. FID will serve as a key contributing element to the statewide education decision support system.</li> <li>The MAIN system is State owned and run. It maintains MDE and other agency financial data, budgets, etc. It can produce feeds as necessary for any CEPI decision support solution.</li> </ul>
<i>Facilities Plan Data Collection – School Infrastructure Database (SID)</i>	3	<ul style="list-style-type: none"> <li>Another best in class application.</li> <li>Each and every State educational property is listed with its own unique ID number (a.k.a. School Code Master Number).</li> <li>The system captures crime and safety data, facilities data, and related management information. SID is current for K-12 data only.</li> </ul>
<i>Technology Plan Data Collection</i>	1	<ul style="list-style-type: none"> <li>Need to collect data around information technology readiness of schools (see <a href="http://www.techplan.org">www.techplan.org</a>).</li> <li>Ed Tech Plans submitted via MEGS by LEA, reviewed by ISD teams.</li> </ul>

Recommendations

66. Through CEPI, deliver the data warehousing and data mart services platform required by State agencies and the LEAs.
67. In conjunction with this data management platform, provide an extensive but easy-to-use interface that will deliver to educational process stakeholders' information on a 24x7 basis via the Web through querying capabilities and more formal reporting.
68. To access these and other aforementioned Web services, establish a security and access control service based on both unique user authentication and the alignment of the UIC with specific system roles and permissions.



69. For owners of source data, data cleanup must become a priority. CEPI should provide assistance, direction, and support to these efforts as well as introduce an automated data clean-up processes.
70. Decision Support Systems (DSS) governance needs to quantify the ongoing benefits of its DSS solutions in terms of labor savings, staff redeployment, data quality, and enhanced data access usability at the State Agency and LEA levels.
71. Extend and strengthen State's directory services to provide unique identifiers for educators and other staff similar to the service already in place for unique student identifiers.
72. As part of the strategy, leverage these directory services as a secure platform for data collection and exchange, analysis and reporting. To that end, the State will also need to extend its investment in role-based and ID-based authentication and permission administration beyond that already in place so as to provide automated and secure access for these offerings to school administrators and educators throughout Michigan, and to provide more robust, yet secure Web-enabled data management services that enable decision support.
73. Leverage these capabilities to address the data-driven decision-making, reporting, and data tracking needs for post secondary educational services and State job training programs per the recommendations of the Cherry Commission.

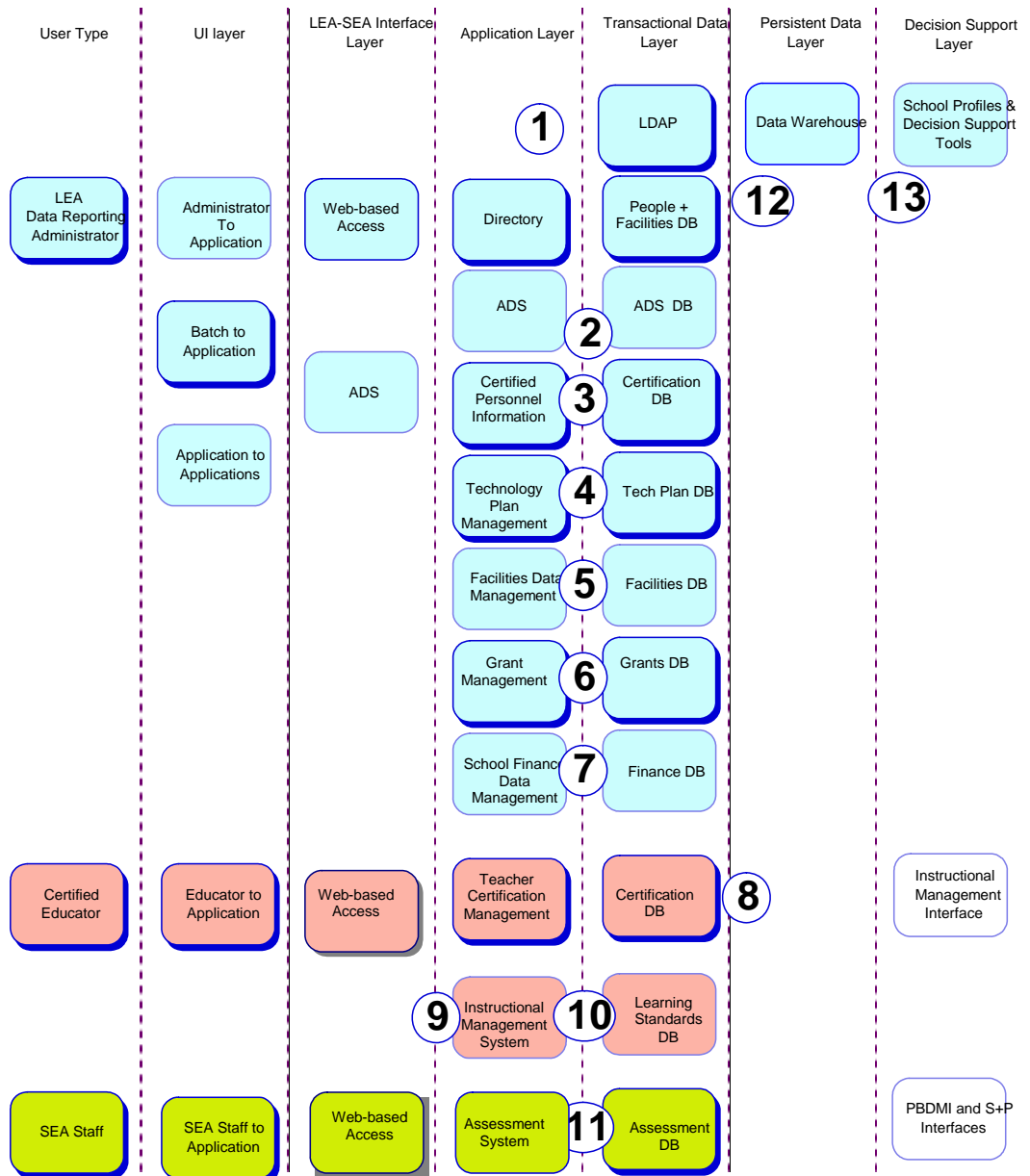
**Note:** While this model has particular application to the data management needs of K-12 and hence the focus of the MDE, these constructs, observations, and recommendations also apply to the post-secondary education data management needs of the State. It is the recommendation of the DSAC study team that Michigan first focus on the work to delivery on *NCLB* and *IDEA* mandated data services and then move beyond this mandate to address pre-K and post-secondary data management needs.



### Information Architecture

#### 1.1 Composite View of the Information Architecture

Below, the reader will find a composite view of the DSAC team recommended information architecture for the MDE, shown by architecture layer.



#### 1.2 Comprehensive Technology Assessment

The diagram above gives a logical depiction of the systems that are required for effective decision support focused on improving student achievement. The diagram shows the layers of systems services, including: end user presentation, decision support applications, underlying transaction processing, and the permanent data store. For the purpose of this discussion, the



observations and recommendations concerning the systems numbered above fall into two actionable categories: (1) core applications (meaning they should be implemented first and are the building blocks of other applications) and (2) service applications – which use core applications as part of the building blocks and deliver decision support functionality to district, school or MDE personnel.

**Note:** While this model has particular application to the data management needs of K-12 and hence the focus of the MDE, these constructs, observations, and recommendations also apply to the post-secondary education data management needs of the State. It is the recommendation of the DSAC study team that Michigan first focus on the work to delivery on *NCLB* and *IDEA* mandated data services and then move beyond this mandate to address pre-K and post-secondary data management needs.

- 1. Directory** – The directory is a core application. Applications use this to allow user authentication, single sign-on, security authorization, generation of distribution lists, etc.  
**Observations:** The existing Michigan Education Information System (MEIS) provides common user identification used by many MDE applications, and may provide a starting point.  
**Recommendations:** The State must invest in a suitable directory service.
- 2. Student ID and Record Collection** – This is another core application. The demographics data, attendance data, and schedule information feed a number of other important systems.  
**Observations:** CEPI has implemented a robust system for assigning student Ids and collecting student level data three times a year (which is not sufficient to meet all program needs). Currently all LEAs provide data to the system.  
**Recommendations:** All State agencies and organizations that work with student information must employ the UIC and should look to CEPI as the authoritative, centralizing source of consolidated K-12 student information. The United States Department of Education is about to call upon all SEA's to adopt SIF. DSAC urges Michigan to adopt the SIF standard for the sharing of student information across its agencies and services.
- 3. Staff Record Collection Information** – This is a service application to collect individual records linked to the State certification system for both licensed and unlicensed educators. Either a flat file transfer to a relational database system, a SIF interface, or a Web-enabled data entry capability for districts that do not already have this information in electronic format should be provided.  
**Observations:** Good recordkeeping practices are in place and a fairly robust body of information is available. However, this service needs to adopt the UIC process for educators and staff and requires a Web interface for end-user/supervisor record clean-up and maintenance.  
**Recommendation:** The United States Department of Education is about to call upon all SEA's to adopt SIF. DSAC urges Michigan to adopt the SIF standard for the sharing of personnel information across its agencies and services.
- 4. Technology Plan** – This is a service application. It should contain key information regarding technology infrastructure at the districts and schools that allow the State to determine whether appropriate infrastructure exists for deployment of certain systems (such as online testing). Either a flat file transfer to an asset management system, a SIF interface, or a Web-enabled data entry capability for districts that do not already have this information in electronic format should be provided.



**Observations:** In general this role resides with the LEAs. The State plays no role in local information technology planning. However the School Information Database (SID) might be expanded to include essential information in this area. MDE provides policy for this process and does capture the current in MEGS.

**Recommendation:** As part of the statewide roll out of data-driven decision support services, schools and districts will require a certain level of IT enablement. At the very least, the State will need to articulate and monitor local compliance with the minimum standards associated with the envisioned DSS services.

5. **Facilities Data Management** – This is a service application. It should contain key information regarding school and district physical facilities. Many states require districts to report information related to facilities. Either a flat file transfer to a relational database system, a SIF interface, or a Web-enabled data entry capability for districts that do not already have this information in electronic format should be provided.

**Observations:** The SID system may be best-in-class. However, its usefulness is limited in that pre-K and post-12 educational systems do not use it for recording facilities, safety, and discipline information.

**Recommendation:** Enforce the universal use of SID by educational agencies and services within the State.

6. **Grant Management Software** – This is a service application that should provide online, Web-based grant posting, application submittal, and application approval, tracking and reporting using a workflow tool. The purpose of the tool is to expedite grant approval and improve grant monitoring and compliance. It should also be used to ensure that no federal funds have to be returned at the end of the fiscal year or grant period.

**Observations:** The grants management system (MEGS) appears to have capacity and flexibility but is not integrated with the other layers of data management within CEPI and the MDE. There is a high cost of adding grants to the system.

**Recommendations:** If and when the grants management system employs disaggregated student information in its analysis and decision making, the system should employ the same unique student ID as found in SRSD for data integration.

7. **School Finance Data** – This is a service application to collect financial data from LEAs, ISDs, school buildings, and programs each year. All school districts must report certain financial related data to the State. Either a flat file transfer to a relational database system, a SIF interface, or a Web-enabled data entry capability for districts that do not already have this information in electronic format should be provided.

**Observations:** Here again, the State maintains a system and process (the Financial Information Database or FID) that will meet the needs as a source system to the ultimate data warehousing solution for DSS.

**Recommendations:** Adopting the SIF standard will lower the total cost of data integration and sharing.

8. **Teacher Certification Management** – The certification database is a service application.

**Observations:** As an information system, especially when viewed in conjunction with the State's human resource system that tracks educator work history and job assignments, License 2000, and the Registry of Educational Personnel (REP) meet the needs as a source system to the ultimate data warehousing solution for DSS. The State has just begun to link the databases associated with these two systems.



**Recommendations:** As the work on these systems progresses, look to automate the data flow from preparation institutions to L2K for recommending licensure. Also, data integration among these systems will require a universal, unique ID for educators and staff. Currently the REP uses a PIC but also requires either the credential number or the SSN for each educator file. Going forward this process needs to be rationalized and standardized. Lastly, the REP system may not include the “universe” of employees with perhaps some districts are underreporting non-professional staff and potentially teachers who are not highly qualified. If districts had underreported in the past, CEPI has no way of knowing who is missing. To audit and rebuild this file, work with the Office of Retirement Services to compare payment records with the REP list.

9. **Instructional Management System (IMS)** – This is a service application that links to the Standards Database and defines the curriculum scope, content (or links to content and pointers to hardcopy material), sequence, schedule and assessment criteria. It should be online, Web-based and built upon a relational system.

**Observations:** Not in place today.

**Recommendations:** Obtain an IMS system in line with the overall plan outlined in this report.

10. **Learning Standards Database** – This is a core application to publish State learning standards, course definitions, and recommended/restricted content (textbooks). This should be a relational data structure with the capability to easily extract (XML) or link standards definitions with other systems.

**Observations:** Not in place today.

**Recommendations:** Create a learning standards database and distribute via an educational portal.

11. **Assessment Database** – This is a core application to accept individual student and aggregated results from the assessment vendor to merge into decision support tools to support accountability determinations.

**Observations:** MEAP data is well established and accessible but the process needs to be reengineered so that educators and school administrators can make use of that data for more-timely, proactive interventions. A complementary set of services for interim/formative assessments would also be highly desirable. All that being said, MEAP still meets the need as a source system to the ultimate data warehousing solution for DSS.

**Recommendations:** Integrate the sharing of assessment data with the Web services made available through the envisioned education portal.

12. **Data Warehouse** – This is a core application that draws data from operational databases to retain a snapshot of data at pre-determined intervals for archival purposes. It should contain all student demographic and assessment data, financial data, grants information, school and teacher information in separate but linked relational tables. The purpose of the data warehouse is analytics and reporting, not tracking operational or transactional data.

**Observations:** A data warehouse is currently not in place today for the above mentioned subject areas. However, the State of Michigan does have an existing data warehouse solution that provides services for the FIA, DCH, and Treasury. The data warehouse contains information on welfare, child care and support, Medicaid, birth and immunization records, tax data and many other subject areas.

**Recommendations:** Research a variety of data warehouse options, both internal and external to the State. Recommend a technical architecture for the data warehouse



solution and thereafter design and construct an appropriate data warehousing service for student information as outlined in this report.

- 13. **Decision Support Tools** – This is a service application that is provided to the SEA, LEA, and school-level administrator/teacher for the purpose of easily extracting data from systems to allow them to make data driven decisions on a wide range of areas.

**Observations:** Not in place today.

**Recommendations:** As part of the data warehousing effort, provide a wide range of reports and ad hoc querying services via the education portal as outlined in this report.

Below, the reader will find a table that provides numerical ratings (0=totally absent to 3=exemplary) for the **current-state** Michigan application architecture. The ratings are shown by application and also by the underlying architecture layers that support each application. The rubrics for the CELT Team technical evaluation of the applications can be found in Appendix A of this report.

Applications that Support the Core Processes	Overall Application Rating	Application Layers:							
		1. Presentation/UI Tier	2. Application Tier	3. Transactional Data Tier	4. Persistent Data Store	5. Enterprise Interoperability	6. Decision Support/Reporting	7. Production Performance	8. TCO
1. Learning Standards	0	0	0	0	0	0	0	0	0
2. State Assessment Results Management	1.1	2	2	2	0	0	0	1	2
3. Certification Database	2	2	2	2	2	2	2	2	2
6. Data Warehouse	0	0	0	0	0	0	0	0	0
7. Decision Support Tools	0	0	0	0	0	0	0	0	0
4. Grant and Program Data Collection	2	2	2	2	2	1	1	2	2
5. End of Year Finance Data Collection	2	2	2	2	2	2	1	1	2
8. Enterprise Directory + Security Portal	2	2	2	2	2	2	2	2	2
9. Student ID + Record Collection	2.3	2	3	3	3	1.5	2	2	2
10. Safety and Discipline Information Data Collection	2	3	2	2	2	1	1	2	3
11. Classified Personnel Information	2	2	2	2	2	2	2	2	2
12. Facilities and Technology Plan Data Collection	2	2	2	2	2	2	2	2	2
<b>Summary Scores</b>	<b>1.5</b>	<b>1.6</b>	<b>1.6</b>	<b>1.6</b>	<b>1.4</b>	<b>1.1</b>	<b>1.1</b>	<b>1.3</b>	<b>1.6</b>



The table below describes the considerations for a “3” rating for each layer of the application architecture in the previous table. Considerations for application functionality and technical infrastructure are shown. Also shown in each row is the current technical architecture that supports the application layer for the MDE.

	Functional Considerations for a "3" Rating	Technical Considerations for a "3" Rating	Current Michigan Technical Architecture Components	Recommended Changes to the Technical Architecture
<b>1. Presentation / UI Tier</b>	The application is visually attractive, easily navigable, accessible to all types of users, and consistent with the rest of the site.	There is minimum desktop client, platform independence, responsive to the desktop.	Application and data management is siloed with little thought given to process and data integration/collaboration.	Develop a set of architected, coordinated solutions that revolve around Web delivery at the front end and data warehouse delivery at the back end, enabled through a enterprise directory and unique user ID process.
<b>2. Application Tier</b>	The workflow supported by the app closely maps to the target Core Process.	There is a current-state application server platform, current-state development tools, vendor support.	For new development, there does not appear to be an product of technical platform standardization or architecture.	Given the federated nature of IT application ownership, better governance at the process level and an enterprise view of the technical architecture and systems integration is called for.
<b>3. Transactional Data Tier</b>	A clear data model is documented and in place.	There is a relational DB, current-state data server, vendor supported tools	Various, including SQL Server, Oracle, Access, and Excel	Consideration should be given to establishing a comprehensive operational data store that contains current year data collection that is still in progress. This should be separate from the data warehouse but possess many of the same technical features, including extensive storage, secure back-up, high-speed, Web-enabled retrieval capabilities.
<b>3. Transactional Data Tier (cont'd)</b>				Standardizing on an Oracle platform makes sense given the price performance of the system and its availability within Wisconsin state government.
<b>4. Persistent Data Store</b>	Temporality, archiving, storage, and retrieval are optimized.	Uses optimized storage schema, data modeling tools, robust server architecture	None	Establish a data warehouse separate from the data collection systems. The data warehouse can then be used for data analysis and reporting without impacting the data collection process. When data is stable, it should be moved from the operational store to the data warehouse.



	Functional Considerations for a "3" Rating	Technical Considerations for a "3" Rating	Current Michigan Technical Architecture Components	Recommended Changes to the Technical Architecture
<b>5. Enterprise Interoperability</b>	All data is clearly and cleanly sourced and seamlessly integrated.	Uses robust network to the district, low-impact data collection tools	None	As applications are designed and built, they should use standards that provide for both vertical and horizontal interoperability as appropriate. No change to the current network approach. Adopt SIF standards across all WDPI Data Warehouse and Reporting services.
<b>6. Decision Support/Reporting</b>	The application provides reports and views of the data to drive key decisions.	Uses current-State report generation tool, data mining capability, separate operational data store (ODS)	Many reports are developed using Microsoft Office tools, such as Access and Excel.	Use a sophisticated end user tools such as those available from Cognos or Oracle to develop a wide range of standard reports and to enable those authorized to perform sophisticated ad hoc reports across all data collected by the SEA.
<b>7. Production Performance</b>	Staffing, bandwidth, load balancing, etc are handled such that response time is maintained.	High bandwidth to the districts, robust LAN at the DOE, network and server performance monitoring tools.	Staffing appears adequate for the current amount of data collected and analyzed. However the overall process and technical platform do not meet the needs of DSS, and are many times redundant and therefore wasteful of State resources.	Centralize data collection activities as additional data collection systems are introduced or expanded. Realign staffing to put the resources in the decision support unit and by removing from siloed data management encouraging all other departments to turn to the new data services under the CIO for authoritative, "clean" data.
<b>8. Total Cost of Ownership</b>	Licensing and staffing are optimized for lowest long-term costs.			TCO not an issue but the serious under funding of WDPI data management services has seriously hindered their ability to meet <i>NCLB Act</i> and <i>IDEA</i> requirements and more importantly to serve LEA, school and individual student needs.



Implementation Plan Summary

1.1 Overview and Action Plan Assumptions

Many of the recommendations from this report lend themselves to focused project implementations. As a general rule, recommendations that involve a significant amount of work across a number of government agencies over an extended period of time have been identified as projects. Each project should be assigned a sponsor from WDPI executive leadership and an accompanying project manager who has singular responsibility for project oversight, execution, and project team supervision and leadership. Each project should be allocated a project team, a project budget, and a clearly defined scope of work with accompanying milestone schedule. Also, a project oversight function should be implemented to periodically assess the status and resolve issues for all key projects. If possible, CCSSO's DSAC Team would also recommend the creation of a Project Management Office (PMO) function to ensure consistency of process and delivery across these large, complex, overlapping, and interconnected projects.

The table below identifies and briefly describes the eleven projects that are recommended by this report. Some of these are already underway in some manner. For example, Project 1 is underway as part of Michigan's membership in DSAC project and the services for UIC (Project 2) and e-Grants management (Project 10) already exist in some manner. Thus some of DSAC's recommendations build upon Michigan's emerging and firm foundation for decision support while others add and extend the State's DSS capabilities.

Table with 3 columns: Project No., Project Name, Project Description. It lists Project 1 (Data-Driven Decision Support Architecture Master Plan) and Project 1 (cont'd) with detailed descriptions and bullet points.



Project No.	Project Name	Project Description
		<ul style="list-style-type: none"> <li>– an overall data management strategy</li> <li>– a governance structure for data management</li> <li>– documented workflows and processes for data management, analysis and reporting</li> <li>– stakeholder roles and responsibilities in these data management processes</li> <li>– a logical architecture for source systems/data flows</li> <li>– a high-level logical diagram for educational data</li> <li>– a high-level metadata directory model</li> <li>– a technical architecture for an end-to-end data management solution, including related hardware and software recommendations that leverage existing State IT investments</li> <li>– a high-level project plan, including time lines, staffing levels and competency requirements, and associated costs/budgets for delivery of DSS solution components</li> <li>– components for associated DSS request for proposal (RFP) documents</li> <li>– ongoing consultation, project management and support in deal with DSS product/service vendors during the first year of DSS implementation</li> </ul>
Project 2	Extension of the UIC Process to all State Agency Systems of Record	<p>This project really is one of process change and workflow adaptation in line with an existing service to ensure the universal adoption of the UIC among all State systems of record and to embrace educators and staff as well as students pre-K to 20. It is conceivable that the existing UIC infrastructure may need to be revised as well the data structures and processes within several State transaction data systems (e.g. MAERS, MI-CIS, MEDS, and CTEIS).</p> <p>Enhance the student data management system (SRSD) to provide the following benefits:</p> <ul style="list-style-type: none"> <li>• Single, shared source of core student demographic data</li> <li>• Data submission due dates align with program needs</li> <li>• Implementation without increasing the workload for schools and LEAs and MDOE program managers</li> <li>• Process that improve data quality at the point of entry through data validation routines prior to submission, and post-submission clean-up.</li> </ul>



Project No.	Project Name	Project Description
Project 3	Extended Directory Services	<p>Extend the issuance of unique educator and staff IDs beyond the existing users to all appropriate LEA personnel so as to complement the student unique ID process, and to extend role authentication and permissions management. Merge the directory and authentication system of the existing secure portal with emerging DSS services and applications to make them available to school administrators, educators and State agency personnel as appropriate:</p> <p>The scope of this project is to:</p> <ul style="list-style-type: none"> <li>• Issue unique educator and staff IDs to complement the student unique ID process and extending role authentication and permissions management.</li> <li>• Provide interfaces to related applications to implement a single sign on for all DSS applications.</li> <li>• Provide training to all users.</li> </ul>
Project 4	Educational Portal and a comprehensive Web-services strategy	<p>Create a master plan for Web-services that defines in detail the comprehensive and complementary offerings of the existing and new data services, including those for the envisioned MDE standards database, License 2000, REP, MEAP, MEGS, and so forth, such as data upload/download services, access control to LEA/school data marts, identity management services, instructional management services, learning resources access, etc. Through this same platform offer an educator workspace to include lesson plan development, instructional management, and other program delivery activities.</p> <p>This is a large project executed in phases to deliver the proper tools to the schools and districts. The project will deliver tools for:</p> <ul style="list-style-type: none"> <li>• maintaining state standards in a relational database</li> <li>• enabling districts to maintain curriculum and align resources to standards</li> <li>• providing best practice examples</li> <li>• integrating the curricular materials with assessments (diagnostic, formative, and summative)</li> <li>• developing and delivering online professional development and virtual courses whose results are maintained automatically in License 2000.</li> <li>• supporting data analysis to assist classroom instruction</li> <li>• virtual schools (course management)</li> <li>• supplement content (individual learning management)</li> <li>• digital content libraries, etc.</li> </ul>
Project 5	MEAP Formative Assessments and Test Item Banks	<ul style="list-style-type: none"> <li>• Develop a Web-based assessment platform delivered through the e-portal which will provide a choice of diagnostic and formative assessments for use by districts. It will draw on the substantial number of released MEAP test items. Once a diagnostic/formative assessment is developed by a district, it can be printed and scored, with the results entered in the application for further analysis. Remedial or extension resources can be recommended based on the results of the tests.</li> </ul>
Project 5 (cont'd)		<ul style="list-style-type: none"> <li>• This project might be best addressed through the statewide use of a learning management system working in conjunction with an e-portal.</li> <li>• Phase 1 of this project would provide a searchable database application for the selection of past MEAP questions for use in LEA</li> </ul>



Project No.	Project Name	Project Description
		<p>formative testing processes and a tool to build tests or at least a library of sample tests.</p> <ul style="list-style-type: none"> <li>Phase 2 of this project would store and track student formative test results and analytical tools for analysis and decision-making by LEAs.</li> </ul>
Project 6	Architected Platform for DSS	<p>Building on the national architectural framework designed by DSAC and its member States, develop a comprehensive set of business (functional) and technical requirements for an end-to-end decision support system solution based upon DSAC's architectural frameworks and recommended standards.</p> <p>The outcomes of this project will be:</p> <ul style="list-style-type: none"> <li>an assessment of existing DIT technical capabilities, services and products, as well as the State's IT architecture in light of the emerging DSS requirements; where gaps exist, identifying externally available products and services.</li> <li>the identification of options and the framing of effective RFP's in line with the State's master data management plan.</li> <li>throughout this process ensuring that stakeholders consider the total cost of ownership when selecting IT products and services</li> <li>ensure that the ultimate solution is cost effective and in line with State needs and expectations for DSS services.</li> </ul>
Project 7	Data Warehouse/Data Mart Platform	<p>This project is to implement a data warehouse to retain historical data on student demographics, MEAP assessments, discipline, dropouts as well as additional information such as financial, teacher certification, assessment grants and program data that can be used to fundamentally drive student performance decisions at the classroom and student level. It should be designed to incorporate teacher information and class schedules in the future. The scope of the project should include the following:</p>
Project 7 (cont'd)		<ul style="list-style-type: none"> <li>Identification of the "customers" of the system. It is recommended that the district administrators (superintendents, principals and assistant principals and the district accountability coordinators) and CEPI staff be identified as the customers initially.</li> <li>Identification of the types of questions that the data warehouse is to answer for its customers.</li> <li>Identification of the sources of data for answering these questions. This must be cataloged, standardized, and documented in a data dictionary.</li> <li>Determine what historical data should be included within the scope of this project.</li> <li>Once this groundwork is laid, the design of the data table structures and the data collection methodology (i.e. ETL tools or SIF structures) and the specifications for the reporting tools should be completed.</li> <li>Concurrent with the design of the data collection methodology is the definition of the policies for local accountability of data collection and quality.</li> </ul>



Project No.	Project Name	Project Description
		<ul style="list-style-type: none"> <li>• Training and implementation planning, data conversion and production support are steps that follow in the project scope.</li> </ul>
Project 8	Data Reporting and Analysis Platform	<p>Provide enhanced reporting capabilities to State agencies and the LEAs to analyze and report off of the data warehouse. The tools can be used initially to report off of existing databases to provide access, analysis, and reporting where current capabilities are limited.</p> <ul style="list-style-type: none"> <li>• data marts</li> <li>• query tools and routines</li> <li>• standard reports</li> <li>• user training and support</li> <li>• user documentation</li> </ul>
Project 9	School Improvement Planner	<p>Enable every school in the State to identify deficiencies, plan improvements, and measure the progress of their strategies to improve student learning through a Web-based application. This application would support school councils in developing and monitoring school improvement plans. It would allow them to establish measurable goals and develop strategies and responsibilities for implementing those goals. It would automatically make use of data from the data warehouse (attendance, MEAP and dialogistic/ formative scores, discipline, etc.) to inform goal setting as well as monitor progress to the goals.</p> <p>This tool will be updated on a regular (at least annual) basis as MEAP data is made available so as to provide data-derived benchmarks and metrics for each school planning team. This same system would also roll-up both planning objectives and associated performance results to better inform the MDE interventions team as they plan for the allocation of State resources and other services to the LEAs. Data collected via the tool will support <i>state mandates</i> such as Education Yes accreditation and compliance with NCLB and IDEA. Furthermore, the data derived from the School improvement Planner will allow for the longitudinal tracking of LEAs over time and in relation to MDE interventions, additional funding, and other actions on the part of the MDE.</p>
Project 10	e-Grants and Financial Data	<p>This project will streamline and rationalize existing grants management processes as well as extend the system so as to automate the workflows associated with both State and Federal granting processes, including:</p> <ul style="list-style-type: none"> <li>• a revised data model to better service DSS as appropriate.</li> <li>• deployment of data model changes as appropriate.</li> <li>• extend Web-enabled access for both State and Federal grants application processes.</li> <li>• automated tracking of application statuses via the Web.</li> <li>• integration with the DSS data warehouse for decision support purposes.</li> </ul>



Project No.	Project Name	Project Description
Project 11	Project Management Office	<p>Given the complexities, costs, and associated risks of DSS solution implementations, many DSAC State members have turned to DSAC to provide an objective third-party management layer to DSS delivery with the cost of this service scaled to the scope of the assignment. The services of the PMO might therefore encompass:</p> <ul style="list-style-type: none"> <li>to ensure alignment between IT commitments and the agency's program and operational objectives.</li> <li>to manage and coordinate overall IT project delivery and resource consumption.</li> <li>to collect, codify, and disseminate best practices to service delivery and project teams.</li> <li>to collect, document, and disseminate reusable components (such as project plans and budgets, commitment documents, technical specification templates, and the like) to project teams.</li> <li>to measure and benchmark IT team performance.</li> <li>to manage the project reporting requirements.</li> <li>to communicate with stakeholders about project statuses, issues, and so on.</li> </ul>

**1.2 Five-Year Action Plan with Scenarios**

The table below provides a quick view of the timing of each recommended project.

Project Name	Year 1	Year 2	Year 3	Year 4	Year 5
1. Data-Driven Decision Support Architecture Master Plan	X				
2. Extension of the UIC	X				
3. Extended Directory Services	X	X	X		
4. Educational Portal	X	X	X	X	
5. MEAP Formative Assessments and Test Item Banks	X	X	X		
6. Architected Platform for DSS	X				
7. Data Warehouse/Data Mart Platform		X	X	X	
8. Data Reporting and Analysis Platform		X	X	X	
9. School Improvement Planner	X	X	X		
10. e-Grants and Financial Data		X	X	X	
11. PMO	X	X	X	X	X

**1.3 Estimated Project Costs**

The table below provides a **rough cost estimate** for each project. Some assumptions are also provided. It is important to note that these estimates are rough, ball-park estimates and provided only to give the State an idea of the magnitude of effort and cost that could be expected from these efforts. Much work needs to be done to properly scope before a more accurate estimate can be provided for each project.

Project	Estimated Cost	Assumptions
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Project		Estimated Cost	Assumptions
Project 1	Data-Driven Decision Support Architecture Master Plan	\$100-\$150,000	<ul style="list-style-type: none"> <li>Process and tool design will generate approximately 50% of this project's associated cost.</li> <li>The balance is required for implementation rollout and staff training and mentoring.</li> </ul>
Project 2	Extension of the UIC	\$250,000 or less	<ul style="list-style-type: none"> <li>Most of the effort here is in policy and process change.</li> <li>Some additional programming may be required.</li> </ul>
Project 3	Extended Directory Services	\$200,000-400,000	<ul style="list-style-type: none"> <li>Costs assume internally developed systems integration with contract resources.</li> <li>May entail the purchase of additional security software.</li> <li>Will require added operational personnel during the implementation phase of the effort.</li> </ul>
Project 4	Educational Portal	\$1- \$2,000,000	<ul style="list-style-type: none"> <li>This project should evolve over a number of years from modest enhancements and extensions to a full-blown learning management system.</li> <li>Initially, the effort would involve the DIT, CEPI, and DSAC teams and perhaps some additional external resources.</li> <li>A true learning management systems approach would probably entail the purchase of a separate LMS at substantial cost.</li> </ul>
Project 5	MEAP Formative Assessments and Test Item Banks	\$100-\$300,000	<ul style="list-style-type: none"> <li>Hardware and process and tool design will generate approximately 50% of this project's associated cost.</li> <li>The balance is required for implementation rollout and staff training and mentoring.</li> </ul>
Project 6	Architected Platform for DSS	\$100,000-\$200,000	<ul style="list-style-type: none"> <li>Initially, the effort would involve the DIT, CEPI, and DSAC teams and perhaps some additional external resources.</li> <li>Most of the cost is in RFP development, the rest will leverage DSAC knowledge and existing documentation.</li> </ul>
Project 7	Data Warehouse/Data Mart Platform	\$7,000,000-\$9,000,000	<ul style="list-style-type: none"> <li>hardware and software purchases</li> <li>business rule gathering</li> <li>database logical and physical design</li> <li>data modeling and ETL effort</li> <li>building of ODS, data warehouse, data marts</li> <li>moving the data and operationalizing overall process</li> <li>train personnel to maintain services going</li> </ul>



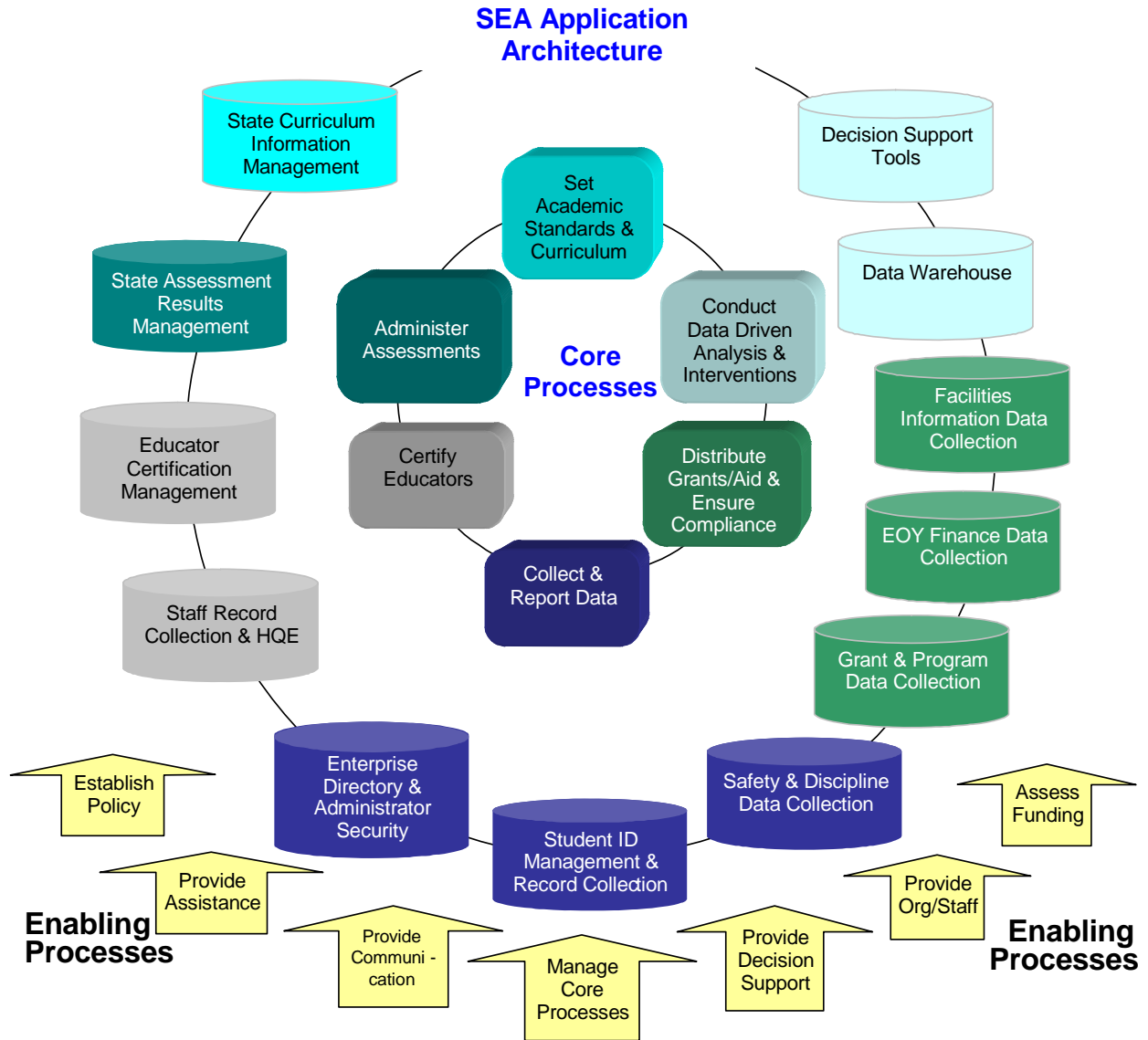
Phase I ~ Decision Support Architecture Consortium (DSAC) Report

Project		Estimated Cost	Assumptions
			forward
Project 8	Data Reporting and Analysis Platform	\$1,500,000 – \$2,500,000	<ul style="list-style-type: none"> <li>• purchase necessary licenses</li> <li>• hire third parties to develop initial tool set.</li> <li>• establish ad hoc querying capability</li> <li>• training personnel</li> </ul>
Project 9	School Improvement Planner	\$1,000,000- \$2,000,000 or less plus annual maintenance	<ul style="list-style-type: none"> <li>• Purchase off the shelf product modified for the needs of the MDE and its LEAs.</li> <li>• Integrate with data warehouse and ODS or source systems.</li> </ul>
Project 10	e-Grants and Financial Data	less than \$250,000	<ul style="list-style-type: none"> <li>• Adaptation of existing product</li> <li>• Integration with SRSD and other CEPI services.</li> </ul>
Project 11	The Project Management Office	\$50-100,000 per year plus ongoing membership in DSAC	<ul style="list-style-type: none"> <li>• This service supplements the services of CEPI and DIT and is driven entirely by the demand for DSAC services.</li> </ul>



Appendices

Appendix A: DSAC Framework and Rubrics





### *The DSAC Framework and Assessment Process*

An effective architecture for state level decision support for improving and sustaining academic performance is comprised of the following key elements:

- **Core Processes** whose definition, support, and proper execution are critical to an effective decision support system geared to improving instruction.
- **Enabling Processes** that include those business, policy, staff development, communication, and organizational processes necessary for the organization to reach its goals.
- **An Applications Architecture** of databases and technology tools that comprise the information systems necessary for instructional improvement efforts.

There are six core processes and seven enabling processes that are necessary to assure individual student improvement for each student in Michigan. As described above in some detail, these core processes represent functions that have to be managed from the state, through the districts to the school to the classroom. Each of the processes has related information systems and database applications associated with them. The six core processes are:

**Academic Standards and Curriculum** – This process identifies, defines, refines, communicates, and monitors the State’s standards for learning by subject and grade. In some States this includes the naming of courses and the establishment of course requirements. This process may also include statewide textbook selection and the selection of instructional management tools for the LEAs to use.

**Administer Performance Based and Standardized Assessments** – This is a process to define the performance criteria for students against State standards as well as a method for assessing and reporting each student’s progress relative to these criteria.

**Certify Educators** – This is a process to document teacher and educational administrator competency levels as related to the State standards and to certify teachers who have achieved the proper level of competency.

**Conduct Data Driven Analysis and Interventions and Manage Accountability Systems** – This is the process for collecting and analyzing assessment data to identify and conduct interventions at the school, classroom, and student level. This process also includes defining expected performance levels for Districts, schools, and teachers, and holding them accountable for achieving these levels, with appropriate rewards for success.

**Distribute Grants/Aid and Ensure Compliance** – This is the process for collecting data and distributing funding to school districts either as direct State aid or through State or Federal grants. Grants may be either competitive or based on entitlement formulas. This process also ensures compliance with Federal and State requirements (such as Title I compliance).

**Collect and Report Data** – This is the process for collecting student, educator, and program/organization data from school districts relative to all aspect of educational program information.

**Enabling processes** are the softer policy and organizational elements that are essential to the effective functioning and results of the core processes. Each core process is supported by enabling processes. The following are the seven enabling processes.

1. Establish Policy
2. Provide Technical Assistance and Staff Development



3. Publish Information and Provide Communication
4. Manage Core Processes
5. Provide Enhanced Decision Support
6. Provide Organization/Staffing
7. Assess Funding Needs

To properly support and accomplish the core processes, all States need a set of twelve system components, at a minimum, to support *NCLB* and *IDEA* requirements. These systems are as follows:

8. **Enterprise Directory + Security Portal:** a set of synchronized LDAP and relational databases with distributed administration tools that maintain core information, authentication, and authorization data for school organizations and those educators/administrators that require personalized access to state online applications.
9. **Student ID + Record Collection (SPED, Voc, etc.):** a system to register each student with the state, assign and maintain a unique ID, and collect individual student records at least several times a year.
10. **Educator Certification Management:** a system to register and license educators and maintain licensure information through a teacher's career.
11. **Staff Record Collection and Highly Qualified Determination:** a system to collect individual records linked to the state certification system for both licensed and unlicensed educators.
12. **State Curriculum Management (learning standards, courses):** a system to publish state learning standards, course definitions, and recommended/restricted content (textbooks).
13. **State Assessment Results Management:** each state needs a system to accept individual and aggregated results from their assessment vendor to merge into decision support tools to support accountability determinations.
14. **Grant and Program Data Collection:** states require applications to collect information from school and district personnel, above and beyond the individual student and staff records collected. Workflow can be enabled to utilize the Web to improve efficiency.
15. **End of Year Finance Data Collection:** states need to collect financial data from LEAs, school buildings, and Programs each year.
16. **Safety and Discipline Information Data Collection:** districts must report every incidence of violence through the state to the Federal government. Since an incident is not a characteristic of the student, a separate system needs to track each incident as it relates to above identified students.
17. **Facilities and Technology Plan Data Collection:** all school districts must report certain technology related data to the State. Many states require districts to report additional information related to facilities.
18. **Data Warehouse:** all of the above information must be stored in granular and structured format in an enterprise data warehouse.
19. **Decision Support Tools:** all of the data in the data warehouse must be made accessible to authenticated and unauthenticated users. Initially usage may be restricted to highly structured queries that fulfill reporting requirements. Eventually, State decision support environments will integrate with District environments to provide educators, students, and parents with broad access to data resources that will support student learning.

The applications architecture (databases, applications, and infrastructure) and their associated enabling processes may be integrated into a comprehensive



view of hard and soft system elements within each of the Core Processes. The figure below shows the core processes and the interplay of the application architecture with the supporting enabling architecture.

In applying this framework to the data-driven decision support capabilities of the MDE, the DSAC team has employed a series of rubrics to systematically evaluate MDE's core processes through the quality of each core process' enabling processes, and the associated, supporting information technology applications and infrastructure. In the three tables that follow, the DSAC team provides these metrics so that the reader may appreciate the team's underlying methodology as well as the rationale for each assessment score. In total, these rubrics map to the DSAC decision support systems framework and align with the architectural elements of a complete solution set.



*Enabling Process Rubrics:*

	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>1. Establish Policies with Stakeholder Involvement</b>	<b>All</b> statutes, regulations and policies directing LEA and SEA students and staff are in place to support the target environment and were developed with broad stakeholder involvement and clearly published on the Web.	<b>Most</b> statutes, regulations and policies directing LEA and SEA students and staff are developed with broad stakeholder involvement or clearly published on the Web.	<b>Some</b> statutes, regulations and policies directing LEA and SEA students and staff are developed with broad stakeholder involvement or clearly published on the Web.	<b>Few</b> statutes, regulations and policies directing LEA and SEA students and staff are developed with broad stakeholder involvement or clearly published on the Web.
<b>2. Provide Technical Assistance and Staff Development</b>	The State ensures that LEA staff receive top quality technical assistance and PD opportunities in <b>all</b> core areas.	The State ensures that LEA staff receive top quality technical assistance and PD opportunities in <b>most</b> core areas.	The State ensures that LEA staff receive top quality technical assistance and PD opportunities in <b>some</b> core areas.	The State ensures that LEA staff receive top quality technical assistance and PD opportunities in <b>few</b> of the core areas.
<b>3. Publish Information and Provide Communication</b>	The State effectively uses US Postal, e-mail, and the Web to communicate <b>all</b> key information LEAs need.	The State effectively uses US Postal, e-mail, and the Web to communicate <b>most</b> key information LEAs need.	The State effectively uses US Postal, e-mail, and the Web to communicate <b>some</b> key information LEAs need.	The State effectively uses US Postal, e-mail, and the Web to communicate <b>few</b> key information LEAs need.
<b>4. Manage Internal Processes</b>	<b>All</b> internal processes are well documented and managed for continuous improvement and total quality. Process ownership is clearly defined. Measures are routinely used to monitor process performance (Balanced Scorecard).	<b>Most</b> internal processes are well documented and managed for continuous improvement and total quality.	<b>Some</b> internal processes are well documented and managed for continuous improvement and total quality.	<b>Few</b> internal processes are well documented and managed for continuous improvement and total quality.
<b>5. Use Data to Drive Decisions</b>	Quantifiable data (in tables and graphs) drives <b>all</b> key decisions in this core process.	Data drives <b>most</b> key policy decisions.	Data drives <b>some</b> key policy decisions.	Data drives <b>few</b> key policy decisions. Policy is mostly driven by anecdote and belief.
<b>6. Provide Organization/ Staffing</b>	<b>All</b> staff resources are adequate and effectively aligned to processes.	<b>Most</b> staff resources are adequate and effectively aligned to processes.	<b>Some</b> staff resources are adequate and effectively aligned to processes.	<b>Few</b> staff resources are adequate and effectively aligned to processes.
<b>7. Assess Funding Needs</b>	Both LEA and SEA staff report <b>ample resources</b> to accomplish their work successfully.	Financial constraints, while evident, are not the primary constraints.	Financial constraints top the long list of problems.	Both LEA and SEA staff report massive resource constraints substantially impacting



<b>IT Application Rubrics:</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>1. State Curriculum Management</b>	State maintains and publishes learning standards and associated curriculum materials (lessons, assessments, etc) in SIF v1.5 certified system.	State published learning standards as on parsed documents, but makes available a database of standards upon request.	State publishes learning standards as .doc, .pdf, or html with out parsing, name spacing, or mapping between versions.	Current learning standard documents are not readily available for download from the Web.
<b>2. State Assessment Results Management</b>	State uses SIF v1.5 to subscribe to assessment vendor for results and publish results through secure data warehouse. Parents are able to access their students' results with links to supportive resources.	State accepts results from assessment contractor in proprietary format, stores them in data warehouse, and makes them available to schools through primitive decision support tools.	State accepts results from assessment contractor in proprietary format and makes them available to schools on CD ROMS and/or print.	State is not able to process granular assessment data.
<b>3. Educator Certification Management</b>	All transactions related to educator licensure are available online. Dynamic access to certification data is linked with #7 below to determine Highly Qualified Teacher metrics.	Some transactions are available online. Certification data files are merged with #7 below to determine HQT.	Certification transactions are paper based. Districts have to merge data to create HQT reports.	Certification systems are non-functioning.
<b>4. Enterprise Directory + Security Portal</b>	Every educator, student and parent has a unique identity, log-in and personalized access to authorized data and applications.	SEA staff and LEA data reporting administrators have unique identity, log-in and personalized access to authorized data and applications.	Each SEA application makes use of its own organization generic log-in.	No capacity exists for authenticating secure access.



<b>IT Application Rubrics:</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
<b>5. Student ID + Record Collection</b>	Districts can register students in local SIS synchronously with state IS system. All student level data is collected from district application through SIF interoperability or Web services. Aggregate reports are summarized by state system for district approval.	Each student is assigned a unique and consistent ID by the state through a stand alone system. Core student level data is collected as individual records, linkable across time. Migrant, foster care and other program data are captured through distinct, but linked systems.	Student data is primarily collected in aggregate or without a unique, state assigned ID.	Insufficient aggregate student data exists to comply with state or federal reporting requirements.
<b>6. Safety and Discipline Information Data Collection</b>	Districts are able to log each incident directly into the state system or through their SIS with both perpetrator and victim student IDs.	Individual incident data is collected via the Web, but not tied to student IDs.	Incident data is collected through aggregate reports.	Insufficient aggregate student data exists to comply with state or federal reporting requirements.
<b>7. Staff Record Collection and Highly Qualified Determination</b>	Districts report record level staff demographic and assignment data and the state is able to correlate between teachers and students in each class.	Districts report record level staff assignment and demographic data to the state. Either the district or state links certification data to determine HQT.	Districts report data in aggregate.	Insufficient aggregate educator data exists to comply with state or federal reporting requirements.
<b>8. Facilities and Technology Plan Data Collection</b>	Applications with local value are provided to capture tech plan and facilities data with standardized reporting to the state.	Web-based forms are used to collect district tech plan and facilities data.	Data is collected on paper.	Insufficient facilities and tech plan data exists to comply with state or federal reporting requirements.
<b>9. Grant and Program Data Collection</b>	Web-based forms merge decision-support data with grant objectives to drive school improvement.	Web-based forms are used to distribute, collect, audit and report grant related information.	Generic files are used to distribute and collect grant data.	Insufficient grant and program data exists to comply with state or federal reporting requirements.
<b>10. End of Year Finance Data Collection</b>	Transaction level financial data is captured in standardized format to enable multi-	Summary financial data is collected through Web-based forms with internal intelligence.	Spreadsheets are used to collect financial data.	Insufficient financial data exists to comply with state or federal reporting requirements.



<b>IT Application Rubrics:</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
	dimensional analysis.			
<b>11. Data Warehouse</b>	All state level data is maintained in an enterprise data warehouse with linkages to heterogeneous local data.	All state level data is maintained in an enterprise data warehouse.	Data is stored in silos.	No historical data exists.
<b>12. Decision Support Tools</b>	An integrated view of individual and grouped student performance, measuring growth over time and correlated to other factors is available to all authorized users.	Ad hoc querying of data cubes is available to authorized users.	School and district aggregate student performance profiles are available on the Web.	No information exists to support policy makers, educators, parents or students.



**IT Infrastructure Rubrics:**

	<b>Functional Considerations for a "3" rating</b>	<b>Technical Considerations for a "3" rating</b>
<b>1. Presentation /UI Tier</b>	The application is visually attractive, easily navigable, accessible to all types of users, and consistent with the rest of the site.	minimum client, platform independent, responsive
<b>2. Application Tier</b>	The workflow supported by the app closely maps to the target Core Process.	current-state application server platform, current-state development tools, and vendor support.
<b>3. Transactional Data Tier</b>	A clear data model is documented and in place.	relational DB, current state data server, vendor tools
<b>4. Persistent Data Store</b>	Temporality, archiving, storage, and retrieval are optimized.	same as above
<b>5. Enterprise Interoperability</b>	All data is clearly and cleanly sources and seamlessly integrated.	robust network, low-impact data collection, one-time data entry
<b>6. Decision Support/Reporting</b>	The application provides reports and views of the data to drive key decisions.	current-state report generation tool, data mining capability, separate reporting from operation system.
<b>7. Production Performance</b>	Staffing, bandwidth, load balancing, etc are handles such that response time is maintained.	
<b>8. Total Cost of Ownership</b>	Licensing and staffing are optimized for lowest long-term costs.	



**Appendix B: DSAC Knowledge Store URLs**  
*(some are under construction at this time)*

<i>DSAC Decision Support Frameworks and Architecture</i>	under construction
<i>DSAC Architectural Component Specifications</i>	under construction
<i>RFP Components</i>	under construction
<i>Best Practices</i>	under construction

**DSAC WHITE PAPERS:**

The Need for Quality Decision Support Architecture in K-12 Education	<a href="http://www.celtcorp.com/whitepapers/levinson03">http://www.celtcorp.com/whitepapers/levinson03</a>
Data, Data, Everywhere: The Case for a Data Architecture to Support State Decisions	<a href="http://www.celtcorp.com/whitepapers/mann04">http://www.celtcorp.com/whitepapers/mann04</a>
Building a Consortial-based IT Solution: a Decision Support Architecture for State Education Agencies	<a href="http://www.celtcorp.com/whitepapers/kesner04">http://www.celtcorp.com/whitepapers/kesner04</a>
Decision Support Architecture Framework	<a href="http://www.celtcorp.com/whitepapers/team04">http://www.celtcorp.com/whitepapers/team04</a>



Appendix C: Michigan State Background Data

Document	URL
<b>State Information</b>	
DOE Information	<a href="http://www.michigan.gov/mde">http://www.michigan.gov/mde</a> State Technology Plan: <a href="http://www.michigan.gov/documents/miplan2000_40662_7.pdf">http://www.michigan.gov/documents/miplan2000_40662_7.pdf</a> Michigan Public Schools Work!: <a href="http://www.mipublicschools.org/">http://www.mipublicschools.org/</a> Education Yes!: <a href="http://www.michigan.gov/mde/0,1607,7-140-22709_22877---,00.html">http://www.michigan.gov/mde/0,1607,7-140-22709_22877---,00.html</a> MEAP: <a href="http://www.michigan.gov/mde/0,1607,7-140-22709_31168---,00.html">http://www.michigan.gov/mde/0,1607,7-140-22709_31168---,00.html</a> MI-Access: <a href="http://www.michigan.gov/mde/0,1607,7-140-22709_28463---,00.html">http://www.michigan.gov/mde/0,1607,7-140-22709_28463---,00.html</a> NAEP: <a href="http://www.michigan.gov/mde/0,1607,7-140-22709_32669---,00.html">http://www.michigan.gov/mde/0,1607,7-140-22709_32669---,00.html</a> Ensuring Excellent Educators Report: <a href="http://www.michigan.gov/documents/Ensuring_35280_7.doc">http://www.michigan.gov/documents/Ensuring_35280_7.doc</a> Filed Services: <a href="http://www.michigan.gov/mde/0,1607,7-140-6530_6559---,00.html">http://www.michigan.gov/mde/0,1607,7-140-6530_6559---,00.html</a> Educators: <a href="http://www.michigan.gov/mde/0,1607,7-140-5234---,00.html">http://www.michigan.gov/mde/0,1607,7-140-5234---,00.html</a> Technology in Schools: <a href="http://www.michigan.gov/mde/0,1607,7-140-5235_5856_6079---,00.html">http://www.michigan.gov/mde/0,1607,7-140-5235_5856_6079---,00.html</a>
CPRE ~ Assessment and Accountability Systems: 50 States Profiles	<a href="http://www.cpre.org/Publications/mi.pdf">http://www.cpre.org/Publications/mi.pdf</a>
AYP	<a href="http://www.michigan.gov/mde/0,1607,7-140-22709_22875---,00.html">http://www.michigan.gov/mde/0,1607,7-140-22709_22875---,00.html</a> <a href="http://www.michigan.gov/documents/04Schools_Not_Meeting_AYP_98335_7.pdf">http://www.michigan.gov/documents/04Schools_Not_Meeting_AYP_98335_7.pdf</a> <a href="http://www.michigan.gov/documents/04Schools_Meeting_AYP_98332_7.pdf">http://www.michigan.gov/documents/04Schools_Meeting_AYP_98332_7.pdf</a>
Financial Information	<a href="http://www.michigan.gov/mde/0,1607,7-140-6530_6605---,00.html">http://www.michigan.gov/mde/0,1607,7-140-6530_6605---,00.html</a> Office of Financial Management: <a href="http://www.michigan.gov/mde/0,1607,7-140-6530_25538_6563---,00.html">http://www.michigan.gov/mde/0,1607,7-140-6530_25538_6563---,00.html</a>
RFPs/Grants	<a href="http://www.michigan.gov/mde/0,1607,7-140-5236---,00.html">http://www.michigan.gov/mde/0,1607,7-140-5236---,00.html</a>
Assessment Letters	<a href="http://www.ed.gov/admins/lead/account/finalassess/mi.html">http://www.ed.gov/admins/lead/account/finalassess/mi.html</a> <a href="http://www.ed.gov/admins/lead/account/finalassess/mich2.html">http://www.ed.gov/admins/lead/account/finalassess/mich2.html</a> <a href="http://www.ed.gov/admins/lead/account/finalassess/mi3.html">http://www.ed.gov/admins/lead/account/finalassess/mi3.html</a>
NCLB Decision Letter	<a href="http://www.ed.gov/admins/lead/account/letters/mi.doc">http://www.ed.gov/admins/lead/account/letters/mi.doc</a> <a href="http://www.ed.gov/admins/lead/account/letters/miaccapv2.doc">http://www.ed.gov/admins/lead/account/letters/miaccapv2.doc</a>
State Plan	<a href="http://www.ed.gov/admins/lead/account/stateplans03/micsa.pdf">http://www.ed.gov/admins/lead/account/stateplans03/micsa.pdf</a>
Recent State Legislatures	Signed into law 05/2004, pre-K-12 Creates a parent involvement plan within school districts and public school academies designed to encourage parental participation. <a href="http://www.michiganlegislature.org/documents/2003-2004/publicact/pdf/2004-PA-0107.pdf">http://www.michiganlegislature.org/documents/2003-2004/publicact/pdf/2004-PA-0107.pdf</a> , Title: S.B. 307, Source: StateNet
ECS NCLB ~ State Status	<a href="http://nclb2.ecs.org/NCLBSURVEY/nclb.aspx?Target=SM">http://nclb2.ecs.org/NCLBSURVEY/nclb.aspx?Target=SM</a>
Report Card	<a href="http://www.michigan.gov/documents/04Media_Reports_98331_7.xls">http://www.michigan.gov/documents/04Media_Reports_98331_7.xls</a> <a href="http://www.michigan.gov/mde/0,1607,7-140-22709_25058---,00.html">http://www.michigan.gov/mde/0,1607,7-140-22709_25058---,00.html</a> Math Grade 4: <a href="http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004457MI4.pdf">http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004457MI4.pdf</a> Math Grade 8: <a href="http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004457MI8.pdf">http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004457MI8.pdf</a> Reading Grade 4: <a href="http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004456MI4.pdf">http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004456MI4.pdf</a> Reading Grade 8: <a href="http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004456MI8.pdf">http://nces.ed.gov/nationsreportcard/pdf/stt2003/2004456MI8.pdf</a> Science: <a href="http://nces.ed.gov/nationsreportcard/pdf/stt2000/2002453MI.pdf">http://nces.ed.gov/nationsreportcard/pdf/stt2000/2002453MI.pdf</a> Writing Grade 4: <a href="http://nces.ed.gov/nationsreportcard/pdf/stt2002/writing/2003532MI4.pdf">http://nces.ed.gov/nationsreportcard/pdf/stt2002/writing/2003532MI4.pdf</a> Writing Grade 8: <a href="http://nces.ed.gov/nationsreportcard/pdf/stt2002/writing/2003532MI8.pdf">http://nces.ed.gov/nationsreportcard/pdf/stt2002/writing/2003532MI8.pdf</a>



Document	URL
	<a href="http://www.edweek.org/sreports/qc04/state.cfm?slug=17mi.h23">http://www.edweek.org/sreports/qc04/state.cfm?slug=17mi.h23</a> <a href="http://nces.ed.gov/nationsreportcard/states/profile.asp">http://nces.ed.gov/nationsreportcard/states/profile.asp</a>
PDMI Documents	<a href="http://evalsoft07.evalsoft.com/pbdmi/asp/MI">http://evalsoft07.evalsoft.com/pbdmi/asp/MI</a> If problems with link above: <a href="http://evalsoft07.evalsoft.com/pbdmi/doc-dmi/State_Report_Map.xls">http://evalsoft07.evalsoft.com/pbdmi/doc-dmi/State_Report_Map.xls</a>
NCEA ~ <i>Nine Essential Elements of Statewide Data-Collection Systems: Survey Data</i>	<a href="http://www.nc4ea.org/index.cfm?pg=surveyresults&amp;sub=surveystate&amp;survest=Michigan&amp;CFID=42094&amp;CFTOKEN=79985968">http://www.nc4ea.org/index.cfm?pg=surveyresults&amp;sub=surveystate&amp;survest=Michigan&amp;CFID=42094&amp;CFTOKEN=79985968</a>
Achieve.org Review	<a href="http://www.achieve.org/achieve.nsf/4thMath.gif">http://www.achieve.org/achieve.nsf/4thMath.gif</a> <a href="http://www.achieve.org/achieve.nsf/4thReading.gif">http://www.achieve.org/achieve.nsf/4thReading.gif</a> <a href="http://www.achieve.org/achieve.nsf/8thReading.gif">http://www.achieve.org/achieve.nsf/8thReading.gif</a>
Princeton ~ State Review	State by State Ranking: <a href="http://testprep.princetonreview.com/testingtesters/docs/state-by-state-rankings.doc">http://testprep.princetonreview.com/testingtesters/docs/state-by-state-rankings.doc</a> State Data (Full Report): <a href="http://testprep.princetonreview.com/testingtesters/docs/2003_data_0402_v2.qxd.pdf">http://testprep.princetonreview.com/testingtesters/docs/2003_data_0402_v2.qxd.pdf</a> Testing The Testers 2004 Report: <a href="http://testprep.princetonreview.com/testingtesters/docs/2003_MainReport.pdf">http://testprep.princetonreview.com/testingtesters/docs/2003_MainReport.pdf</a> Weighting Spreadsheet: <a href="http://testprep.princetonreview.com/testingtesters/docs/TtT_data_and_weighting.xls">http://testprep.princetonreview.com/testingtesters/docs/TtT_data_and_weighting.xls</a>
American Federation of Teachers (NCLB) ~ State-by-State Resources	<a href="http://www.aft.org/topics/nclb/MI.htm">http://www.aft.org/topics/nclb/MI.htm</a>
<b>General Information</b>	
ECS NCLB ~ National Grid	<a href="http://nclb2.ecs.org/NCLBSURVEY/nclb.aspx?Target=NG">http://nclb2.ecs.org/NCLBSURVEY/nclb.aspx?Target=NG</a>
NCES ~ <i>Technology in Schools</i>	<a href="http://nces.ed.gov/pubs2003/tech_schools/">http://nces.ed.gov/pubs2003/tech_schools/</a>
Technology Counts 2003	<a href="http://www.edweek.com/ew/ewstory.cfm?slug=34tc_talkback.h22&amp;keywords=Technology%20Counts">http://www.edweek.com/ew/ewstory.cfm?slug=34tc_talkback.h22&amp;keywords=Technology%20Counts</a>
NCEA ~ <i>Nine Essential Elements of Statewide Data-Collection Systems</i>	<a href="http://www.nc4ea.org/files/9%20elements%20Brochure.pdf">http://www.nc4ea.org/files/9%20elements%20Brochure.pdf</a>
PBDMI	<a href="http://evalsoft07.evalsoft.com/pbdmi/asp/datasource-102203.asp?Recld=A0D2E459">http://evalsoft07.evalsoft.com/pbdmi/asp/datasource-102203.asp?Recld=A0D2E459</a>
PBDMI Report Map	<a href="http://evalsoft07.evalsoft.com/pbdmi/doc-dmi/State_Report_Map.xls">http://evalsoft07.evalsoft.com/pbdmi/doc-dmi/State_Report_Map.xls</a>

**Michigan Department of Education - Longitudinal Data System Application Proposal 1 1**

**Introduction**

The No Child Left Behind (NCLB) act requires states to publish annual achievement, attendance and graduation data for students in grades three through eight and high school, along with a full set of demographic information. Schools and districts are additionally required to use this data to inform continuous improvement decisions at the local level. The good news is: federal policy has resulted in the creation of truly robust state-level data sets for the first time. The bad news is: many states, including our own, are ill-equipped to manage the data and facilitate effective decision-making for school improvement.

As a result, we are pleased to submit a proposal in partnership with Minnesota, Wisconsin, and the Wisconsin Center for Education Research (WCER) to build a comprehensive multi-state longitudinal data



system (LDS). We have taken the goals of this grant program very seriously: “to build data system capacity to: generate and use accurate and timely data to meet Federal, State, and local reporting requirements; allow for value-added and other diagnostic and policy-relevant research; engage in data-driven decision-making; and improve student achievement.” In order to achieve these goals, our project is structured so that all design decisions will be fully informed by a thorough understanding of these end-use requirements and, more generally, by the needs of all educational stakeholders: parents and students; teachers; school, district, and state leaders and program staff; and policy makers. One of the major benefits of reaching out to stakeholders is that we expect that the longitudinal data system developed during the course of this project will in some sense be owned by these stakeholders. A sense of ownership and shared purpose is important if we expect stakeholders to fully support the operational requirements of the longitudinal data system and to “buy in” to the strategy of using data to drive student achievement.

One of the distinctive aspects of our proposal is that it reflects a genuine collaboration among three states and the Wisconsin Center for Education Research – hereafter referred to as the tri-state partnership.<sup>1</sup> We recognized early on in the process that a collaborative approach offered many key advantages. First, working together will permit each state to share responsibility for at least fifty percent of all project tasks, thereby in effect more than doubling the impact of the resources allocated to each state. Moreover, by structuring work products so that they can be shared across the tri-state partnership, we expect that these products will be of value to states that are not explicitly part of our collaboration.<sup>2</sup> Second, as we discovered, each state has unique pockets of expertise that we will be able to exploit to produce the best possible LDS products. We suspect that no state possesses, or has access to, the complete spectrum of expertise required for this project. Third, we recognized that it would be productive to partner with a national research center such as the WCER that is experienced in large scale data analysis and data-driven instructional systems. WCER is a particularly appropriate collaborator for the tri-state partnership because of its extensive track record working with educators and policy makers in Michigan, Minnesota, and Wisconsin. Fourth, we quickly realized that working as state collaborators will force us to confront the challenges of building and adopting data dictionary and warehouse specifications that are universally shared.<sup>4</sup> Finally, by approaching our

Table 1, discussed later in the proposal, lists cross-state collaboration and task responsibilities by state. <sup>2</sup>

As discussed later in the proposal, we plan to disseminate these products via a project website and via conferences and workshops targeted at educators, educational researchers, and the informational technology community. Michigan Department of Education - Longitudinal Data System Application Proposal <sup>2</sup> work in a fully collaborative manner, we hope to contribute to the process of building a network of districts and states that shares a common interest in data-driven decision-making.<sup>3</sup>

Several districts, including Minneapolis, Milwaukee, Mounds View (Minnesota), and Cleveland are currently working with WCER to develop a self-help network to support value-added analysis and other data-analytic activities.

See Figure 3 in Appendix B for a schematic picture of alternative state, regional, and district warehouse configurations.

Another major strength of our project is that it is not a stand-alone venture. Rather, it is a project that builds on the distributed expertise of organizations involved in supporting data-analytic activities in the tri-state area and throughout the nation, including:

- Large urban districts, such as Minneapolis and Milwaukee, pioneers in the use of value-added analysis
- State regional organizations, such as the Cooperative Educational Service Agencies (CESAs) in Wisconsin, agencies that provide assistance to school districts
- Intermediate School Districts (ISDs) in Michigan that provide assistance to school districts
- National technical and data standards boards
- Software vendors that produce applications to support data storage and analysis
- States that have developed exemplary solutions to collecting, storing, and analyzing educational data
- Postsecondary institutions (also involved in building data warehouses)

We discuss how we draw on expertise from these organizations later in the proposal. Although the



primary focus of this project is on developing warehouse capacity at the PK-20 level, we have solicited the support of higher education institutions in our states and are pleased that we will pursue strategies to link PK-20 and higher education data, thereby yielding data warehouses that span pre-kindergarten through college and graduate school.

One important implication of the fact that some districts and organizations may support data-analytic activities above and beyond those sponsored by the state is that it is helpful to conceptualize state data warehouses as being only one part of a larger warehouse structure that also includes regional and district warehouses (although not all districts may be represented at all three levels). Rural districts, in particular, may rely entirely on a state data warehouse, whereas large districts may support data warehouses that contain data above and beyond the data contained in a state data warehouse.<sup>4</sup> This implies that states need to coordinate with districts in the design of data collection strategies so as to minimize the burden of data collection. Secondly, as discussed extensively later in the proposal, it is essential to design data warehouse structures so that data can freely be exchanged between schools and districts.



One of the organizing principles for this project is that we plan to break down tasks into discrete parts that can be designed and implemented in phases. This approach is required because we have end-use applications that we are eager to support, and because incremental implementation of our warehouse design is the best way to build local support for the overall project. The project timeline (Appendix A) provides details on the phased implementation of three types of activities: shared cross-state activities (such as development and adoption of data dictionary specifications), state-specific implementation of products (such as the data portal to support data access by various stakeholders), and end-use applications (such as piloting a state value-added system).

We believe that this project will provide a major impetus to transforming the state educational agencies in Michigan, Minnesota, and Wisconsin and, in particular, the ways in Michigan Department of Education - Longitudinal Data System Application Proposal 3 3 which state agencies interact with and support schools and districts, cooperate amongst themselves and with institutions of higher education, and operate internally. One immediate benefit of writing this proposal is that state department divisions that have not previously interacted are now talking. One common thread among the three states involved in our project is a collective willingness to leap-frog to a different level, one in which data analytic activities play a key role in decision making at all levels of the educational system.

In the next section of the proposal we discuss the need for this project from the standpoint of Michigan. Subsequent sections present the details of the project organized into five major task areas: data analysis and research requirements, data access, data dictionary, data warehouse, and secure data transport. In recognition of the fact that this project involves substantial cross-state collaboration, significant parts of the proposal were written collaboratively and are identical in the three state proposals. The project narrative also incorporates examples from all three states. At the end of each section we include short sections that comment on issues unique to each state

#### Need for Project

In 2005 the CELT Corporation in conjunction with the Council of Chief State School Officers (CCSSO) conducted a comprehensive review of Michigan's information infrastructure and ability to meet the new federal No Child Left Behind (NCLB) data collection and reporting requirements. The CELT review found the Michigan Department of Education (MDE) and the Center for Educational Performance and Information (CEPI) in need of "staffing, increased funding levels, and decision support systems and tools required to support Michigan's LEAs in realization of the state's educational goals for its students".

The State of Michigan is now beginning the work of developing a comprehensive longitudinal data management system as part of a five-year interagency partnership including the departments of Education (MDE), Information Technology (DIT), Labor and Economic Growth (DLEG), Community Health (DCH), Treasury, the Office of the State Budget (OSB) and the Center for Educational Performance and Information which is the unit within OSB that is responsible for coordinating the collection of educational data in the state. This is a complex undertaking that will require resources as well as knowledge, expertise and the sharing of best practices developed by other states engaged in this work. Over the past year, the MDE and CEPI shared a partnership in the Decision Support Architecture Consortium (DSAC) Phase I process that resulted in a high-level plan that will provide the direction of Michigan's longitudinal data system effort in the next years. Michigan plans to leverage prior investments in Michigan's source systems as well as our partnerships with DSAC and a special tri-state collaborative arrangement with the states of Minnesota and Wisconsin to develop and disseminate components that all states can use.

Although Michigan has implemented an early version of a student-level tracking source system, the student data have yet to be connected across collections and integrated with other key source systems such as those providing assessment and special education data. Source system collection times currently do not align with state and federal reporting requirements and, because of this misalignment, districts are forced to report duplicative data to various source systems at different times. The detailed report that emerged from our DSAC studies provided an objective assessment and gap analysis of our current decision support capabilities as well as a roadmap for the prioritized deployment of information technologies (IT), process reengineering, and organizational change required to help realize our NCLB goals. Throughout the



DSAC process, Michigan and other consortium member states have worked collectively in the sharing of information, best practices, and IT systems. The knowledge and working experiences gathered during this effort have positioned Michigan, our partner states of Minnesota and Wisconsin, and Michigan Department of Education - Longitudinal Data System Application Proposal 4 4 other DSAC members to proceed collectively with the work laid out in our individual state studies.

All of the needs identified in the DSAC study must be addressed by Michigan within the comprehensive statewide educational data management system and the state is actively seeking funding from a variety of sources. However, the scope of work outlined in our grant application is focused on the student data strand, which is urgently needed for both compliance and decision support. Failure to build the student data components for the integrated educational data management system will inhibit the state's ability to meet mandates of the federal No Child Left Behind Act of 2001. Our two greatest risks of student data compliance failure are 1) producing a four-year cohort graduation and dropout rate by 2007 and 2) tracking assessment data longitudinally by student ID for students enrolled in general education, special education and Limited English Proficiency programs. Failure to report on NCLB will result in the withholding of Federal Title I administrative funds, hampering the state's ability to provide technical assistance to high priority schools, possibly resulting in the layoff of staff and reducing the impact of resources on student-focused activities.

To meet the reporting needs of both compliance and decision support, Michigan's proposal will focus on following individual student data through the full data lifecycle that includes: 1) collection in an integrated source system, 2) longitudinal integration of student-level data and 3) support of school improvement efforts through reporting for decision support at student, school, district and state levels.

The scope of work for a comprehensive decision support system in Michigan is complex and spans multiple state agencies. The following section details the limitations of Michigan's current capacity, as well as, the gains derived from the work proposed according to the grant's required system components:

I. Unique and permanent student ID – Limitations: Although CEPI has implemented a first-generation Unique Identification Code (UIC) for K-12 public school students, CEPI must work collaboratively with other state agencies to integrate the UIC into various student source systems (e.g., special education, assessments, merit awards, pre-kindergarten through higher education, migrant education, higher education) that in some cases, generate multiple tracking numbers. Districts currently expend significant time and limited resources to submit duplicative data because of the misalignment between source system data submission windows and state and federal reporting requirements, increasing the likelihood of errors. Michigan cannot implement the planned four-year cohort graduation and dropout rate calculation until these data collections are loaded into a warehouse. Gains: This grant will allow Michigan to achieve the following: 1) develop collection and reporting capabilities that meet the needs of small, medium, and large urban districts. 2) integrate multiple student data source systems using a Unique Identification Code and eliminating duplicative reporting 3) synchronize data collection and validation of federal and state requirements with a flexible system that allows both transactions and snapshots of student data at critical times 4) design a flexible, modular system that can be adapted easily and shared by other states 5) improve data quality. The work proposed in this grant will enable the extension of the UIC across these source systems and provide the primary link for vertical integration with LEA data systems. Michigan will take the lead for this initiative in the tri-state consortium.

II. Enterprise-wide data architecture – Limitations: According to the DSAC study, Michigan needs a data-driven support architecture master plan and a governance structure to provide technical, program and policy integration of the educational data from various source systems that are housed within different agencies. Data coordination from these sources is essential, but currently the systems are not integrated, span multiple agencies and operate Michigan Department of Education - Longitudinal Data System Application Proposal 5 5 independently of one another. Gains: Working in partnership with Minnesota and Wisconsin, Michigan will develop interoperable core components of an architecture that coordinates these separate data sources through shared data models, data dictionaries, business rules and quality assurance procedures.



III. Procedures for protecting the security, confidentiality, and integrity of data – Limitations: Michigan’s DSAC study found that there are no services in place to provide educators and stakeholders with secure, role-based access to data. Within various source systems, student data are secure; and CEPI and the MDE have implemented stringent policies with regard to the confidentiality of individual student data sets. However, there is no consistency across data systems and users must now log into multiple systems, each with different and disconnected user management systems. In addition, there is no current infrastructure for providing parents, teachers, policy makers, the business community and the public with the appropriate levels of secure access. Gains: This grant will enable the state to implement secured, role-based standardized access for all users of the data sets. This allows all users to have the functional access based on their approved business needs, such as: view only, view only certain data, different edit and/or reporting capabilities, etc.

IV. Vertical integration of local and state data collections – Limitations: There is very limited vertical integration of local and state data systems and several are supported only by outdated flat file exchange protocols with no tools for viewing and validating the data submitted. New initiatives such as the pre-K through 20 student tracking system recommended by the Lt. Governor’s commission on higher education cannot be supported with current technologies. Gains: Michigan plans to develop the integrated student data system to be flexible enough for small and rural districts to use as a transactional system while allowing larger districts to submit data files easily through secure services. We plan to implement SIF and use XML standards as well as secure data exchange services to achieve greater interoperability and sharing among state and local systems.

V. Data warehouse for managing and storing longitudinally linked data – Limitations: The DSAC study found this to be a critical need for Michigan in this dimension of data management. Currently, no data warehousing exists for longitudinal analysis and there is no support of the LEAs in their analysis of assessment data beyond TestWiz, a stand-alone client. Other than high-level summary analysis and scoring, little is done with the data by the LEA. Currently, no services exist for analysis and reporting of longitudinal data. Student specific/detailed results are not always available in a timely manner during the course of the current academic year and there continues to be process issues remain. Gains: The data architecture proposed for this grant will enable the state to connect the various student data including demographics, assessment and program participation, as well as data on school finances, directory information, personnel and crime and safety statistics. These data will be integrated through a robust decision support system that will be accessible and useful to key stakeholders, especially teachers, schools, and districts.

To ensure that the work outlined by this grant proposal will supplement and not supplant other funds used for developing the comprehensive longitudinal data system, CEPI has committed to devoting a portion of its operating budget to the comprehensive multi-agency longitudinal data system outlined by the DSAC report. The state has just released an invitation to bid for work on a master plan and governance structure to provide the detailed roadmap for the development that is needed over the next several years. In addition, the state is also implementing a Project Management Office that will provide for further support and monitoring to increase the success. Although the state recognizes the critical nature of a comprehensive educational decision support system, Michigan’s economy remains troubled and state agencies Michigan Department of Education - Longitudinal Data System Application Proposal 6 6 must continue to work through budget reductions. The support that would be provided in this grant would significantly reduce time required for system development and allow Michigan to meet its NCLB requirements.

Each of the six required policy and implementation components is addressed specifically in the “Design” section identified in italic typeface.

#### Project Partners and Group Design Plan

As states struggle to meet the challenges of developing useful decision support tools, they all face similar obstacles. They must address state policy and budget constraints, technical obstacles, diverse user needs must be addressed, operating with limited budgets and to meet increasing federal and state requirements. The work of this project will be enhanced through a multi-state partnership among the Michigan Department of Education (MDE), Michigan’s Center for Educational Performance and Information



(CEPI), the Minnesota Department of Education (MDE) and the Wisconsin Department of Public Instruction (DPI). This partnership will foster the design of common solutions, leverage resources, and increase the capacity to exchange data across states in the hopes of creating more powerful and robust research tools. Each state is prepared to take the lead role in different components, share design solutions and development requirements with partner states to accelerate the implementation process for all.

This multi-state partnership will also include the WCER in the School of Education at the University of Wisconsin in Madison. WCER will assist in identifying best practices in data use policies, researcher and educator user requirements, and decision support needs in order to optimize the architectural design of the emerging data portals, warehouses, and linked data sets in each of the partner states. WCER will also take the lead in facilitating effective collaboration across states, including the development and implementation of a plan for national dissemination of design documents and results. This plan includes the development of a project web site, presentation at NCES, CCSSO, and other education policy groups, and through scholarly conferences. We also plan to propose a working conference in association with one of the national large scale assessment meetings to discuss process to date and exchange best practices with other SEAs and partnerships. Michigan Department of Education - Longitudinal Data System Application Proposal 7 7

### Figure 1. Longitudinal Data System Mind Map Design

In creating a tri-state strategic plan we have identified five key components necessary to accomplish the long-range strategic goals of implementing a data portal, designing a warehouse, and creating linked data sets. These are: (1) data analysis and researcher requirements, (2) data access policies, (3) data dictionary, (4) data warehouse, and (5) secure data transport.

Each state has agreed to share documentation on requirements gathering, design and functional specifications, testing plans, and user training materials. Collaboration among the partners will occur primarily in the requirement gathering and design phases. Consultation among partners will continue across all phases. Figure 1 shows the primary design considerations for each component of the shared strategic plan, and Table 1—the tri-state task matrix—in Appendix A) outlines the respective contributions of each of the partners to each design component.

Michigan will fully collaborate in every aspect of the shared strategic plan. Given this cooperation, the consortium recognizes that we are each at different stages of development and have different particular areas of emphasis given our specific needs. The tenets of Model Driven Michigan Department of Education - Longitudinal Data System Application Proposal 8 8 See the letters of support in the appendix of the proposal for a sample of supporting groups. They include urban, suburban, and rural districts as well as PK-20 partnerships.

Both the Value Added Network and System Wide Change for All Learners and Educators (SCALE) are working with large urban districts to improve decision support efforts and identify successful interventions.

Architecture (MDA) will drive each of our designs, but Michigan will focus more closely on extending the unique, permanent student identifier, vertical integration and the data warehouse for linking a variety of data from various source systems.

A unique student identifier is the key to any student data system and will be the core of the integrated system. Michigan is a traditionally local control state with over 800 intermediate and local school districts and public school academies. The number of reporting entities combined with the history of local control under the coordination of a state agency requires additional emphasis on vertical integration. In order to provide a plan to implement an SEA data warehouse and data extraction tools for LEAs, parents, and federal purposes, Michigan must work closely with LEAs. In Michigan, a “local control” state, districts exercise their authority to choose a variety of vendor hardware and software that provide file exports in a format determined by CEPI. CEPI must normally show that any state data collection is either federally or state mandated or required by State Board of Education policy. CEPI is charged with coordinating all data collection for entities receiving funds from the State School Aid act to reduce duplicative data collection processes. With the development of an integrated student data system and the benefits of a statewide data warehouse for analysis, districts will be able to view their data through secure access, compare their data with other peer groups for benchmarking and potentially download their data as part of a local solution. This



is important for larger districts that increase and maintain unique capabilities, unique tools, and follow processes that work while being able to entertain traditional warehousing options at the state level if they choose. In the same way, Michigan may model its relationship with federal collections.

In this way, Michigan may preserve a certain level of local choice and independent tradition with local education agencies while expanding the coordinated ability of state agencies to collect, organize and share data within the state. This architecture allows Michigan to meet NCLB requirements to perform this centralized task and realize that where information “economies of scale” may exist, this centralized service provides an avenue for LEAs to take advantage where fewer options previously existed

#### I. Project Design: Data Analysis and Research Requirements

The central driver behind the development of a data warehouse is the desire to provide better decision support services across the PK-20 system. In order to achieve this goal, Michigan, Minnesota, and Wisconsin will examine the results of requirements analysis done by other states and check those results against the needs of our own stakeholders. The data collection for the requirements analysis will be done through a series of focus groups and surveys across state-, regional-, and district-level program managers, district and school leaders, teacher leaders and specialists, and representatives of the larger PK-20 system.<sup>5</sup> The partnership will consult with experts within the partnership and in national organizations working in this area.

WCER research staff will coordinate and support much of the data collection and analysis efforts for the Tri-State efforts. WCER will also leverage knowledge gained in other related longitudinal analysis work going in other large projects to take advantage of the latest work on analysis and implementation.<sup>6</sup> Partner SEAs will work with WCER to identify appropriate stakeholders to participate in focus groups and/or surveys. Surveys of school Michigan Department of Education - Longitudinal Data System Application Proposal 9 9

O’Day, Jennifer (2002). Complexity, Accountability and School Improvement. Harvard Education Review improvement planning documents and other tools designed to help support data use will provide additional insights into the data needs of key processes in system reform efforts.

Data collected for reporting purposes is, by definition, historical in nature. The focus is always on “how did we do?” and the data are analyzed with accountability in mind. In contrast, decision support systems are designed with evaluative components in mind, and can support a forward-looking approach. Therefore, the granularity and frequency of the information feedback should match the level and purposes of its use. For the improvement of instructional practices, fine-grained and frequent information, including feedback on instructional practice tied to learning is needed. At higher levels of the system, more aggregate and less frequent information feedback provides a sufficient basis for allocating resources, and for evaluating and refining policies.

Data systems should permit connections across a variety of educational data to foster access to and reflection on information relevant to teaching and learning. Reports and user training must be designed with particular attention to developing the knowledge base necessary for valid interpretation of the information so generated.<sup>7</sup>

As states begin to modernize data structures and improve publishing capacity, they will provide unprecedented access to robust state level data sets. Professional development must be carefully crafted and provided in context to support appropriate use of these new tools. Likewise, reports must be designed for the purposes of improving the understanding of educational issues, supporting the monitoring and improvement of teaching and learning, and increasing capacity to select effective teaching strategies.

Since value-added and longitudinal data analysis will be an important end-use application, Appendix B summarizes important features of these models and the connections between these models and the structure of a longitudinal data warehouse.

#### User Roles

If developed correctly, data portals can provide effective decision support tools for a range of users, including university level researchers, educators and parents. WCER will assist states in gathering and defining requirements to ensure that the needs of each user group are clearly identified and incorporated



into the design specifications. It is our intention to include trained researchers, state staff, school board members, administrators, teachers, and parents in focus groups to better understand and define clear needs for a range of end users.

Once the full set of user roles is identified, the portal can be designed to allow appropriate access rights. This will ensure that confidential information stays secure, yet will permit researchers to aggregate information as required. Standard roles such as parent, teacher, school or district administrator, researcher with accredited organization, etc. will be included in the data model, and the research will inform how to combine available data for various groups.

#### Data Access

In the past, software applications stored role access information directly in application code. For example, deciding which user groups could access what information was embedded directly in Java or Visual Basic code. Making changes to these role access statements required expensive programming modification and retesting.

With the new generation of Model Driven Architecture (MDA) software, complex role-based access policies can now be stored directly in the data model with the metadata. Applications read these role-driven statements and allow appropriate access to specific data Michigan Department of Education - Longitudinal Data System Application Proposal 10 10 elements. Access permissions can also be changed by adjusting metadata without rewriting custom programming logic.

The tri-state group plans to develop metadata structures that store access roles directly in our data dictionary for policies that are common across our organizations. These would reflect written documents that are approved by data access policy review teams with each of our states. For example, role might permit a school principal to access average test scores for all states, but only for individual student scores within his or her school.

Other access statements may allow individual states to customize options based on state statutes or even individual district-level policy. One example of this might be the minimum cell size for scores for a given sub-group. Another user role might allow classroom teachers full viewing rights to their student's prior year strand-level test scores even if those students came from outside of the district. These decisions might vary from state-to-state and even district-to-district. Determining the data access options for specific user groups will be a key feature of our initial focus groups.

Broad-based access to robust data sets can increase the likelihood that untrained users will use data to identify inappropriate causal relationships, or will combine data elements inappropriately. WCER will assist states in identifying appropriate statistical information to be provided for various user groups that supports best practices in school improvement solutions. The goal of the project is to design and implement data systems that will help users gain ability to focus on what is most appropriate for improving teaching and learning.

#### Evaluation Criteria

To ensure that data continues to evolve with changing policies in the areas of teaching and learning, testing and assessment, and school improvement, WCER will assist states in developing evaluation criteria that can be used to collect feedback from users and researchers through e-surveys incorporated into each state's portal. This feedback will be incorporated in annual updates to data collections and displays to ensure that the data portal continues to meet the needs of its users.

Capacity to support research on student academic growth is an important function of MDE's Office of Educational Assessment and Accountability (OEAA) and Office of School Improvement (OSI). These offices will primarily conduct analyses that influence policies and decision-making within MDE. Beyond OEAA and OSI, other units and agencies conduct a number of rigorous internal analyses and evaluations. Leveraging the experience and models of WCER and using other tools, the presence of OEAA and OSI as a resource for MDE and school districts will make extensive use of improved longitudinal data as a necessary resource.

A systematic and ongoing approach creates venues for all stakeholders to understand the specific project design and be informed before critical decisions are made. In Michigan, formal structures such as



the CEPI Advisory Committee comprised of appointed representatives from the private sector, House and Senate Fiscal Agencies, Office of State Budget, the departments of Education, Information Technology, Labor and Economic Growth and Treasury as well as intermediate school districts, can serve as valuable avenues for communication and governance. The state's development of a master plan and a governance structure will provide the needed interagency oversight and will include structures for input from local and intermediate school districts.

The development of the statewide decision support system will require a communication plan that includes processes for input from all stakeholders, including the university and research communities. It is recognized that stakeholder's input is essential for success, especially in the requirements gathering and query phases, and in testing and reporting. A challenge the state will face is how to enhance the value that these organizations provide and simultaneously provide Michigan Department of Education - Longitudinal Data System Application Proposal 11 11 Data Confidentiality Guide of the National Forum on Education. Forum Guide to Protecting the Privacy of Student Information: State and Local Education Agencies, 2004. more mainstream capabilities to school districts and organizations that do not possess the scale and expertise to conduct the depth of research from which they might benefit. An open architecture helps promote the sharing of data and research for and collaboration within the state.

## II. Project Design: Data Policies

Effective management of comprehensive data sets requires individuals in each state department who will act as conduits between the technology staff, who build and maintain the collection and reporting systems, and the program area staff, who are charged with administering the policies that govern the data collection and reporting. This project seeks to develop a process that can be used across the partner states for identifying effective data stewardship practices.<sup>8</sup>

### Data Stewardship

Enterprise-level data management requires specific organizational support to ensure that metadata models and definitions are administered efficiently, and data collection and analysis continues to evolve in response to user needs and policies. Executive sponsors, business process owners and data stewards are critical players in the process. In most state agencies the executive sponsors have the authority to enforce compliance with the various data collections. In Michigan, part of the design of the master plan will include a multi-agency governance model that will include functions of executive sponsorship of the NCLB data collection and reporting efforts and will ensure data elements are defined according to enacted policy requirements. Business process owners are charged with implementing the policies as defined by the agency's executive team. Data stewards are responsible for defining the meta-data structures. These three roles comprise the data stewardship team and oversee the work with specific data sets to ensure that standard documentation processes are maintained, data domain values are defined, data quality rules are validated, and exceptions are resolved.

### Confidentiality

All data systems designed in conjunction with this project will be aligned to state and federal data practices requirements, including FERPA. The data dictionary and the data security framework will address data confidentiality. First, the data dictionary will include a metadata tag for each element indicating the level of confidentiality. These tags will govern filtering and access across user roles. For example, student-level data will be filtered to suppress identifying information, unless specifically permitted by the user role. Some states may elect to pursue the option of allowing parents and students to retrieve student data from their warehouse. In such a system, parents would be permitted to see their child's and only their child's information. Researchers, on the other hand, might be able to aggregate all of the student information they require, and may not be allowed to review individual student identifiers.

Second, the data portal will include a role-based security system requiring user authentication. The enterprise-level authentication process will allow districts to manage access to specific accounts for parents and staff. Other user roles will be managed at the state level.



## User Training

Once the user groups have been identified and the data needs articulated, work can begin on the design of streamlined reports to be accessed through the portal. User guides and tutorials designed from the functional specifications of each state's system will be available through Web-ex sessions. Specific tutorials will be designed for each user role to accommodate the range of stakeholders intended to access the system. Michigan Department of Education - Longitudinal Data System Application Proposal 12 12 National Forum on Education Statistics. (2004). Forum Guide to Building a Culture of Quality Data: A School and District Resource. (NFES 2005-801). U.S. Department of Education, Washington, DC: National Center for Education Statistics.

In Michigan, CEPI has successfully developed a training model based on a partnership with education associations such as the 57 intermediate school districts (ISDs), and the Michigan Institute for Educational Management (MIEM), that trains district staff members (from support personnel to superintendent) and others targeted to specific roles. This partnership uses a "train the trainer" approach to delivering face-to-face and online training, with CEPI developing the user support materials, and the associations leveraging their expertise in professional development and training.

For the work proposed in this grant, CEPI proposes to work with Minnesota and Wisconsin to develop approaches to user training for the products of the partnership. All three states can leverage the process knowledge that Michigan has gained to provide meaningful training that will scale within each state's unique professional development infrastructure. Our states will use the National Forum on Educational Statistics "Guide to Building a Culture of Quality Data," as a framework to create professional development materials targeted toward school and district personnel who are responsible for providing high quality data.<sup>9</sup> With the completion of the warehousing and reporting infrastructure, new users will need data wizards and case-based approaches to successfully complete the activities required for data collection and the use of educational reports and data for ad hoc queries. CEPI proposes to work with Minnesota and Wisconsin to develop approaches to user training for the products of this partnership. All three states can leverage the process knowledge that Michigan has gained to provide meaningful training that will scale within each state's unique professional development infrastructure.

### III. Project Design: Data Dictionary

Once the data elements and user roles have been defined, the dictionary will become the cornerstone for the organization and maintenance of flexible data structures. Each of the partner states collects large amounts of educational data, but definitions can be unclear or not systematically updated to reflect the most current policies, and in turn can render the data less valid for decision support. Currently there are only a handful of staff members with highly specialized skills who understand the complexity of existing differences in definitions and the complex relationship between the data from different program areas. This project seeks to facilitate the development of a shared data dictionary for use in cross-state longitudinal data analysis.

The data dictionary will be built and maintained by each state's staff but will be displayed on a shared public website accessible to users of each state's data warehouse. The dictionary will include formal web-based check-in and check-out procedures and version control systems at the data element level. Each state will maintain a database of the time ranges for retention of specific data elements. For example, LEP classifications of students will have date ranges that are specific to each state's policies.

The data dictionary will conform to requirements for metadata at the federal and state levels. Tools to develop both schema and sub-schema will be integrated into the environment, and regression analysis tools will be configured to test the data dictionary for consistency and completeness. As part of the design process, all current data elements and structures in each state will be catalogued and defined for inclusion in each state's dictionary and warehouse. Specific design components are outlined in the following sections. Michigan Department of Education - Longitudinal Data System Application Proposal 13 13



Student Data

High quality educational research depends on a student data system that can provide both aggregate and individual-level data based on a variety of elements, including student demographics, test information and disciplinary information. The categories below illustrate the data sets that will be included in each state’s warehouse.

PK-20 Student-level data:	Student identifier, student demographic characteristics, grade level and home school, program completion and certifications, special program participation (special education, limited English proficient, etc.) dates enrolled (if mobile student), student test scores, attendance, and discipline.
Data associated with student assessments:	Scale: development scale, proficiency rating, raw score, percentile, normal curve equivalent, item score. Content grain size: subject, strand or topic, item. Standard error of measurement, testing date, and test form.

Staff Data

This project seeks to expand the data resources in each state by developing teacher identifiers that could be used for secure access to appropriate data and to link teachers to specific students within approved policy frameworks, and to provide further information about classroom and school experiences for clusters of students. WCER will take the lead in researching policy issues, and in assisting states to conduct focus groups to determine which of these new data elements should be included in the design of the warehouse. Specific data elements might include staff identifiers, course titles and descriptions, teacher certification information, etc. The inclusion of these new data could also make it possible for teacher colleges to potentially track the performance of recent graduates.

School and District Data

While student outcomes are the primary focus of educational accountability systems, this data must also be associated with schools and districts. Adding school and district identifiers to the data warehouse will allow important program-level aggregations of the student data sets.

School-level data	School identifier, school features and programs, and school-wide professional development.
District-level data	District identifier, district features and programs.
Finance data	State aid, accounts/account groups, property tax rates/equalizing housing values.

Linking Data Sets

Each of the partner states is at various stages of implementation with regard to student identifiers. While Michigan has been assigning unique student identifiers at the district level for over three years, the Unique Identification Code needs to be integrated into various other student data source systems. Currently there is a misalignment of data collection and reporting timelines that has resulted in duplicative data entry to these source systems throughout the school year. Michigan proposes to design the integrated student data system to push and pull core data among the systems with the UIC forming the critical link. Solving the alignment problem will enable the state to provide current student level data available for use by parents or educators. Up-to-date data is a particular concern for mobile or migrant students. Michigan Department of Education - Longitudinal Data System Application Proposal 14 14

As part of the data ware house component funded through this project, Michigan will upgrade its existing SRSD/UIC system to a transactional student ID system to provide real-time authentication of student ID numbers across program areas and data sets. With valid student IDs, the integrity of the data sets will permit the kind of linking necessary to support a variety of value added analytic models

Data Portal

The ultimate strategic goal of each state is to design an education portal to facilitate on-demand



requests for reports, and to ease the burden of local data submissions. The combined vision includes the development of a series of web services that will provide real time feedback to improve the editing process involved with data submissions, and provide a series of reports and data analysis options for a variety of user groups.

Leading data publication tools in the marketplace include the Cognos Suite of Business Intelligence Tools, and Microsoft Business Intelligence Tools. While the partner states plan to explore the purchase of a single business tool to leverage buying power, our warehouse design will be tool-independent. It will not be necessary to purchase the same product across all three states. The partnership will permit states to collaborate during the design and analysis phases, resulting in a more informed purchase decision for all.

Regardless of the business intelligence tool(s) selected, portal designs will permit unique views of the data required by each user group while ensuring that edit and access policies are enforced, and secure data transports are used.

It is important that the Michigan implementation of the data dictionary as discussed above be synchronized with its consortium partners. Michigan data elements may possibly deviate from the consortium in many respects, but, where deviation exists, must have sufficient reason and documentation. Michigan has already begun to benefit from Minnesota's work in this area through shared models for data elements that Michigan has begun to pilot.

The Center for Educational Performance and Information itemizes the data currently collected through federal or state requirements. In Michigan, data collection activities are based on federal or state statutes as well as resolutions by the State Board of Education. Data collections at CEPI and the Michigan Department of Education store student level information primarily in SQL databases.

#### IV. Project Design: Data Warehouse

In 2006 each of the partner states will for the first time have uniform testing data from grades 3-8 and high school. This will make it possible by 2007 to conduct value-added analysis of student performance on state exams, and link this new test data to additional school and teacher information to research a variety of issues. Even though the data will be available, if significant adjustments are not made to existing state systems, it will not be useable. Each state currently stores its data in legacy systems that do not permit flexible data modeling. This project will support a successful transition to a decision-support system that leverages data stored in these legacy operational systems. The model shown in Figure 2 (in Appendix B) illustrates how a comprehensive data model can be built with the incremental inclusion of existing data sets as time and funding permits.

The partnership requirements analysis team will:

- Leverage the technical expertise of each state's IT department and contractors
- Ensure consistency among states
- Develop a common set of implementation standards
- Use a common dictionary to ensure longitudinal data analysis across states
- Ensure that the design is vendor neutral

Michigan Department of Education - Longitudinal Data System Application Proposal 15 15

The Data Warehouse ETL Toolkit: Practical Techniques for Extracting, Cleaning, Conforming, and Delivering Data. John Wiley & Sons, 2004.

- Promote industry standards and best practices

#### Data Modeling

The success of each state's education data portal is directly linked to the quality of the underlying data model. Collaboration among partner states will facilitate the identification of similar high-level data groupings common to educational systems, and decrease the likelihood that individual states may miss critical components. The warehouse design will be based on metadata models that conform to federal standards, including fact tables and conformed dimensions as described by Kimball. 10

The mapping scheme will capitalize on commonalities across states, yet permit variation in naming conventions to ensure that local nuances are preserved. By incorporating these nuances at the initial design stage it will be possible to maintain high levels of data integrity without compromising interoperability. The



tri-state data model will map to elements defined by NCES, and EDEN and be compatible with School Interoperability Framework (SIF) standards. The model shown in Figure 2 also illustrates how existing data will be transformed through platform-independent connections and will reside in a series of data marts created from existing and new data elements.

In Michigan, a Unique Identification Code (UIC) is assigned by CEPI and is managed statewide by local districts. The reauthorized federal Elementary and Secondary Education Act (ESEA) (NCLB) requires extensive additional data collection and reporting by both state and local education agencies. As a result, state agencies including MDE, CEPI, DLEG, Treasury and local school districts needed to modify their existing data systems. In the 2002-2003 school year, Michigan began assigning the UIC to records from the Single Record Student Database, which allows districts to (a) better account for students who move or are highly mobile; (b) more readily exchange student records among school districts; and (c) respond more quickly to areas in need of improvement.

#### V. Project Design: Secure Data Transport

This project will expand on work done by SIF and other industry standard interoperability procedures. Interoperability between the federal government, states and districts can be accomplished by developing a data model that includes necessary transformations required by a variety of entities. These transformations will be automated so that information can be supplied securely, quickly, and accurately across systems. Figure 3 (in Appendix B) illustrates how that transport would operate under a typical environment of state standards and accommodating local options—the parallel data warehouse structure.

Notably, this plan represents an approach to statewide data standards that is the least disruptive to local activity and choice. Districts and schools may continue with current arrangements in all other respects and may choose a communication arrangement that best helps them meet state/federal requirements and submission deadlines.

Currently, each state collects data in a variety of ways, from a variety of organizations, including districts, charter schools and data management companies. It is collected and transported at different times throughout the year using a variety of different methods. Some of the data is uploaded via a website, some is submitted through e-mail, and some is entered directly into the mainframe. Each of the various collection systems requires submissions in different kinds of fixed or formatted files. The only “transactions” that occur are data corrections

Michigan Department of Education - Longitudinal Data System Application Proposal 16 16

done on the user side that are subsequently batch loaded into the mainframe system. They tend to be confusing procedures for users, expensive to maintain, and prone to error due to the variability of requirements and the lack of real-time feedback across submissions.

#### Open Architecture Platform

To address the need for vertical integration of data collections, each state will begin the design and implementation of enterprise-level service-oriented architecture (SOA) The SOA will be designed around a single set of standards and will permit users to submit data through the portal. Rather than requiring users to build a series of export capabilities into their software for each of the current “state systems,” the new SOA will only require interaction with a single interface. This system will accommodate either batch-oriented or transactional formats.

The SOA will include editing capabilities with a guaranteed delivery system to ensure that data is submitted error-free. Allowing districts to submit data through a single web portal that can accommodate a range of data preparation methods will dramatically reduce data management costs for districts, and will provide access to reports in near-real time.

Secure transport will ensure that data sent can only be seen by the intended recipient. This will involve several technologies that can be purchased from vendors through this project, including XML security appliances and Web Services Security. These tools will be integrated into the architecture of the warehouse and will ensure confidentiality of data across the variety of users. Figure 3 (Appendix B) shows how schools and districts will be able to send data to the state for inclusion in the warehouse, as well as access transformed data through the portal.



### Open Architecture Platform and Vendor Support

The added benefit of Model-Driven and Open Architecture is the ease with which new applications may be developed and new software may be conformed to fit the tri-state structure (see Figure 4 in Appendix B). Sometimes these applications are built in-house, but more often than not, they are developed by outside vendors. Software vendors and other technology firms have expressed their support for projects of this type.

### Data Collection

Data collection is a crucial piece of data transport as outlined in this section, and will be a focal point of Michigan's leadership. Michigan has been collecting data from local education agencies for years using the first-generation Single Record Student Database (SRSD) and the Unique Identification Code (UIC). This Longitudinal Data Systems grant will enable the state to redesign the student UIC system to integrate with all student source systems and to become flexible enough to synchronize with multiple federal and state reporting requirements. Solving this alignment problem will virtually eliminate the duplicative reporting that currently costs districts significant time and resources. Designing the SRSD/UIC in a modular and extensible framework will enable Michigan to connect data sets from a variety of source systems and link the data across time, as well as share common modules with other states.

In Fall 2004, Michigan began integrating the UIC with state assessment source systems through a process that proved effective for one test cycle, but which remains labor-intensive at both the state and local levels for data entry, cleansing and tracking. We propose a system re-design that will enable data cleansing and validation before data is submitted to the state and which will facilitate tracking of students across assessment cycles and throughout participation in programs and services. In addition to allowing district staff members to collect data and maintain and correct student core demographics, this integrated system based on the UIC will allow teachers to drill down to the student level to view a student's scores on previous and current state assessments, as well as images of constructed responses. Michigan's early investment in the

Michigan Department of Education - Longitudinal Data System Application Proposal 17 17

SRSD/UIC system and associated student data source systems will enable other states to accelerate their student tracking implementations for longitudinal data management.

Michigan's goal is to develop a comprehensive decision-support system based on the vertical integration of data across many systems. The idea of a central store of all data in Michigan is currently unrealistic and costly. In order to take state leadership, The MDE and CEPI must be the hub of a federated system of data collection and distribution, taking advantage of the expertise and resources at the district, ISD, and state levels where it exists, and expanding data collections based upon where data is most needed and valued.

### Project Personnel

Michigan Personnel – Departments of Education, Information Technology and the Center for Educational Performance and Information

Margaret Ropp, Ph.D., director, CEPI (Michigan Department of Management and Budget, Lansing, MI)

Margaret Merlyn Ropp is the director for the state of Michigan's Center for Educational Performance and Information (CEPI). CEPI collects and reports data about Michigan's kindergarten-through-12 -grade public schools, and is responsible for maintaining and supporting current databases, as well as developing new applications. Dr. Ropp coordinates educational policy for CEPI and works with other state of Michigan departments to meet state and federal reporting requirements. She earned her Bachelor of Arts in studio art and taught K-12 art at Louisville Public Schools before earning a master's degree in museum studies from the University of Nebraska-Lincoln. After earning her doctorate in educational psychology with a specialization in cognition and technology, she was an assistant professor of educational technology.

Linda Pung, Client Services Director, CEPI (Michigan Department of Information Technology, Lansing, MI)

Linda E. Pung is the client services director for the Department of Information Technology. Linda is



responsible for administering complex systems that collect data on over 1.9 million students, distributes over \$14 billion in state aid school payments and provides standardized achievement testing throughout out K-12 programs. Linda has proven experience in developing trusted client relationships, providing effective communications and directing information technology matrix teams to provide excellent service delivery. Linda has over 20 years of experience in the information technology arena. She was a leader in developing the Department of Information Technology's service delivery model which provides a governance structure to effectively coordinate and manage diverse teams of technology professionals in developing technology solutions for business problems. She holds a dual associate degree in Business management and data processing.

Edward D. Roeber, Ph.D., Senior Executive Director, Office of Educational Assessment & Accountability (Michigan Department of Education)

Edward Roeber currently is Senior Executive Director, Office of Educational Assessment & Accountability in the Michigan Department of Education. He oversees the assessments of general education students (in mathematics, science, language arts and social studies), students

Michigan Department of Education - Longitudinal Data System Application Proposal 18 18

with disabilities and English language learners, as well as the accreditation and accountability programs. He has served in this position since November, 2003. He received his Ph.D. in measurement and evaluation from The University of Michigan in 1970. He has consulted with a number of states as well as national organizations on the design, development, and implementation of large-scale assessment programs. He has authored numerous articles, reports, and other publications, particularly on the development of innovative assessment programs and the use and reporting of student achievement information. In addition, he has made numerous presentations to various groups around the country.

MaryAlice Galloway, Special Assistant to the Chief Academic Officer (Michigan Department of Education, Lansing MI)

MaryAlice works with Dr. Jeremy Hughes, Chief Academic Officer/Deputy Superintendent, who provides leadership to the five Education Services Offices within the Michigan Department of Education (MDE).

MaryAlice coordinates activities and communication among all five offices. She leads projects that collect reporting data for the No Child Left Behind Act including the Consolidated State Performance Report and the state Accountability Workbook. She is part of the policy advisory team within MDE. She earned a Bachelor of Arts degree at Western Michigan University in English and a Master of Arts degree at Eastern Michigan University in American Literature. MaryAlice has worked for MDE for 16 years in a variety of offices in both Administrative Services and Educational Services.

Mark Gover , Ph.D., CEPI (Michigan Department of Management and Budget, Lansing, MI)

Dr. Gover is an educational consultant at Michigan's Center for Educational Performance and Information (CEPI). CEPI collects and reports data about Michigan's kindergarten-through-12th-grade public schools, and is responsible for maintaining and supporting current databases, as well as developing new applications. Dr. Gover is responsible for the design and development of Michigan's Single Record Student Database (SRSD) as well other initiatives involving the reporting of individual level student data. Mark Gover earned his doctorate in educational psychology from Michigan State University.

The remaining Michigan personnel are grouped into three teams from CEPI, DIT, and MDE. To economize on space, the remaining staff who are available to work on this project are listed in Appendix B, Table 2.

Wisconsin Center for Education Research (WCER) Personnel

Dr. Robert H. Meyer (Principal Investigator) is director of the newly-established Value Added Research Center at WCER. Before joining WCER, Meyer was on the faculty of the University of Chicago (Harris School of Public Policy Studies) and the University of Wisconsin (Economics Department). Meyer is known for his research on value-added modeling and evaluation methods. Over the last decade and a half, Meyer has worked closely with districts and states to develop and apply innovative statistical methods. He has conducted major statistical evaluations of programs and policies such as SAGE (the Wisconsin class-size initiative), systemic reform in Texas, integrated versus traditional mathematics, and professional development and other math and science reforms. At the other end of the evaluation spectrum, Meyer has



worked with numerous districts, including Minneapolis and Milwaukee, to develop and implement value-added indicator and accountability systems. He has led several AERA pre-Michigan Department of Education - Longitudinal Data System Application Proposal 19 19 sessions on value-added indicators. Meyer will coordinate collaborative cross-state research, oversee research on end-use data applications, and direct research activities conducted at WCER. Meyer will allocate 40% of his time to this project (split across the three participating states). His remaining time will be devoted to related research projects: developing and implementing the next generation of value-added models and indicators with district partners Milwaukee, Minneapolis, and Cleveland (funded by IES and the Joyce Foundation) and evaluating the Wisconsin SAGE program (a 12-year study funded by the Wisconsin Department of Public Instruction).

Dr. Chris Thorn is director of Technical Services at WCER. Thorn has been actively engaged in both large-scale program evaluation work, as well as mixed methods analysis of school- and district-level decision-making for the past 15 years. Thorn managed the Spencer-funded evaluation of the Milwaukee Public Schools Voucher Program for 5 years and a state-wide evaluation of school-to-work programs that included a mixed-methods analysis of participation, and a study of workplace and higher education outcomes. He has worked extensively with state-wide student data and with data sets from large districts, including Los Angeles. At the district and school level, Thorn has developed and implemented data-based decision-making and decision-support tools and provided related professional development. Thorn's recent scholarly writing has focused on the characteristics of successful decision-support systems in schools and districts. Thorn will coordinate collaborative cross-state research on information technology and decision-support tools. Thorn will devote 30% of his time to this project. The remainder of his time will be devoted to related research: building a data warehouse and indicator system for Los Angeles and other districts participating in WCER research projects and directing technical services to support research at WCER.

The remaining WCER personnel are grouped into three teams: management; information technology and statistical computing; and research and applications. The following senior faculty will be available as project consultants: Dr. Douglas Bates, Professor in the Statistics Department, is an expert in statistical computing with large data sets, and is a core contributor to the R language for statistical computing and graphics. Dr. Julie K, Underwood, newly appointed Dean of the Education School, is a lawyer and expert on school law. Currently, Underwood is the Associate Executive Director and General Counsel of the National School Boards Association. Dr. Adam Gamoran, Director of WCER and Professor of Sociology, is a member of the National Academy of Education (NAE). Gamoran is widely recognized for his statistical analyses of educational inequality, particularly his studies of grouping and tracking in elementary and secondary schools. He has published numerous articles analyzing achievement growth in national, state, and school district data sets. He has extensive experience with multilevel modeling, and teaches a graduate seminar on multilevel models of school effects. To economize on space, the remaining WCER faculty, IT staff, and research staff who are available to work on this project are listed in Appendix B, Table 3.

## Resources

One of the distinctive aspects of our project is that it is a collaborative venture among three states and the Wisconsin Center for Education. We estimate that working together will permit each state to share responsibility for at least fifty percent of all project tasks, thereby more than doubling the impact of the resources allocated to each state.

Educational initiatives for the state of Michigan are managed through the Michigan Department of Education (MDE), serving 550 school districts, over 200 public school academy districts, over 3,700 schools and public school academies, and over 1.7 million students. In addition to MDE, various educational programs are also managed within other departments such as Labor and Economic Growth (DLEG), Community Health (DCH), and Treasury. Providing

Michigan Department of Education - Longitudinal Data System Application Proposal 20 20

and supporting the technology infrastructure for various state agencies is the Department of Information Technology (DIT). The Center for Educational Performance and Information (CEPI), a unit within the Office of the State Budget, is responsible for coordinating the collection, management and



reporting of educational data in the state. The goal of this project is to facilitate the design and implementation of an enterprise-wide decision support system that comprises technological architecture and applications. This system will offer statewide planning and support to ISD, LEA and PSA districts so they can make the informed choices for themselves.

Project Support. Support for this vision is strong not only at the state level as evidenced by the interagency collaboration, but also across the state with a variety of key stakeholders. Critical letters of support attached to this grant application include a joint letter from the Governor's Office, the Office of the State Budget, DIT, and MDE expressing strong support for this initiative. These agencies collaborated in the development of our project plan and support a close partnership with the states of Minnesota and Wisconsin. In addition, the associations representing small and rural schools, public school academy authorizers, the Education Alliance including Middle Cities, and the higher education and business communities have voiced their support. These stakeholders agree that accurate, high-quality data will enable educators to make informed decisions about teaching and learning right at the source, where they can make a difference for individual students. Districts and schools are very different from one another across Michigan. For this reason, they are allowed to operate in an environment that enables them to creatively use resources to meet challenging and often diverse local needs. The state's primary role is to facilitate meeting these needs. Excessive regulation can be an impediment to meeting local needs. However, the increasing volume of data required for federal and state reporting compliance as well as the complexity and expense of data management systems has forced Michigan's state agencies to realize that they must take a leading and centralizing role in the coordination of state education data. Streamlining these processes will best help districts to make their own decisions, to help them fulfill data requirements efficiently, and to more equally distribute the financial, resource, and organizational burden of its increasing information management responsibilities.

The MDE, CEPI, and supporting DIT staff are housed in the John A. Hannah State Office Building. For technical infrastructure, DIT networks computers employ 370 full-time employees in the Hannah building and other locations.

To accommodate a Longitudinal Data Systems Project, we anticipate an increase in development staff and other resources needed for the three-year period – distributed among MDE, CEPI and DIT. Both MDE and CEPI operate Internet and intranet Web environments supported by the DIT. CEPI has rapidly expanded its data collection capability, data management, and application development capabilities since its inception in 2000. CEPI currently maintains several test and production database servers on site using SQL and has instituted formal application development and security procedures working with a blend of new technologies and legacy systems within the state.

#### Funding

Data projects are funded and will continue to be funded from a blend of federal and state general fund sources and appropriated to various agencies by the State Legislature. CEPI and the DLEG are using current funding to support an invitation to bid for a master plan and the development of a governance structure to accomplish the work of the comprehensive educational data management system. While the architecture aims to minimize additional funding requirements on an ongoing basis, the CELT study makes clear that CEPI lacks sufficient funding to support the technology and staffing capacity necessary for the role it needs to play in

Michigan Department of Education - Longitudinal Data System Application Proposal 21 21

the coming decade. To fill this statewide data management role, CEPI and the MDE are actively seeking additional sources of funding, both internal and external, to sustain the systems that are designed in this application after grant expiration, and to provide means for applying the design toward useful program-area applications that will have value across state agencies. ISD, LEA and PSA districts are investing state dollars to build local data management systems, and the state must do its part to bring a statewide level of value to that investment. Our need for this grant funding is urgent. Any individual state trying to accomplish a project this broad in scope could not muster the resources from one state treasury. This project combines the work, resources and thinking already devoted to meeting the data requirements in each state with federal grant dollars that will be a significant catalyst for change in creating a program



larger than any one state could accomplish individually.

#### WCER Resources

The Wisconsin Center for Education Research is one of the nation's oldest and most highly esteemed university-based education research and development centers. A part of the University of Wisconsin–Madison's School of Education, WCER provides a productive environment where some of the country's leading scholars conduct research. WCER research spans the full scope of education, from the effects of infant child care and after-school programs to undergraduate and graduate curriculum reform. With annual extramural funding exceeding \$22 million, WCER is home to centers for research on the improvement of mathematics and science education from kindergarten through postsecondary levels, implementation of reading and behavior intervention models for K-3 students, and education policy, as well as a comprehensive regional assistance center that supports schools and agencies in meeting the needs of schoolchildren throughout the Midwest, with priority given to high-poverty schools and districts. A commitment to disseminating research findings and research-based educational interventions and products has characterized WCER from its inception.

WCER's work on this project will be the responsibility of the Value-Added Research Center (VARC), the newest and fastest growing research center in WCER, and the Technical Services Department at WCER. The mission of VARC is to promote the development, application, and dissemination of value-added and longitudinal research methods to evaluate the performance and effectiveness of schools, teachers, programs, and policies; facilitate the use of value-added performance indicators to monitor the performance of schools and hold them accountable for their performance; and support data-driven decision-making at all levels of the educational system. VARC is currently working with numerous districts, states, and universities, including Minneapolis, Milwaukee, Cleveland, Los Angeles, and the states in the tri-state partnership. The Center is also doing basic research on the statistical foundations of value-added and longitudinal research methods. VARC's work is currently funded by the Wisconsin Department of Public Instruction (a twelve year study of the SAGE program), the Institute of Education Sciences, the Joyce Foundation, Milwaukee Public Schools, the National Commission on Teaching and America's Future, and the National Science Foundation.

The WCER Technical Services Department provides multimedia services, custom software development, and computer support for more than 350 networked computer systems. Advanced database services have taken on an increasingly important role within WCER Technical Services. Technical Services is currently supporting data warehouse ETL and analytics on an active-active cluster of two dual-processor 3.6 Ghz Xeon servers with 8GB RAM. These servers are each running Enterprise MS-SQL 2000 on Windows 2003 Advanced Server. The servers are connected through redundant paths to a dedicated EMC CX300 Storage Area Network (SAN). Both the cluster and SAN allow considerable expansion through additional nodes. More importantly, Technical Services has also reallocated staffing to better support the Michigan Department of Education - Longitudinal Data System Application Proposal 22 22

advanced needs of data-intensive research projects housed at the Center. WCER currently has two full time database application developers, an ETL expert, and a data system architect on the staff. This team has experience designing research systems as well as working with research and information system staff at large districts as they coordinate with project research teams to support the analysis of complex longitudinal data.

The WCER Technical Services also supports the use of a number of different collaborative technologies, including large-scale, toll-free teleconferencing, point-to-point video conferencing and web-based desktop sharing tools. However, the most significant contribution that WCER makes to collaboration over distance is its expertise in web-based collaboration tools. WCER has deployed an enterprise-level web-based collaboration environment called SCALEnet to support distributed work across complex partnerships. SCALEnet's ability to support complex work processes and its utility as a knowledge management system facilitates partnership collaboration, data-sharing, and inquiries. Behind the scenes, SCALEnet provides a relational database for tracking and reporting project activities, tracking project outputs, and monitoring status. It offers a web interface that allows remote management of files (including



version control and approval processes) as well as coordination of tasks and calendars. The tri-state partnership's space inside the SCALEnet environment has been named the Longitudinal Data System Community Space (LDSnet for short). This space is explicitly designed to foster the development of communities of practice across the partnership. In addition, several communities within SCALEnet have considerable overlapping interests with the tri-state partnership. One large NSF-funded project is working on longitudinal analysis of student and teacher data in the Los Angeles Unified School District. We are already discussing avenues for sharing best practices and technology assessments between groups. The SCALEnet infrastructure makes such sharing easy. Indeed, the proposal preparation process was greatly aided by the availability of a secure, flexible, collaborative environment that could be shared by all partners.

The UW-Madison School of Education is consistently ranked one of the top schools of education in the country. U.S. News & World Report, in the 2006 edition of its guide to the best graduate schools of education, ranked the UW-Madison School of Education ninth in the nation; in the specialty rankings, the School of Education came in first in curriculum/instruction; second in educational psychology, elementary education, and secondary education; and third in education policy and education administration. The University of Wisconsin–Madison is recognized throughout the world as one of the great U.S. universities. Its academic reputation has been rated among the top 10 in the country in many areas of study since the beginning of the last century. U.S. News & World Report currently ranks UW-Madison seventh among U.S. public universities.

#### Management Plan

Management of project planning and work activities within and across the three collaborating states and WCER is obviously a crucial part of this project. WCER will be responsible for managing cross-state activities. As discussed in the previous section, the Partnership will use (and has already made effective use of) LDSnet/SCALEnet, a powerful web collaboration tool for exchanging work products and managing the work activities over time. The state project directors and the WCER principal investigator will manage work activities within each of the respective organizations and serve as the steering group for the entire project. As is explained below, the project has been divided up into distinct task areas: data analysis and research requirements, data access, data dictionary, data warehouse, and secure data transport. Each of these task areas has been further divided into subtask areas. As indicated in Appendix A, Michigan Department of Education - Longitudinal Data System Application Proposal 23 23

each state and WCER has been assigned a specific level of responsibility for each subtask: (1) primary responsibility, (2) secondary responsibility, or (3) review and implementation. Separate management committees will be created for each task area and will be staffed by key personnel from each organization. The project steering committee will interact with the task management committees to ensure that the task work is being completed in a timely and high quality manner and to ensure that the work of the different task groups is coordinated. One of the major strengths of the proposed project is that the design of the data warehouse and data dictionary will be driven by the end-use needs of educational stakeholders. As a result, coordinating the work of the task groups will be an important priority.

The tri-state plan has several distinct positive features. In addition to the operational synergies and standardization that is the cornerstone of shared overall design, we are designing the project timelines to proceed in discrete increments to avoid the systems version of “analysis paralysis”—taking on too much design without implementation. Small successes will ensure that investment in a particular area is captured and used and that blueprints for a grand system do not languish on the shelf. For more detail, refer to the collaborative task list and the companion timeline to this application in Appendix A. Incremental inclusion of more data collections and more stakeholders into the designed system will aid in supporting modular development. A requirement that this grant stipulates, and that all three states must live by in an era of tighter state budgets, is to make the maximum use of resources by managing projects to plateaus—intermediate goals that are standalone improvements such that if no more support were given, the improvement would persist. Likewise, these functions also must be as independent and self-contained as possible.

How Do We Get From Here To There? State Cases



The following cases serve as examples of areas of state leadership in the proposed grant. They serve as indications of strength in each state, and commitment to participation in the project. During the grant process, we have successfully networked many areas and have begun to identify areas of strength, shore up areas of weakness, and have been able to help each other become more focused. This grant is a testament to the abilities of these three states and the trust built during this process. Here are some cases to illustrate how the tri-state partnership will use their network to get from here to there.

#### Wisconsin

An important goal of a longitudinal data system is to provide information that is instructionally relevant. The decision support challenge at the classroom level is the ability to deliver relevant data to teachers in a timely fashion. Unlike many indirect benefits of a data warehouse, delivery of data to teachers represents the closest link to student achievement that this project offers. While the member states recognize the sensitivity of collecting teacher information, in order to have the most profound impact on student learning, teachers and students must be connected at the individual level. Without this connection and ability to have student information pass from teacher to teacher, information gets lost. With a comprehensive system, teachers will have the opportunity to be assigned students, prepare in advance for their incoming classes, and upload/download rosters to use for classroom management with all integrated DPI information about their students at their disposal.

Student transcripts are another challenging area in which DPI is taking the lead. Establishing a transcript requires gathering classroom level information. Wisconsin will be updating its existing teacher licensing system and has the opportunity to reassess its collection of staff data. By assigning a staff ID, DPI can create a mechanism to give teachers access to student data, in conjunction with the architecture developed under this grant. This reassessment Michigan Department of Education - Longitudinal Data System Application Proposal 24 24

will coincide with plans for integrating staff data with student information including, (a) the design of data elements, (b) role-based security, and (c) warehouse inclusion. The project will begin by examining elementary schools, linking teachers and classrooms, and culminate in a pilot project. Concurrently, DPI and WCER will conduct focus groups with the aim of determining teacher needs. This will allow enough time for role-based security to mature to the level needed for the amount and sensitivity of the data required.

#### Minnesota

The longitudinal data systems being built by each of the partner states will organize and store vast amounts of educational data. Much of this data is currently being collected, but they are stored in stove-pipe legacy systems that do not lend themselves to easy access or flexibility in creating reports. Much work is needed to develop an infrastructure design that will support the creation of robust data models and data marts contained in a data warehouse. Minnesota will take the lead in researching and developing a shared data model for each of the partner states that will drive the development of a collaborative data dictionary and the design of the data warehouse.

As soon as grant activities begin we will research a structure to accommodate a series of data elements that conforms to the federal ISO-11179 guidelines. Special emphasis will be placed on externalized data elements, or data elements that move between systems to adhere to interoperability. Our intention is to correctly identify similar high-level data structures (for example, activity, document, student, person, report, and organization) to permit adherence to national standards while maintaining individualization in order to accommodate nuances specific to each state.

The collaboration of this project will ensure that the data model is robust enough to meet the needs of various user groups, including parents, teachers, educational administrators, and researchers across states.

#### Michigan

The comprehensive longitudinal data system proposed in this grant will provide key stakeholders with (a) data that are aggregated at the school, district and state level and (b) individual student data at a very granular level. In addition to a new level of aggregated reports that are useful across a state, Michigan will lead the development of an integrated student data system that will provide a dramatically different kind



of student data environment from the perspective of key stakeholders. Teachers, administrators and appropriate district personnel will be able to drill down to the student level and both securely enter data and view reports through role-based access.

For data collection, the following examples show how different users will access parts of the system that will help them to achieve their work:

- Pupil accounting and official records personnel can use the online system to either key in or upload student data into a workspace, review aggregated reports of data for uses such as accountability or program participation, correct data and submit for official snapshot dates that align with reporting deadlines. Official records staff members are the “keepers” of the core student data, including demographics.
- Special education staff members will be able to enter and review program-specific data on participating students and the system will facilitate the maintenance of the core data so that demographics are synchronized with one official version sent to the state.
- Assessment coordinators can enter and review specific data on students to assist in the pre-ID printing of assessments with the UIC, and the system will facilitate the

Michigan Department of Education - Longitudinal Data System Application Proposal 25 25

- maintenance of the core data so that demographics are synchronized with one official version sent to the state.

Examples of personnel who need secure access to view student data include:

- Teachers who need to look up new students and see how they performed on previous state assessments by content expectations, so that they don't waste valuable instruction time duplicating assessments while waiting for record and transcript transfers.
- Principals, who can quickly provide students with needed services and use student data for instructional leadership and school improvement activities related to accountability measures.
- Appropriate personnel who manage and maintain student records from student intake through integration into the districts' local student information system integration, thus reducing data entry error at the source.

The proposed system will achieve the four primary components of NCES's “Culture of Quality Data” that include: accuracy, security, utility and timeliness.

#### Dissemination and Outreach

This project is structured to produce deliverable products, so that the tri-state partnership can work efficiently on different parts of the project plan and share the results of this distributed work with one another, and with other interested parties. As discussed above, the partnership will use (and has already made effective use of) LDSnet/SCALEnet, a powerful web collaboration tool. LDSnet will also be used to make products available to stakeholders within each of the three states, with other state educational agencies, and with researchers and vendors.

Project results, including overview papers that describe the concepts and strategies used in this project, will also be disseminated via conferences and workshops, such as the Large Scale Assessment conference sponsored by CCSSO, the NCES Forums and Management and Data Conferences, the American Educational Research Association and National Council on Measurement in Education Annual Conferences, and other appropriate forums.

The tri-state partnership will also work with stakeholders in the three-state area and elsewhere who are involved in promoting and supporting the development of longitudinal data system capacity, longitudinal research, and data-driven decision-making. As mentioned previously, several districts, including Minneapolis, Milwaukee, Mounds View (Minnesota), and Cleveland are currently working with WCER to develop a self-help network to support value-added analysis and other data-analytic activities. The Partnership expects to make an important contribution to the development of this network among state-level actors.

#### Conclusion





E. Professional development

Michigan Department of Education - Longitudinal Data System Application Proposal 3 3 Task/Subtask M  
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F. Tri-state coordination

III. Data Dictionary

A. Dictionary standards

B. Student course transcripts

C. Survey of instructional practices and educational programs

1. Teachers
2. Principals
3. District staff

D. Outreach to stakeholders

E. Tri-state coordination

IV. Data Warehouse

A. Design

1. Assessments
2. Students
3. Course transcripts
4. Classroom inputs
5. Teacher data
6. School inputs
7. Principal data
8. District data

C. Data levels

1. Raw data
2. Data aggregates and composites
3. Reports



D. Stakeholders Retrieval

- 1. State education agency
- 2. Districts
  - 1. Large urban
  - 2. Suburban
  - 3. Rural
  - 3. Schools
    - 1. Traditional
    - 2. Charter
    - 3. Other
  - 4. Teachers
  - 5. Parents and students
  - 6. Policy makers and public

E. Role based authentication and access

F. Integration and interoperability

Michigan Department of Education - Longitudinal Data System Application Proposal 4 4 Task/Subtask M  
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G. Tri-state Coordination

V. Secure Data Transport

A. Design

B. Designs for rapid turn-around and non-duplication

C. Federal, State, and local compliance reporting

D. Data exchange (e.g., transcripts and test scores) across schools, districts, states

E. Implementation

F. Tri-state coordination

Michigan Department of Education - Longitudinal Data System Application Proposal 5 5  
Table 2 Cross-State Activity Listing by Quarter (\*Recurring events)

Table 2.1 Overall Activity Schedule

Date	Milestone or Deliverable
2005 Q4	Prep: three-phase plan / states define phase 1 /design and analysis of phase 1
2006 Q1	Prep: collaboration plan – standards (outline for initial dictionary standards, directory standards, common metamodel, and data transport)
Phase 1	
2006 Q1-Q3	Requirements, data element design and entry, and access control



Phase I ~ Decision Support Architecture Consortium (DSAC) Report

2006 Q2	Data warehouse design/modeling
2006 Q2	Management pilot
2006 Q3	Dictionary Standards for phase 2
2006 Q4	Test/Redesign and training/rollout
Phase 2	
2007 Q1-Q3	Requirements and access control
2007 Q2	Data warehouse redesign
2007 Q2	Management pilot
2007 Q3	Dictionary Standards for phase 3
2007 Q4	Test/Redesign and training/rollout
Phase 3	
2008 Q1-Q3	Requirements, data element design and entry, and access control
2008 Q2	Data warehouse extension
2008 Q2	System Extension – Focus on development/maintenance/monitoring
2008 Q2	Management pilot
2008 Q3	Dictionary standards extension – maintenance
2008 Q4	Test/Redesign and training/rollout

Michigan Department of Education - Longitudinal Data System Application Proposal 6 6

Table 2.2 Data Analysis and Research Requirements

Date	Milestone or Deliverable
*2005 Q4	Surveys/Focus groups designed and stakeholder issues around reporting identified
*2006 Q1	Focus groups conducted/surveys distributed
*2006 Q2	Surveys/Focus group results and analysis



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2007 Q1-Q2	Surveys/Focus groups/reporting redesign
2008 Q1-Q2	Surveys/Focus groups reporting extension

Michigan Department of Education - Longitudinal Data System Application Proposal 7 7

Table 2.3 Data Policies

Date	Milestone or Deliverable
*2006 Q1	Prep: Assemble relevant cross-state policies
*2006 Q2	Discuss policy similarity/differences among states in areas of planned development
*2006 Q3	Data-driven access control pilot
*2006 Q4	Data-driven access control implementation
2007 Q3	Data-driven access control redesign
2008 Q3	Data-driven access control extension

Table 2.4 Data Dictionary

Date	Milestone or Deliverable
2005-2006	Build capacity prerequisite skill in relevant tools and technology (XML, CWM, related standards of NIEM, ISO-11179)*
*2005 Q4	Convene program area experts
2006 Q1	Data dictionary software purchase
2006 Q1	Development of high level data model – pilot
*2006 Q1	Data element design (Y1: Students and Assessment, Y2: District, School, Programs, Y3: School and Classroom)
*2006 Q2	Elements complete (Y1: Students and Assessment, Y2: District, School, Programs, Y3: School and Classroom)
*2006 Q2	Assign and foster data stewards
*2006 Q3	Planning for redesign/expansion of elements
2006-2007	Redesign/Add elements
2007-2008	Element extensions

Table 2.5 Data Warehouse



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Date	Milestone or Deliverable
2005 Q4	Tools and software purchase arrangements
2006 Q1	Build capacity in DW tools/software (State)
2006	Data warehouse design (Student-Level Assessment) - Completion of Michigan Department of Education - Longitudinal Data System Application Proposal 8 8 Table 2.5 Data
Q1	state data model
2006 Q4	Student ID systems complete
2006 Q4	Planning for redesign / increase capacities post-implementation
2007 Q1	Data warehouse redesign
2007 Q4	Planning for extension / increase capacities post-implementation
2008 Q1	Data warehouse extension
2008 Q4	Planning for post-grant maintenance/monitoring

Warehouse

Table 2.6 Secure Data Transport – Collections and Submissions	
Date	Milestone or Deliverable
2005-2006	Prep: Capacity building – (SOA, Open Architecture, WS Security, SIF)
2007 Q1	Standards defined/stakeholders consulted
2007 Q3	Secure reporting project pilot (Federal Submission)
2007 Q4	Secure collection project pilot (District Submission)

Table 2.7 Michigan-Specific Implementation and End Use Applications	
Date	Milestone or Deliverable
2006 Q1	K-20 (DSS) design and governance model contract implemented
2006 Q2-Q3	Master plan for K-20 (DSS) design and governance model completed by vendor. Includes all source systems, i.e.: assessment, special ed., K-12, 13-20, adult ed., etc
2006 Q2-Q3	Requirements gathering for integrated student data system with Michigan
2006 Q3	Develop statements of work, ITBs and vendor selection for integrated student data system



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2007 Q1	Beta test longitudinal student assessment data linked by UIC with appropriate role-based access users
2007 Q1-Q2	Design phase and mock-ups for integrated student data system
2007 Q1	Beta test of data collection functionality of the integrated student data system with appropriate role-based access.
2007 Q2	Production release of longitudinal student assessment data linked by Michigan Department of Education - Longitudinal Data System Application Proposal 9 9 UIC with appropriate role-based access users
2007 Q3	Integrate selected back-end source systems, populate according to the master plan specifications
2008 Q1-Q2	Provide reports that aggregate graduation, drop-out and other student data accountability measures
2008 Q1	Roll-out data collection components of the integrated student data system
2008Q3	Beta test remaining back-end student data source systems, populate according to the master plan specifications for both collection and reporting.

Figure 2. High Level Physical Architecture of Data Warehouse/Data Marts

Figure 3. Parallel Data Warehouse Structure with State, Regional,  
and District Warehouses Michigan Department of Education - Longitudinal Data System Application  
Proposal 11 11

Figure 4. Model-Driven Architecture (MDA)

A General Value-Added and Longitudinal Analysis Model

Value-added and longitudinal data analyses will be important end-use applications of the proposed longitudinal data system. This section presents a general value-added/longitudinal model, summarizes some of the important features of this model, and discusses the types of data bases (resident in the longitudinal data warehouse) needed to estimate the model. Extensive resources on these models and other data-analytic methods are available from WCER's Value-Added Research Center.

Box I presents the student level (subscript  $i$ ) of a multi-level model with higher levels for classrooms ( $j$ ), schools ( $k$ ), districts ( $l$ ), and possibly states. The definitions of the model parameters, data variables, and error components are contained in text boxes with arrows pointing to the appropriate model element. This basic model can be generalized to accommodate most, if not all, of the existing value-added and multi-level longitudinal models that are currently in use. (Different models make different assumptions about the degree to which student error components are correlated over time and whether the student, classroom, school, and district effects are fixed or random. Some models also exclude specific features of the model (e.g., demographic effects) or impose restrictions on some of the parameters ( $=1$  in a linear growth model). Note that the model is sufficiently general that to allow for the possibility that students may be "enrolled" in a single classroom (typical at the elementary school level, but not always the case) or in multiple classes, for example, mathematics, science, English, language arts, and social studies. Similarly, the model allows for the possibility that students may attend more than one school during a school year. The classroom participation indicators in the model – the I Michigan Department of Education - Longitudinal Data System Application Proposal 12 12

variables – are set to one if an individual is enrolled in a given class for an entire school year and set to a fraction to capture partial year enrollment.

One novel aspect of the above model is that we have specified the effects in the model as "true" effects so as to distinguish the effects that we would like to estimate – the true effects – from the effects that are identified; that is, the effects that can be estimated. This distinction is important in the value-added context because value-added effects are obtained as the residuals after controlling for observed data. Some of the major effects (also referred to as indicators) that can actually be estimated are contained in Box II.

Note that it is possible to estimate the combined effect of classroom, school and district effects (the sum of the residuals from all levels of the model, except for the student-level residuals – assumed to have an expected mean of zero at higher levels). Some analysts refer to this effect as a teacher effect, but it is clear that this effect absorbs the contributions of all educational levels. This effect can be aggregated to obtain a total school and district effect and these two effects can be differenced to obtain a relative classroom effect. Thus latter effect captures the effectiveness of classrooms in a school relative to the other classrooms in that Michigan Department of Education - Longitudinal Data System Application Proposal 13 13 school. Which value-added effects are useful for policy makers and educational stakeholders is something that we will explore during the project. Michigan Department of Education - Longitudinal Data System Application Proposal 14 14

Box III contains the additional three levels of the multi-level model. These equations extend the model from one that is limited to classroom, school, and districts effects to a model that incorporates educational inputs at each level (instructional practices, leadership strategies, policies, programs, etc.). The model system as a whole can be used to estimate value-added indicators (as discussed above) and to estimate the effects of educational programs and other inputs. Thus, a single model can be used for educational accountability purposes and to evaluate program effectiveness. One of the end-use applications that we will explore is combining both of these tasks so that it is possible to provide direct guidance to educators about available program options that will improve the performance of classrooms and schools. This is an exciting extension of the value-added tool box, an application that we refer to as "diagnostic

value-added analysis.”

An important feature of the classroom/class and school equations is that they have been designed to allow for the reality that teachers may teach multiple sections in a given year (for example, three sections of Algebra 1, 2 sections of geometry, and perhaps even a course in a different subject area) and that teachers and principals may be assigned to different schools and classes during given school years and in different school years. Thus, one of the strengths of the model is that it allows for the reality of student, teacher, and principal mobility over time.

As discussed in the proposal, an importance motivation for studying end-use applications is to “derive” data warehouse and dictionary specifications that are needed to support the application. We present a succinct summary of these data needs in Box IV. Note that we distinguish data elements that serve as unit identifiers (the class of I variables) and educational inputs (variables X, C, T, P, S, and D).

**Box IV. Data Bases Required to Support High-Level Longitudinal and Other Analyses**

Data Base	Unit Identifier	Linked Identifiers / Examples of Educational Inputs	Statistical Variables
Student assessments and other outcomes (by subject, grade, and year)	Student ID [i]	Test scores Student attendance (aggregate) Disciplinary events	
Student characteristics	Student ID [i]	Demographic characteristics	
Student Course Transcripts	Student ID [i]	Course/class ID [(jkl)]	
		Course grade, credits	
		Enrollment dates (begin, end)	
		Attendance (by course)	
Course/class	Course ID [(jkl)t]	Teacher ID [m]	
		Principal ID [n]	
		School [k]	
		District [l]	
		Course inputs:	

**Michigan Department of Education - Longitudinal Data System Application Proposal 15 15**

Class size Instructional practices Facilities and resources Test preparation activities			
Teacher	Teacher ID [m]	Teacher inputs: Teacher characteristics Education and training Employment history Test scores (prior to and after teacher education and training)	
Principal	Principal ID [n]	Principal inputs (similar to teacher inputs): Leadership practices	
School	School ID [kl]	School inputs: Professional development Teacher autonomy vs. collaboration	
District	District ID [l]	District inputs: Financial resources District/school control over school budget and staff hiring	