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Technology Solutions

Michigan's Technology Solutions

Exploring the Technology Possibilities: 2010-2014

Michigan's IT strategic planning process has consistently included evaluation of reported research and review of new technology developments. This segment of the plan includes an assessment of a full range of current and emerging technologies feasible and appropriate for state implementation.

Our assessment has been accomplished through information gathering from a variety of sources – from thorough review of research papers by objective analysts such as Gartner Inc. and Forrester Research Inc. to one-on-one sessions with experts offering advice for Michigan-specific implementations. The findings and recommendations of this process are presented to Michigan's IT decision makers who work with the Michigan Information Technology Executive Council (MITEC) and other stakeholders to determine the state's technology focus for the coming years.

As the State of Michigan builds its strategic plan to include emerging technologies, other initiatives are ongoing. A green technology approach, for instance, is incorporated across state IT. Gartner states that organizations that previously committed to carbon footprint reductions will need to factor these into revised business plans for 2010 and beyond.

Streamlined Citizen Transaction and Self-Service

Identify and implement the latest technologies to make government services more accessible to citizens and businesses.

A key focus of this solution is the creation of a true "e-government," where all citizens can access the government services they need quickly, efficiently and securely. This approach emphasizes single points of access to government services through multiple channels and a continuing commitment to making e-government services faster and easier to use.

Many citizens expect on-demand self-service options when doing business with state government. This expectation will only increase with the accelerating use of technology as the primary tool for social and business connection.

These new citizen demands are not just focused on online services. Self-service is increasingly common in other parts of our daily lives. Whether it's using an ATM to get cash at midnight, checking in for a flight at a kiosk or paying for gasoline at the pump, self-service is an increasingly vital way to do business.

Just as in the private sector, Michigan citizens will continue to demand that their government provide them with convenient, cost-effective and secure service around the clock.

Green IT activities bring concrete, measurable cost reductions and thus will become more broadly adopted in enterprise IT organizations.
– Forrester

There are more than 65 million active users currently accessing Facebook through their mobile devices.
– Gartner

By 2012, Facebook will become the hub for social network integration and Web socialization.
– Gartner

Eighty-two percent of U.S. online adults say they regularly engage with social technologies. Twenty-eight percent of these consumers, for instance, report visiting a social networking site at least daily.
– Forrester



Opportunities for Michigan

- Better service for citizens

The desire by public agencies to provide information and services on the Internet opened a way for Americans to contact government that was not available a decade ago. Citizens benefit from increased access, whether they live in the Upper Peninsula or Detroit, work 8 to 5 or the graveyard shift, or use their home computer or a laptop at a state park.

- New cost savings

As Michigan continues to wrestle with tight budgets, streamlined citizen transaction and self-service can promote cost savings by less employee involvement. E-government efficiencies can also enable the state to cope with its smaller workforce.

Current Status

The State of Michigan offers a variety of self-service options. Citizens can access services using the Internet from their homes, a wireless device remotely, or a kiosk in a public plaza. Examples of some available state services include:

- renewing driver's licenses and registering vehicles using kiosks.
- reserving campsites online.
- obtaining fishing licenses via mobile phone.
- arranging for permits online.

One of the major challenges for government is to understand how citizens use services in order to increase their use of online services. It's not enough to drive citizens online. Government must adapt its internal processes and overcome its traditional structure to allow for interagency and interagency collaboration.

Another challenge is that moving toward self-service requires an infrastructure that supports electronic payments. While this can bring cost-savings – both from efficiencies and per transaction – it also means investing in solutions and processes with a high level of security.

Next Steps

There are many opportunities to expand citizen access to state government services in various stages of development, whether it is in the vision stage or in the process of implementation. Examples include the expansion of the Helping Hand Portal or the College Access Network. Both of these will provide more efficient and effective service to citizens, while reducing the cost to provide these services.

Citizen transaction and self-service will grow in the coming years. Michigan is pursuing technologies that enable self-service, including centralized contact centers, self-service stations and online Web portals. As technology advances and can handle more complex interactions, more constituents will be comfortable using technology as their primary point of contact.

DTMB is working with its client agencies to explore which projects would benefit most from these technologies to improve productivity and efficiency.

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The 2007 Brown University annual analysis of U.S. e-government found that Michigan was a leading state in effective governmental use of Web-based technology

Citizen Engagement Tools

Identify and implement the latest technologies to engage citizens in government operations and decision making.

A key IT challenge around citizen engagement is selecting secure interfaces that will improve end-user experiences and provide the state with meaningful citizen participation, leading to better decision making. Other challenges include maintaining control of information and security and retaining knowledgeable staff to manage outreach and engagement efforts.

The Web has opened endless possibilities for engaging with the public; however, the benefits of using the Web for citizen-government interaction have not been clearly documented. Some changes are measurable and evident, such as the recent shift from service-oriented architectures to Web-oriented architectures. Governments are exploring the use of social networking to receive and provide information to citizens.

Opportunities for Michigan

- Building public trust

By providing information, asking for opinions and meeting with people in their own communities, government increases its relevance and can develop the public's trust by being open and inclusive.

- Shaping policy

Through the use of surveys, social networking sites or wikis, government can gather comments on proposed laws or work with citizens to cooperatively develop policy, leading to better decision-making. Using the Web for broad-reaching e-government efforts can boost citizen engagement in the democratic process.

- Gathering service feedback

Agencies and citizens can use ratings or social networking sites to provide feedback on service levels and comment before services are designed. This will lead to a broader range of choices and targeted services for citizens.

- Promoting government services

Web 2.0 technologies offer new opportunities to expand government's reach. For example, collaborative tagging is the practice of cooperatively managing tags that allow citizens to create new associations and ways to navigate government information and engagement efforts.

Current Status

Michigan has several existing citizen engagement tools, including survey software, RSS feeds and a social networking presence.

Through past efforts to improve accessibility, expand delivery channels, share data across governmental agencies and engage the public, the Web site underwent an overhaul to sharpen and broaden the scope of its online services and improve ease of use. Visitors to the site can now access a significant amount of information without even leaving the home page.

Next Steps

Citizen engagement is an ongoing effort because technologies and the needs of citizens are always changing. We will continue to make sure we are using technology to do everything we can to reach out to citizens through safe and accessible channels.

Shared Technology Infrastructure

Share and integrate infrastructure resources between public and private partners, such as data centers, servers and connectivity through fiber, wireless and other communications capabilities.

Prior to the formation of the Department of Information Technology, information technology in Michigan was developed independently in the various state agencies. As the agencies made individual decisions of technologies to use and how to maintain or upgrade them, the statewide technology infrastructure grew increasingly complicated. This diverse infrastructure of computers, telephones, information storage devices and computer programming methods prevented Michigan from realizing the optimal value of information technology.

In recent years, Michigan has worked aggressively to build a unified technology infrastructure that is well coordinated, interoperable and universally available. For state government, a shared technology infrastructure is steadily evolving as the primary structural foundation that links and empowers all operations.

Opportunities for Michigan

Through a shared technology infrastructure, the benefits are many. Some of them include:

- Seamless information accessibility
- Improved return on investment
- Reduced operations risk
- Lower cost of ownership
- Technology resource maximization

Whether it is providing a one-stop call center for citizens to access state services quickly and securely or giving state employees collaboration tools like real-time, online meetings to reduce travel time and cost, a shared technology infrastructure is delivering the promises of tomorrow for Michigan.

The State of Michigan realizes immediate benefits, such as cost savings and service improvements. It also benefits because future technology applications will require a modern, integrated infrastructure. Some future opportunities that will build on the integrated infrastructure include:

- Contact centers: An enterprise contact center strategy, in which Michigan citizens can contact state government using convenient channels, relies on standard phone and computer systems. State employees at various physical locations will be available to address citizens' needs at the end of a phone or click of a computer mouse. To truly function as one face of government, those employees' phone and computer systems must be able to communicate effectively using standard technology system designs.
- Unified communications and messaging: As citizens increasingly turn to alternative communications channels such as e-mail and Web access, state employees will need the ability to respond simultaneously with various media. Standard interoperable technologies will enable employees to monitor and use telephone, e-mail and Web interfaces as easily as traditional face-to-face interactions.
- Virtual teams: Government employees will need to collaborate across agencies and locations to efficiently deliver the services citizens demand. The technology tools that allow these employees to share data and information will require an integrated infrastructure that links all agencies statewide.
- Great Lakes Information and Technology Center: The state is pursuing a public-private partnership to replace two hosting centers with a purpose-built center. The plan envisions a public-sector cloud that would offer application hosting and managed services to any public entity in Michigan. This initiative would cut the cost of running government by reducing the number of duplicate computer systems operated by cities, counties and state agencies.

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Current Status

Michigan continues to build its comprehensive approach to shared technology infrastructure on many different levels within state government. Two initiatives in particular are driving Michigan's overall strategy:

- Centrally managed voice systems

Providing central management of voice systems throughout state government enables economies of scale in the purchase of equipment and provision of support to state telephone systems. A consistent implementation of telephone systems across agencies allows systems to work together, ensuring that call and voicemail transfers are seamless. Finally, central management of voice systems provides an opportunity to move the state's system forward with new telephone technologies, such as Voice over Internet Protocol (VoIP), that provide the foundation for contact centers, mobile workers and many other trends for how government does business.

- Michigan/1 program

Michigan/1 is a vision for the baseline infrastructure of the state's computing environment that merges separate agency environments into one, resulting in reduced costs and improved services. Program components include:

- Active Directory Office Platform Technology (ADOPT): Provides a common technology setup for offices across the state, including standardized computers and the capability to update or fix computers remotely
- Messaging consolidation: Brings all state e-mail users into one of two common e-mail installations and redesigns all state e-mail infrastructure for optimal cost effectiveness
- Storage/backup: Provides shared solutions for storing the state's data and protecting it with backup procedures
- Hosting center server centralization: Consolidates data centers across the state in three state-of-the-art centralized data centers
- Enterprise metrics monitoring: Tracks state systems automatically, alerting staff when repairs are necessary
- Call Center Consolidation

Next Steps

Michigan will continue to explore new opportunities for shared infrastructure between state agencies and in collaboration with other public and private partners. With state government, key continuing initiatives include:

- Michigan/1 Adopt standardized complete rollout by the end of 2012
- Conversion of 75 percent of all state offices to Voice over Internet Protocol (VoIP) technology by 2012
- Unified approach to communication and collaboration tools
- Continued data center consolidation
- WiFi available to all state locations in 2010
- Central management of all cellular contracts in 2010
- Physical to virtual server migration/consolidation in 2010

Information Collaboration and E-Discovery

Facilitate the sharing and integration of data among departments to leverage information and to enable quicker and more effective decisions; effectively manage the storage, preservation, and retrieval of electronic information as it relates to governmental operations.

The State of Michigan's executive branch consists of several separate departments and multiple agencies. Core services include those that directly benefit constituents and include policy and program development and administration as well as actual delivery of services. Common administrative services include those needed for government to function, such as finance, human resources and procurement.

Over the past decade, these disparate departments have begun to interact and collaborate on projects, initiatives and policy direction. Driven by statewide priority areas, all state departments have come together to work toward a statewide vision of goals.

Breaking down old barriers between government agencies has greatly increased the need for common methods of communicating, sharing and bringing information to decision makers. Through overall advances in information technology – and as Michigan develops its own unified approach to information access and collaboration services – departments and agencies will better understand which information is available and be able to get the information they need when they need it. Having a coordinated strategic approach will enable state leaders to make timely decisions using better information.

Additionally, recent changes to the Federal Rules of Civil Procedure governing standards for managing electronically stored information and the increasing number of lawsuits related to discovery of government information require the development of a legally constructed and consistent enterprise-wide approach to e-discovery.

Opportunities for Michigan

The potential benefits to Michigan from increased data sharing, integration and a consistent e-discovery protocol are many and include:

- **Improved communication:** For the State of Michigan, one of the most important benefits of integration is the improvement of communications among departments, agencies and even workers within their own agency.
- **Improved decision making:** As a direct result of improved communications and up-to-date information access, key managers and personnel will be able to make proactive and reactive decisions faster and more accurately.
- **Enhanced service delivery:** Across the spectrum of involvement within state government, the ability to easily access reliable and accurate information is essential. By sharing across programs, agencies and even other governments, the State of Michigan will have better information to use in providing improved service to the citizens, businesses, governments and the employees it serves. A coordinated and enterprise-wide system for e-discovery will enable Michigan to respond quickly to meet judicial requirements and avoid sanctions.

Current Status

Already, Michigan is actively engaged in improving information access and collaboration. Some notable examples of the state's progress include:

- **Teradata Warehouse:** Among five state agencies, the State of Michigan shares more than 2 terabits of information, which equates to approximately one-tenth of all the books in the largest library in the world.
- **Child Support Enforcement System:** Agencies continue to develop data-sharing agreements for projects that involve multiple agencies. One key example is the Child Support Enforcement System, which shares information among the Department of Treasury, court systems, Department of State and Department of Human Services to ensure that child support payments are made on time.
- **Michigan Health Information Network:** The State of Michigan has placed a priority on its goal

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to use information technology to drive quality improvements and efficiency in Michigan's health care system. This effort will allow sharing of information among public and private entities to improve patients' healthcare.

- Direct certification for school lunches: By cross referencing data from the Department of Education to food-stamp eligibility data, children from eligible households are now being directly certified for free school lunches. This not only improves children's access to this vital service, but it reduces processing time and costs.
- Standardized and automated HR functions: This effort creates new time and cost savings through a unified approach to managing the state's human resources.

Next Steps

In cooperation with the Michigan Information Technology Executive Council (MITEC), DTMB continues to examine the feasibility of implementing shared information and services throughout the state. Key areas for growth have been identified and include:

- Procurement: Improved automation and identification of the state's aggregate demand for negotiation leverage.
- Inventory management: Greater transparency of capitalized and expensed assets, including facilities and maintenance, repair and operations items.
- Budget development, tracking and sharing: Various operational modules can be tied to a budgeting module for more timely management with fewer errors caused by redundant data entry.
- Enterprise architecture: The DTMB Enterprise Architecture Plan establishes an enterprise-wide approach to information management. The plan defines the steps to be taken over the next several years. These steps include defining owners for all information entities, creating cross-agency policies for data sharing, developing an open document strategy and providing common data standards for all agencies.
- Document Management Strategy Team: The development of a cross-agency team will provide guidance and continuity for enterprise content management initiatives statewide (including electronic image and document management tools). The team's strategy will address existing practices, future projects, technology considerations, records management requirements, technology standards, business process best practices, overall assumptions and solutions. A special e-discovery task force will work with this team to identify how electronic content management tools can assist with discovery of electronically stored information.

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Enterprise Mobility

Utilizing technology to connect state employees to their work anywhere at anytime from anyplace. Projects include infrastructure and application access improvements with the adaptability of being scalable for multiple applications to meet specific business needs.

In "The World Is Flat," Thomas Friedman points out that intellectual work and intellectual capital can be delivered from anywhere. Forrester Research Inc. defines enterprise mobility as the ability for an enterprise to communicate with suppliers, partners, employees, assets, products and customers, irrespective of location.

Mobility incorporates devices (laptop, notebook, form-factor devices supporting mobile line-of-business applications, cell phone, PDA, USB memory stick, CD, Palm, MP3 player, smartphone, laptop, iPod, camera); connections (Bluetooth wireless, virtual private networks, wireless LAN, WLAN, mesh, WWAN, high-speed Internet access); applications (e-mail, information retrieval, data transfer); security (secure socket layer SSL) and communications (VoIP, Unified Communications). Other trends are expected:

- By 2014, more than 3 billion of the world's adult population will be able to transact electronically via mobile or Internet technology. By 2013, mobile phones will overtake PCs as the most common Web access device worldwide (Gartner).
- Mobile and virtual work environments are rapidly replacing centralized and face-to-face work environments (Gartner).
- Many information workers are working remotely as 41 percent of U.S., Canadian and U.K. information workers report telecommuting at least part time. Forrester expects this number to grow rapidly in the coming years, projecting that in the U.S. alone, 43 percent of information workers will work from home at least some of the time in 2016. These mobile employees – disconnected from colleagues as they work outside of headquarters and branch offices – drive the use of collaboration technologies as well as the use of devices like laptops and smartphones, which afford flexibility (Forrester).

Opportunities for Michigan

Around the globe, companies are implementing mobility solutions to increase employee productivity, improve customer responsiveness and ensure data protection for regulatory compliance.

Telework benefits the employer, employee and community. For the employer, it increases productivity, reduces overhead and occupancy costs, helps recruit and retain good employees, improves attendance and increases efficiency through advanced technology. For the employee, it increases productivity, promotes job satisfaction, reduces commuting time, reduces transportation expenses and improves quality of life by providing more family and personal time and less stress. For the community, it decreases traffic and highway congestion, lessens parking problems, decreases air pollution, reduces energy consumption and increases time for civic involvement.

DTMB and MITEC recognize the importance of mobile worker technologies in the accomplishment of enterprise-wide business goals. Specifically, this technology will enable the State of Michigan to gather field data electronically, provide on-site services directly to businesses and citizens and improve working conditions for employees in rural areas.

Opportunities for mobile worker technology abound in the State of Michigan, enabling the state to be closer to its citizens and reduce costs. Some state government positions that can benefit from include:

- Maintenance and repair workers
- Call center staffs (virtual call center)
- Licensing and regulatory employees
- Field inspectors
- Electronic medical information

Gartner contends that the PC will be overtaken as the primary computing device used by customers and employees. Web sites and portals will need to be redesigned to allow access from mobile devices.

In a world where travel is scaled back and telecommuting is becoming more popular, businesses naturally invest in technologies such as Web conferencing and instant messaging. By 2013, total penetration of these two technologies should reach 77 percent and 71 percent of firms, respectively.

– Forrester

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- Remote account representatives to verify business information
- Continuation of government services in the event of natural or man-made disasters

Current Status

Current application of mobile technology in Michigan state government is as varied as the different functions government serves. For instance:

- Inspectors from the Bureau of Construction Codes perform on-site inspections using rugged laptops. Inspectors are able to log in at home before coming to work in the morning to upload yesterday's inspections and download their current day's permits
- Michigan State Police officers can access various criminal justice computer systems from wireless laptops in their vehicles
- Unemployment Agency investigators can document investigations while in the field and upload changes to the main computer systems from their homes every night

Next Steps

As the explosive growth in mobile technologies continues, a key challenge for Michigan will be the quick assessment of the usefulness of these technologies in helping the state better serve citizens. To prepare for that challenge, Michigan is embarking on a number of new strategies:

- Developing and implementing a Enterprise Mobility and Access Strategy (included on pages 11 and 12)
- Developing an integrated network strategy that offers manageability, security and connectivity across myriad networks and devices
- Incorporating mobile technology in overall IT strategies and policies and considering mobile devices as part of the state's telephony strategy
- Improving the delivery of health and human services by lowering overall costs, improving technology and streamlining the way work gets done
- Incorporating the ability to communicate and share information with cities, counties and other states

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Enterprise Mobility and Access Strategy: Employee Mobility

Over time, more employees will transition to a mobile worker or telecommuting environment with only an occasional need to use facilities for office space, meeting space or clerical functions such as printing or making copies. This strategy addresses the distinct and diverse facility and technology needs of state employees as well as opportunities for improving service delivery and lowering costs. Success will rely on equipping employees with job-specific mobile technology and optimizing facility and infrastructure utilization.

Goal: Deliver greater employee effectiveness and efficiency while consolidating state facilities and lowering the cost of government.

Tools and Facilities Needs: Based on needs, employees would fall into a category, as follows:

Off-site Worker

Not required to be on site (e.g., full time telecommuting)

Examples:

- Data entry
- Monitoring
- Call center
- Other independent workers

Mobility Tools:

- Cell only
- Notebook PC

Facility:

- Office space less than one day a week
-

Mobile Worker

Providing direct service to clients outside the office

Examples:

- DNRE conservation officers
- State police
- DHS caseworkers
- DCH health care representatives
- MDA or DELEG inspectors

Mobility Tools:

- Cell only
- Notebook PC
- Wireless broadband

Facility:

- Office space less than two days a week
-

On-the-Go Worker

In meetings for significant portions of the day

Examples:

- Executives
- Liaisons

Mobility Tools:

- Cell only
- Notebook PC
- Wireless broadband

Facility:

- Office space five days a week
-

Office-based Worker

On-site office-based services

Examples:

- UIA employees
- Michigan Works employees
- Others who interface with citizens at a state facility

Facility:

- Office space five days a week

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Creation of Service Centers for Off-site, Mobile and On-the-Go Workers: A set of geographically diverse, strategically placed centers could be created for use by state, local and federal level government workers (especially outside the Lansing, Detroit or Grand Rapids campuses) to support off-site, mobile and on-the-go employees. The facilities would come out of the underutilized state facilities pool and would be secured, energy efficient, handicap accessible with 7x24 access. The centers would offer services such as:

- Business Center
 - Hoteling office space, some with PC equipment
 - Network connectivity
 - Conference rooms including audio/video services
 - Presentation equipment
- Copy Center
 - Copier
 - Print capabilities
 - Fax
- Administrative Services - office support and supplies
- Vehicle Services
- IT Support

Targets:

- Reduce the number of state facilities 10 percent annually over the next five years
- Increase the number of off-site workers by 10 percent annually over the next five years

Citizen/Business Government Access and Self-Service

This strategy is an effort to provide government services regardless of jurisdiction (e.g., state, local or federal government) to citizens from easily accessible and consolidated (in some cases mobile) facilities. It seeks to promote the use of citizen self-service.

Goal: To reduce the cost of government by driving the adoption of self-service among citizens and businesses and reducing the number of government-owned buildings.

One-stop Government Service Centers: In an energy-efficient, handicap-accessible center with extended hours of service, a number of services and methods would be employed. Service providers would include:

- Department of State
- Unemployment Insurance
- Michigan Works
- Human Services
- Community Health
- Corrections – Parolee check-in

Various methods of providing services would be used, including:

- Face-to-face interaction
- Kiosks
- Access to call center help desk
- Computers with access to state services
- Mobile offices in specific locations on scheduled dates and times

The facilities would also serve as satellite locations for off-site, mobile and on-the-go workers .

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Targets:

- Reduce the number of state facilities by 10 percent annually over the next five years
- Move 10 percent annually of state services from a manual process to a citizen self-service approach
- Increase the number of local/federal entities in this facility by 10 percent annually

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