MICHIGAN STATE INDUSTRIES

ERP SOFTWARE AND HARDWARE TECH CHALLENGE

BY **ROBERT C. (BOB) BELMONTE**, SR. BUSINESS TECHNOLOGY CONSULTANT, MICHIGAN DEPT. OF CORRECTIONS

Choosing the right software and hardware for any business organization can be challenging, risky, and time-consuming, and often very frustrating, especially for Correctional Industries and state governments.

Why is this? Well, technology is a highly sophisticated industry with thousands of vendors, millions of products and services, and a language dictionary all its own, laced with numerous acronyms. Also, you have to consider the disparities amongst people's skills, experience, and knowledge on the business side vs. the technology side, increasing the risk of misunderstanding, misrepresentation, and false assumptions. During negotiations regarding technical requirements, vendor selection, product comparisons, as well as terms and conditions can reveal the software or hardware's overall value by divulging how it can be implemented with maximum utilization and return on investment (ROI).

BUSINESS TECHNOLOGY INVESTMENTS — COMMON SENSE VS. NONSENSE

"It is unwise to pay too much, but it's worse to pay too little. When you pay too much, you lose a little money -- that is all. When you pay too little, you sometimes lose everything because the thing you bought was incapable of doing the thing it was bought to do. The common law of business balance prohibits paying a little and getting a lot -- it can't be done. If you deal with the lowest bidder, it is well to add something for the risk you run, and if you do that you will have enough to pay for something better."

-- John Ruskin (1819 -1900)

Good reason and business logic prevent us from paying thousands for a USB drive and help pinpoint the wealth beyond the dollar of a 50-user Enterprise Resource Planning (ERP) software system. It is paramount to remember all technology purchase decisions must move the needle forward strategically to achieve business goals. CI leadership must establish clear goals that are well communicated and documented throughout the DOC, IT, and Procurement. Examples of concise technology goals:

- Achieve GAAP compliance (General Accepting Accounting Practices)
- Timely and accurate financial reporting
- Limited dependence on state IT support
- Unified technology experience for all incarcerated workers

While purchasing technology to support your goals, which could be similar to the ones above, remember that this is a tool that staff use daily to implement the business plan. Having the right tools and technology can either enhance or hinder your ability to execute your CI business strategy. But, have you factored in the risks?

Technology purchases all require human interaction both in the pre-sale phase and the post-purchase phase. The technology alone does not guarantee success or absence of risk in achieving desired business results. These buying decisions require essential human interaction, communication, and collaboration across many departments in CI like sales, accounting, purchasing, manufacturing, to the states' IT organization, DOC Procurement, and DOC Leadership. Simple purchases like a wireless printer for a factory can become complex and time-consuming, but it would not seem so compared to the daunting task of replacing an entire ERP software with a new solution. Emphasizing another important factor to consider, the true cost of every technology purchase for CI organizations.

This includes the vendor's purchase price plus the internal costs added for everyone's time charged to the purchase, especially if it is an approved project purchase, is very important.

For example, an $800,000 new ERP purchase from the vendor can cost the CI over $2,000,000 when every state department charges their time to the project.

The most critical factors that must be included in every strategic or enterprise technology purchase are listed in table #1 and #2 (on pages 24 and 25). These factors must be ranked in priority and voted on by everyone who has a formal vote in the final selection of the technology purchase. However, it can also be extremely beneficial to have non-voting staff rank the criteria using score cards, vote, and remain involved in the technology research, requirements, and recommendation tasks. By including non-voting staff in the process, in turn they provide valuable support to the voting members to further solidify their decision-making process.

First, all voting members must individually rank from 1 to 8 how they would prioritize the decision making factors at bay, helping the team narrow down the most applicable technology that can be purchased. The table serves as the documented blueprint for evaluating how applicable the vendor solutions are. Each vendor is evaluated by the voting members independently, by placing values of 1-10 according to the specified criteria, with 10 being the best score. The documented results are a clear trail that leads straight to the top 1 or 2 vendor/product solutions up for purchase.

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RESULTS OF VOTING

Below is an example of what the state of Michigan DOC and CI ranked their decision-making criteria on their ERP software technology purchase review:

ERP Software Session: Voting Members = 6, Non-Voting Members = 7, All members = 13

	Voting Members		
Criteria:	Total score	Average score	Rank
Software Fit/ features/ functionality	16	2.67	1
Vendor Support	18	3.00	2
Ease-of Use	23	3.83	3
Platform/Archtitectural Fit	27	4.50	4
TCO--Total Cost of Ownership	31	5.17	5
Flexibility/Agility	33	5.50	6
Education & Training	34	5.67	7
Speed of Deployment/Ease of	34	5.67	7

	Non-Voting Members		
Criteria:	Total score	Average score	Rank
Vendor Support	18	2.57	1
Software Fit/ features/ functionality	21	3.00	2
Ease-of Use	26	3.71	3
Speed of Deployment/Ease of	31	4.43	4
Education & Training	32	4.57	5
Flexibility/Agility	34	4.86	6
TCO--Total Cost of Ownership	41	5.86	7
Platform/Archtitectural Fit	42	6.00	8

	Composite All Members		
Criteria:	Total score	Average score	Rank
Vendor Support	36	2.77	1
Software Fit/ features/ functionality	37	2.85	2
Ease-of Use	49	3.77	3
Speed of Deployment/Ease of	65	5.00	4
Education & Training	66	5.08	5
Flexibility/Agility	67	5.15	6
Platform/Archtitectural Fit	69	5.31	7
TCO--Total Cost of Ownership	72	5.54	8

Results from the voting members yielded no identical scores in the ranking order of priorities. There was a significant variation when comparing all individual scores. (See table #1 below). This is extremely common amongst technology decision-makers in all industries, public and private sectors, and for all enterprise technology categories.

Below: Table #1 - Voting Members - Results

Priorities of ERP Software									
Criteria:	Voter 1 Rank 1-8	Voter 2 Rank 1-8	Voter 3 Rank 1-8	Voter 4 Rank 1-8	Voter 5 Rank 1-8	Voter 6 Rank 1-8	Total score	Average score	Rank
TCO--Total Cost of Ownership	8	6	7	3	2	5	31	5.17	5
Initial software licenses, annual maintenance & support, implementation, training, hardware and maintenance, upgrades, new modules, 3rd party software & hardware with maintenance fees									
Platform/Architectural Fit	6	2	5	2	4	8	27	4.50	4
Software architecture in comparison to current infrastructure, i.e., Database software, programming language, SAS, vs. on-prem, thick vs. thin clients (web browser), Internet browsers supported, network compatibility, data integration									
Software Fit/ features/ functionality	7	1	3	1	1	3	16	2.67	1
DOC Factory Environment, Breadth & depth of applications modules business functionality fit, Fully integrated software, decision support / analytics / KPM's, Reporting,									
Ease-of Use	2	3	4	4	6	4	23	3.83	3
Navigation by user to perform all business tasks, menu's, functionality, inquiries, look-up's, filtering, data entry, searches,									
Education & Training	4	7	2	8	7	6	34	5.67	7
Types of learning delivery methods available: classroom, self-study manuals or online tutorials, business concepts vs. end -user software how-to functions, knowledge, and experience of training staff									
Flexibility/Agility	5	4	8	6	8	2	33	5.50	6
Configurability of software to support business functions without custom software modifications									
Vendor Support	1	5	1	5	5	1	18	3.00	2
Business background and history, technologies experienced with & supported, implementation & consulting services team, location proximity, support line or helpline, training tutorials, documentation, training resources and options, user groups, references									
Speed of Deployment/Ease of Implementation	3	8	6	7	3	7	34	5.67	7
Time from contract signing to Production Go-Live, intuitive design of software to support a variety of implementation strategies and methodologies (Waterfall, Agile). All sites at once for all app's vs. phased approach. Database migration automation tools. Test vs Production environments comparison									

Here are the top 3 priorities of voting members:

- **Software Fit/Features/Functionality:** DOC factory environment, breadth, and depth of: applications, modules business functionality and fit, fully integrated software, decision support/analytics/KPM's, and reporting.

- **Vendor Support:** Business background and history, technology experience and support, implementation and consulting services team, location proximity, support line or helpline, training tutorials, documentation, training resources and options, user groups, and references.

- **Ease-of-Use:** Navigation by the user to perform all business tasks, menus, functionality, inquiries, look-ups, filtering, data entry, searches.

Non-voting members (See table #2 below) heavily agreed that Vendor Support & Software Fit/Features/Functionality were the top two priorities with Ease-of-Use being #3. Although Vendor Support was ranked #1 overall above, it did not receive a #1 voter rank from any voter.

All #1 rank votes went to Speed of Deployment (1), Ease-of-Use (2), and Software fit/features/function (3). This result goes to show that while no non-voter ended up having the #1 priority they voted for, they can all agree as a team that this priority is #1 when comparing and evaluating vendors.

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Below: Table #2 - Non-voting Members - Results

Priorities for ERP Software										
Criteria:	Non Voter 1 Rank 1-8	Non-Voter 2 Rank 1-8	Non-Voter 3 Rank 1-8	Non-Voter 4 Rank 1-8	Non-Voter 5 Rank 1-8	Non-Voter 6 Rank 1-8	Non-Voter 7 Rank 1-8	Total score	Average score	Rank
TCO--Total Cost of Ownership	8	3	5	8	8	5	4	41	5.86	7
Initial software licenses, annual maintenance & support, implementation, training, hardware and maintenance, upgrades, new modules, 3rd party software & hardware with maintenance fees										
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Software architecture in comparison to current infrastructure, i.e., Database software, programming language, SAS, vs. on-prem, thick vs. thin clients (web browser), internet browsers supported, network compatibility, data integration,										
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DOC Factory Environment, Breadth & depth of applications modules business functionality fit, Fully integrated software, decision support / analytics / KPM's, Reporting,										
Ease-of Use	1	4	4	6	1	7	3	26	3.71	3
Navigation by user to perform all business tasks, menu's, functionality, inquiries, look-up's, filter-ing, data entry, searches,										
Education & Training	4	7	3	4	2	5	7	32	4.57	5
Types of learning delivery methods available: classroom, self-study manuals or online tutorials, business concepts vs. end -user software how-to functions, knowledge, and experience of training staff										
Flexibility/Agility	3	6	7	5	7	1	5	34	4.86	6
Configurability of software to support business functions without custom software modifications										
Vendor Support	2	2	2	2	6	2	2	18	2.57	1
Business background and history, technologies experienced with & supported, implementation & consulting services team, location proximity, support line or helpline, training tutorials, documen-tation, training resources and options, user groups, references										
Speed of Deployment/Ease of Implementation	7	5	3	1	5	4	6	31	4.43	4
Time from contract signing to Production Go-Live, intuitive design of software to support a variety of implementation strategies and methodologies (Waterfall, Agile). All sites at once for all app's vs. phased approach. Database migration automation tools. Test vs Production environments com-parison										

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SUMMARY

Remember, technology is only a tool and requires people to maximize their effectiveness and return on interest (ROI). Document and communicate your CI's business objectives and make all technology purchases support those achievements. Always confirm your final decision through live customer references/reviews before you sign the contract or issue the purchase order. And last but not least, take the time upfront to get your voting members all on the same page by ranking their decision criteria so that they will have clear blueprints of how to score and compare vendor offerings and proposals.

Right: MSI License Plate Factory worker using a bar code scanner