Management Analysis & Development

Minnesota Management & Budget

Budget Information System (BIS) Project, mid-project review

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Management Analysis & Development
Management Analysis & Development is Minnesota government's in-house fee-for-service management consulting group. We are in our 24th year of helping public managers increase their organization's effectiveness and efficiency. We provide quality management consultation services to local, regional, state, and federal government agencies, and public institutions.

Contents

Introduction and Background

The Budget Information Systems (BIS) provides on-line budget information to the statewide user community in the three branches of the government: state agencies, courts, legislative staffs, and Minnesota Management & Budget (MMB). The systems include the Biennial Budget System (BBS), the Capital Budget System (CBS) and the Fiscal Notes Tracking System (FNTS).

MMB is currently in the process of replacing the Biennial Budget System (BBS), which was built using a client-server architecture and has been in use for about 21 years. Once completed with BBS, MMB will proceed to replace the CBS and FNTS components.

The vision for an enhanced BIS is to integrate the full fiscal cycle budgeting system with a planned accounting system replacement (MAPS), and to provide enhanced analytical and reporting tools for budgeting. With a planned web-based front end, MMB would like the system to be accessible anytime, anywhere, with a familiar "spreadsheet-like" workspace and search engine. MMB also seeks to provide a seamless interface with disparate data sources, reducing the need to manually duplicate and reconcile data between systems.

Timeline and project status

MMB issued a Request for Proposals in December 2007 to replace the BBS. Proposals were reviewed in the spring of 2008 and a contract was signed with the preferred vendor, Deloitte Consulting, in August 2008. Work on the project began in November 2008, with a week of training in the selected "Cognos" tool for state developers and contractors. The project was launched with a kickoff event on November 19, attended by most members of the project steering committee, project and development teams, MMB senior team, some agency budget staff, Deloitte project staff and senior executives.

Planning and scoping occurred between November and December of 2008. Project team staff, MMB budget functional experts and Deloitte staff participated in "as is" sessions to explore and explain the existing systems used to produce and manage the budget.

In January 2009, state and Deloitte developers came together to begin working in Cognos and began building prototypes. Beginning in January and well into April, there were frequent discussions to clarify the "unbreakable unit" of budget, which was originally understood to be "appropriation." After discussion, the unbreakable unit became "sub-appropriation," replacing the term "allotment" used in the current BBS.

Also beginning in February, state staff came to realize that its selected software solution may be undersized for its application, partly due to the need for sub-appropriation level information. Other project management related concerns were also raised.

MMB leadership asked Management Analysis & Development (MAD) to conduct a mid-project review to check in with key staff and steering group members regarding concerns and issues that might pose a risk to successful project completion.

Method

MAD held a large group discussion with project team members and stakeholders on May 13th and followed up with individual interviews and small group discussions in late May and early June. Discussions focused on the team's current assessment of the project, focusing on technology and project management challenges and opinions regarding what should happen going forward. The interview guides are included in the Appendix at the end of this report. State staff interviewed included members of the Extended Project Team (including agency representatives, Executive Budget Officers, accounting and budget system representatives, and the technical lead for the project), budget model developers and data integration/warehouse staff.

What follows is primarily a report of perspectives, intended to get a sense of *how the project team is currently viewing the project, and what steps are recommended to ensure successful BIS project completion.* Readers are cautioned that sections labeled "findings" are not findings of fact, but rather findings related to subjective viewpoints, and so they might appear to the reader as conclusions.

This project's purpose is to assist MMB in making decisions at a mid-point of this project, rather than to evaluate the entirety of the project as would be done in a post-project analysis. In the interests of time and in order to get a decision document into the hands of project leadership in time to affect the outcome of this project, the MAD project team has not verified factual statements made during interviews against supporting documents such as consultant contracts or user requirements.

A final caveat is that MAD analyzed issues from an organizational, staffing and project management point of view. The MAD project team summarized the technical issues for this project to the extent possible in the interviewees' own words.

Technical Issues

There are two primary concerns on the technical side of the project which are interrelated – the limitations of the Cognos software for MMB's intended application, and related concerns about data integrity. Other technical issues concerned system security and user training and acceptance testing.

Cognos limitations

The selected software has a "cube size" limitation of two to three million cells. The budget data that the system needs to hold exceeds this limit. This stems from the extent to which Minnesota budgets at a sub-appropriation level, as well as the number of individual appropriations the state has approximately 8,000. Whether the issue is a contractor's misunderstanding of the scope of Minnesota's budget data, or the client's expansion of the original project scope after the software solution was selected, is not clear.

Staff noted that this limitation could have been spotted as early as November 2008, when staff and consultants attended training on the Cognos tool, and when the "cube size" limitation was covered by the Cognos instructor. State staff reported that consultants were not actively engaging the state side staff in discussions during the training that applied the training concepts to Minnesota's application. Had they engaged in that discussion, state staff assert that some basic mathematics would have indicated that the Cognos tool was undersized for the state's intended application of the tool.

As it was, the cube size limitation was recognized in February of this year. This realization has resulted in some complex workarounds and sub-optimal solution development. For example, developers have been concatenating data fields, and having separate models integrate with each other externally, to work around the size limitation.

The unexpected workarounds due to the Cognos size limitations have caused or contributed to numerous problems for the project:

- **User acceptance issues**. One of the consequences of breaking down the data is that users will need to input their data, wait until all other users are logged off the system (which usually is done overnight, but could be scheduled at points during the day), and receive their results in a few hours or the next day. The lack of real time response to data input could pose significant delays during the budget process and could pose a user acceptance issue – delays might not be accommodated during the time crunch of the state budget development cycle. Additionally, users who are accustomed to receiving instant results from the current BBS might not use the system, and would instead use external databases and spreadsheets to perform their calculations and then would input their data into BIS at the last minute. Other user acceptance issues were less critical, but included whether the concatenation strategies would make the product confusing or unusable for end users, and whether users would be able to make their own changes in Cognos.

- **Project Management.** The Cognos size limitation and workaround solutions were unanticipated, and threw the project schedule off by at least a couple of weeks. This may have contributed to the frenetic pace of work and other project management issues that are described in more detail in the "Project Management" section.
- **Increased administrative costs.** The batch processing and scheduling of down times for users will require more system administration than the state was expecting, further exacerbating an already difficult staffing situation created by anticipated retirements and the need to staff the MAPS development project, described in more detail in the "MMB Organization and Staffing" section.

Data integration and data integrity

Data integration is the most significant deliverable that is yet to be completed. Staff reported that a schedule for developing and testing data integration had not been laid out. The specifications for the data integration provided to date have changed numerous times, necessitating re-work, and in some areas specifications were not provided even though completion of integration tasks was expected. There is not agreement on whether the contractors or the state are primarily responsible for laying out the specifications for the data integration.

The complexity and workload involved with the data integration tasks are challenging. The Cognos tool does not do all of the processing and moving of data internally within the tool – staff are using Extract, Transformation and Load (ETL) tools to do so, which in the staff's judgment is not the best method. Another application with these processes embedded in the database would assure both better data integrity and a faster run time.

The number of models necessitated by the cube size limitation (see above), complicated by the fact that processing does not occur internally within the application, leads to an increasing number of external points where the system could fail. The system will need numerous integrity checks to make sure that resulting reports square with the data that was input.

A related concern is whether the testing will be rigorous enough to spot such data integrity issues. If all that is tested in the next two months is the model development, and not the back end processes to be designed by the state, the test will not highlight data integrity issues. A more rigorous testing protocol would test the system from input, through the Cognos models, to the external data integration and all the way through to data reporting. Staff do not think that rigorous data integrity development and testing can be accommodated by the current project schedule.

System Security

System security was somewhere between the requirements gathering and modeling phase at the time of project interviews, and many acknowledged that it was lagging behind.

MMB staff need to discuss with other agencies how they want to grant access, and then a detailed plan needs to be developed. It is not yet decided how MMB and the agencies would control security. There were some concerns about the selection of accounts from a selection list and whether security could lock people out of accounts that weren't theirs. Many accounts within and between agencies have similar names, so inadvertent access to accounts needs to be controlled. Staff believe that these security questions can be resolved, but not within the current project timeline.

User training and acceptance testing

Staff concerns with the rigor of the testing of the data integration were noted above. There were additional concerns about training for users and final user acceptance testing. Staff were concerned that the project plan doesn't include time for it, and there were no training documents drafted or user acceptance meetings scheduled. Without user acceptance testing, MMB would not know about any issues affecting agencies until system rollout, when it would be more difficult to make changes in response to their feedback.

Project Management

Project planning

Perhaps the most commonly expressed viewpoint among staff was that the overall project plan is not clear. People working on the project or involved in project governance do not have answers to some basic questions, such as:

- How will all tasks planned for this project be accomplished in the next two months?
- What will be my role in these tasks?
- When should I expect specifications for my work or other assignments?
- What dates should I put on my calendar for important staff or governance meetings?

Rather than proceeding off a known plan, state staff reported doing their work on a day to day, ad hoc basis, without knowledge of where the project is headed or what they can expect in the future. The result has been an ineffective use of staff time – with staff alternately being overloaded with work, or with expecting work but not getting it. It has also limited staff member's abilities to accomplish tasks or to attend meetings if they were not adequately notified in advance and had other tasks/meetings scheduled. For some staff, it has reduced their morale and productivity, as well as their confidence in the outcome of the project.

Mixing phases of the system development lifecycle

Information technology development projects typically have a linear progression in their lifecycles. The terminology used varies, but a typical lifecycle is:

> Initiation → System concept development → Planning → Requirements analysis→ Design→ Development → Integration and Testing → Implementation → Operations and Maintenance → Disposition[1]

While it is customary to discover problems mid-way through the lifecycle that causes one to re-visit an earlier phase of the project (for example, to realize mid-way through testing a system that an aspect of it needs to be re-designed), staff reported that construction of the BIS was heavily overlapping phases of the lifecycle that are normally performed in a progression and that should not overlap. One example was continuous revisiting and revising user requirements during the development phase that should have been considered during the design phase. Another example was attempting to test products before they had completed development. Criticism on this point was strongest from staff who had participated in many successful system development projects and who had a reference point of comparison with other projects.

Some consequences of the overlaps have been re-work of developed products after they have been re-designed and inadequate testing of unfinished product.

[1] "Systems Development Life Cycle (SDLC) Life-Cycle Phases" http://www.usdoj.gov/jmd/irm/lifecycle/images/ch1.gif from Internet search on June 12, 2009.

Specifications and documentation

Closely related to interviewees' points about project planning was a lack of understanding the specifications for their work on the front end, and formats and expectations for proper documentation of work performed on the back end. Without clear specifications for their work, staff have been filling in the gaps with their own assumptions; and then on the back end of this process are not capturing this in the project documentation. This was not the case with all staff working on the project. Some are documenting their work without being asked to do so, while others need direction from project leadership or specific formats to follow.

The consequence of this is that when memories fade, and staff move on to other jobs or return to the agencies from which they were borrowed, future administrators will not have sufficient knowledge about the specifications or development of the product should a problem occur or modifications are needed.

Requirements

The requirements for a system are the basis for design and development, and projects have frequent check-in points where progress to date is compared to system requirements. MMB put a lot of effort into identifying its user requirements, and also enlisted a technical consultant to write its RFP for the system.

In this case, the series of missteps, surprises, corrections, and compromises that have been made since February have caused project members to lose the thread of what they were originally trying to accomplish. Staff realized at the large group meeting in May that developers who had been working on the project for months had not read the requirements.

In the large group meeting, staff asked for time to take a pause from their development work to check what they were doing against their original requirements and to make any necessary corrections.

Project team members have also discovered that some user requirements were gathered without consulting key user groups (for example, requirements relating to salary projections did not involve payroll staff). They have also found that some were worded vaguely, leaving too much room for interpretation. For example, requirements relating to publishing budget pages did not mention that the technology chosen would need to handle a sequence of edits and revisions rather than a single publication. Therefore, in addition to reviewing progress to date against original requirements, the requirements themselves might need refinement and updating.

Documentation of and sign-off on project deliverables

Project team members had two issues with documentation and sign-off on project deliverables:

- People who thought that they would be consulted by project leadership (the project manager or functional lead) to verify that a deliverable had been met were

not consulted, and had they been consulted, they would not have advised a sign off (because the work had not been completed or was not to their satisfaction).

- People who didn't know whether a deliverable had been met were being asked to sign off on the deliverable, putting them in an awkward position.

Over time, team members have provided project leadership with feedback about the appropriate people to consult on project deliverables, and by now these issues may have been resolved.

Governance and decision-making

MMB assembled an Extended Project Team (EPT) to provide ongoing guidance to the project, and also hired a full time project manager with extensive information technology experience. This staffing complements the efforts of an executive-level Steering Team composed of MMB's top leadership and project ownership with the Executive Budget Coordinator of the Budget Planning and Operations section. As evidenced in the large group meeting and affirmed during interviews, EPT members exhibit effective communication strategies with each other (respectfulness, rapport, candor).

However, decision-making authorities among these individuals and groups is not clearly delineated, and some of the difficult issues relating to the performance of the system and overall project management have been raised but not resolved for a few months. This is partly due to lack of clarity regarding who makes what decisions. It is also due to a lack of driving issue discussions to a decision point (particularly in the EPT), and documentation of decisions for future reference. For example, as development of the system continues, staff find that issues are cropping up that cross division lines, and while they believe that agency senior staff should resolve these issues, they do not have an effective mechanism to elevate these for senior staff consideration.

Another factor inhibiting clear decisionmaking is the lack of an overall project plan, described earlier. The ad hoc scheduling and unpredictable assignments and pace of work for development staff affects project governance staff as well – members noted that they do not know their meeting agendas beforehand so that they can consider issues before they are discussed.

Contractor performance and client responsibilities

This section describes how both staff and contract staff are viewing the client/contractor relationship. In addition to the summary findings below, interviewees gave both compliments and criticisms of individual performance. Management Analysis generally does not summarize comments on individual personnel in publicly available reports, but provides this information verbally in summary form to employees and their supervisors.

Overall, the state side is disappointed in the management of the overall project and with the under-sizing of the technical solutions, as well as the magnitude and complexity of work that will be left for the state to do once the contractor's work is complete. Interviewees also felt that the state did not receive a project team from the contractor that understood public budgeting, or that understood the magnitude of the undertaking. Once it was realized that the technical solution was undersized, interviewees did not feel that the contractor was engaging in mutual problem solving and investigation of alternative solutions.

There were differing views between the state staff and the contractor as to whether the original statement of work said to replace the existing budget *system*. State staff noted that a "system" is supposed to be comprehensive (i.e., reliably collect, process, and report data), while what is being delivered is simply a data collection tool, with most of the system programming handled on the back end and sent externally to the software.

On the contractor's side, the project team believes that it is already delivering beyond what they understood to be the scope of the project. The team was surprised by the amount of data required to run through the models, and is attempting to accommodate much more detail than other public entities push through their systems. They also are surprised that the state did not understand the consequences of their software selection. They do not feel that state staff understood their own responsibilities to detail their business processes from the outset and to specify their needs for real time vs. non-real time data.

Both contractor and client are faced with what to do when the facts on the ground give new information about the scope of the project and the appropriateness of the previously selected solution. In these circumstances, consultants should demonstrate flexibility for the current contract, and advise the client on their alternatives and options, some of which might require that selected products be changed, or that the selected consultant is not the right consultant for the job. In this case, the state is not receiving this advice. Deloitte proposed a process called the "Conference Room Pilot," which they thought would address state concerns raised in the May 13th large group meeting, by demonstrating the project's viability; but Deloitte would only provide this "Conference Room Pilot" at an additional charge to the client.

Staffing the BIS

Project staff were uncertain about precisely what they would need to properly support the new system – this was difficult to predict because the system is only partly completed. The minimum estimate was from contract staff, who believed that up to two FTEs to administer the system would be needed once it is developed. This would include a database administrator who knows the Cognos software, how the models work, how to load and update data, calculations, moving data between models, and maintaining an Administrator's manual. Another FTE would be needed to develop and deliver training to users. Other interviewees noted that another FTE, or portion of an FTE, would potentially be needed to manage agency security. Time demands for security were unclear because security was still being worked out (see Technical Issues).

In addition to the basic level of maintenance staffing described above, in the shorter term there will be demand for staff to finish development and testing of the system. As noted earlier, the cube size limitations of Cognos have caused some workarounds that will require more staffing effort to continue to develop and to maintain into the future. Due to the system design, both data integration and security were expected to be more complex than for the current BBS system. Furthermore, simply the aspect that the system is a new, rather than a mature system, will require more staffing.

These staffing demands will affect MMB at a time when its supply of qualified state employees will already be limited, due to (1) anticipated retirements for the state in general and for one of the primary units that could play a role in maintaining the system, and (2) the need for existing staff with these skill sets to work on the MAPS project. However, in the current larger environment, new employees with general technical and Cognos-specific skills could be recruited and trained.

Staff did not indicate that MMB has a workforce plan for addressing this anticipated workforce shortage, such as a plan for documentation of business processes, mentoring, cross training, recruiting, or internships.

Training

Model developers from MMB, Mn/DOT and DHS have received training on the Cognos tool and have become familiar with it during the development process. They noted that the project vision of "side by side" knowledge transfer from contract staff had not materialized. It will be critical in coming months for contract staff to work closely with staff who will be designated to support the system. Key staff in both the Information Access/Budget Information System Section and in the Budget Planning and Operations Section have not received Cognos training, and will need it if the state proceeds with Cognos development and also expects these divisions to play a support role.

Conclusions

There is a popular adage that most projects have three dimensions: time, quality and cost. Most projects succeed on two dimensions and often sacrifice one. For example, if you want a high quality product on a short timeframe, you will pay a lot for it (you sacrifice cost for time and quality).

Although it was not stated explicitly, the interviewees' viewpoints lead the MAD project team to conclude that the MMB BIS project is sacrificing quality in the interests of time and cost. While the cost constraint is understandable given today's budget situation, the project's need to sacrifice quality in the interests of time is not so apparent. In particular, the frenetic pace of work that has been established for staff to finish their BIS work in the next month or two has spurred a lot of poor habits in project management, such as ad hoc work assignments, stacking stages of the project lifecycle, and insufficient specifications and documentation. Yet the need to have a product finished within that timeline is not clear.

When interviewees met as a large group and were asked what would be helpful and not helpful as they proceeded, they asked for more time to re-assess their product against their original requirements. They also wanted to develop one model sufficiently so that it could be tested end-to-end, in order to address their uneasiness about data integration and data integrity. The one thing they said would *not* be helpful would be to push the project toward completion without that assessment. Yet, only a week after their meeting, this push toward a deadline was precisely what was planned – a full court press to finish the product and wrap up the project. MAD found no one who made the decision to proceed at the project's current pace, and so we were not able to engage the decisionmaker in a discussion about the rationale.

After holding additional discussions with the project team, the MAD project team concurs with the recommendations that were made at the large group meeting, and has additional recommendations to offer in the next section.

While it is understandable that some people see a finish line ahead of them and want to complete the product as designed, facts on the ground indicate:

- **The project is not "three-quarters done**." Staff who will likely be assigned to the back end components of managing this system report that the current phase of this project only finishes the modeling, and they have a great deal of work ahead of them on data integration and to make the complexities of the external batch processes work. By one staff person's estimate, the project is about *one-third* done; by another person's estimate, there could be three to six months remaining after the modeling work before MMB would have a product that could be tested end-to-end. And as one interviewee noted, the project can be "done" at the end of July, but there would be serious implications regarding quality.
- **If the product is likely to fail user acceptance testing, it doesn't matter how far along it is**. Opinions from project staff differed, but some felt that a system

that does not provide customers with real-time information would not be used – that intended customers of the "agency workspace" would instead continue using Access databases, Excel spreadsheets and other means to work out their budget scenarios. A minority of those interviewed felt that budgeting is a year-round exercise, and that agency staff should be, or could be patient in waiting for batch processes to deliver information. If those who believed that users would not use the system are correct, a key deliverable would be missing from the product, which would argue strongly for developing a different product.

- **No state staff had seen a detailed project plan that would finish the product in 60 days**. Almost all interviewees noted a lack of a project plan with a timetable that lays out the remaining tasks for the project, deliverables, and work expectations for staff. Without one, staff see the current plan as overly ambitious and unlikely to be accomplished without advance scheduling.

Recommendations

This section provides primary recommendations to address issues that get at the heart of MMB's deliverables for BIS, and some secondary recommendations that follow, depending on the outcome of the primary recommendations. A decision flow chart is provided on page 16.

Primary Recommendations

MMB should pause on further BIS development using the Cognos tool in order to further analyze potential risks for user acceptance, data integrity and potential long-term staffing costs, any of which should cause MMB to take a second look at the technical solution and assess it relative to other options. Three analysis steps are necessary while development is paused:

- **Conduct an independent technical review of the functionality and risks to data integrity associated with the architecture of the planned solution**. As described by staff who have experience in database administration, the plan to use external ETL processes rather than internal database calculations poses significant risk to the integrity of the data. Furthermore, data integrity tests do not appear to be part of the plan for the current 60-day development period. MMB should seek independent technical advice regarding whether such an approach poses too much risk to data integrity for further development using this approach to be advisable.
- **Preview anticipated functionality and business processes with a broader spectrum of the agency user community.** A primary objective of the project was to create an agency workspace for "what-if" scenarios and other budgetary calculations. A *critical* question is whether the lack of real time response anticipated for the system is essentially a deal-breaker from an agency user perspective. If they could not see their results in real time, rather than using the BIS system, would they continue to use the Access databases, Excel spreadsheets and other internal support systems that they now use to do their budget work, and would they only enter their data into BIS at the last minute? Or would they schedule their budget work over a greater number of days in order to take advantage of the capabilities of the BIS? The answers to these questions would depend on the demands of the budget development cycle, the types of scenarios usually run by agencies, and the work style of individuals in budgetary roles. We heard differing views from agency representatives. Rather than engaging in speculation or worry as to how the system will be viewed, the MAD project team advises that you simply ask them. The project is not currently including the voice of the mid-size to small agency user customer on this question, and their viewpoints are critical.
- **Conduct a financial/staffing analysis of long-term staffing needs.** The project has given MMB a more staff-intensive solution both to continue development and to maintain than was expected. At this point in the project, people are working with rough estimates as to the number of positions that will be required to establish and administer business processes around batch processing, for example. Given that qualified professional staff for this complex of an undertaking might

be classified at the ITS4 or ITS5 level, staffing costs could be significant, both in terms of actual outlays and in sacrificed opportunities for the application of the talents of staff to other worthwhile projects. Long term staffing commitments would be required for any budget system, but a comparative analysis of the long term staffing needs for this system relative to maintenance commitments for relational databases and other solutions might reveal that implementation of the currently planned system would not be cost effective.

While work on further development is paused, both contract and state staff should focus their efforts on documenting the results of their many months of work, and revisiting the deliverables developed so far relative to the requirements. Thorough documentation will be helpful regardless of whether the state chooses to proceed on its current development path or selects another option, into which learnings from this project can be integrated.

Secondary recommendations

If the results of additional analysis or feedback from the primary recommendations above reveal that there are unacceptable risks for data integrity, or that users will not use the system for one of its key intended purposes, or that maintenance of the system will not be cost-effective, MMB should analyze other options.

Analyze other options. Analysis of other options should be performed by the individuals interviewed and budget user groups, assisted by IT staff or consultants. Some options that merit further analysis are:

- To approach the selected contractor for the MAPS project to assess whether they have a complementary budgeting product that works with its accounting products.
- To purchase a governmental budgeting solution (already designed). An off-the-shelf product might not have all the functionality desired, but would cover the basics.
- To investigate whether a change or upgrade to the Cognos software might help the state get around the cube size limitations of the software that was purchased.
- To explore a new relational database or an enhanced database built upon the best attributes of the current BBS and a database in use at the Department of Human Services. This would have the advantage of complementing knowledge and skill sets of MMB employees, who are more familiar with relational database environments. Also, an integrated system with an application database within it would provide real-time performance.

If the results of the reviews, previews, and analyses in the primary recommendations reveal that:

- risks to data integrity can be successfully controlled,
- that system users would use the system despite the lack of real time performance, *and*
- that longer term staffing costs are reasonable and within range of support costs for other types of systems, then

MMB should proceed with the current project and product, but with enhanced project management, governance, organization and staffing analysis.

More effective project management

- A detailed, realistic project plan, including timelines, tasks, including intramodel data integration, development and implementation.
- Tasks and timelines need to accommodate staff leaves, vacations, and transitions of staff to the MAPS project. Confirm staff availability.
- Particularly for data integration, a clear side-by-side schedule of and assignment of responsibilities and deliverables.
- Clear specifications for work to be performed – frequent check-ins with staff to ensure that specifications are clear.
- A role and responsibility matrix that identifies key decisions and actions for the project – who is responsible to make them, with approval, consulted and informed parties noted.

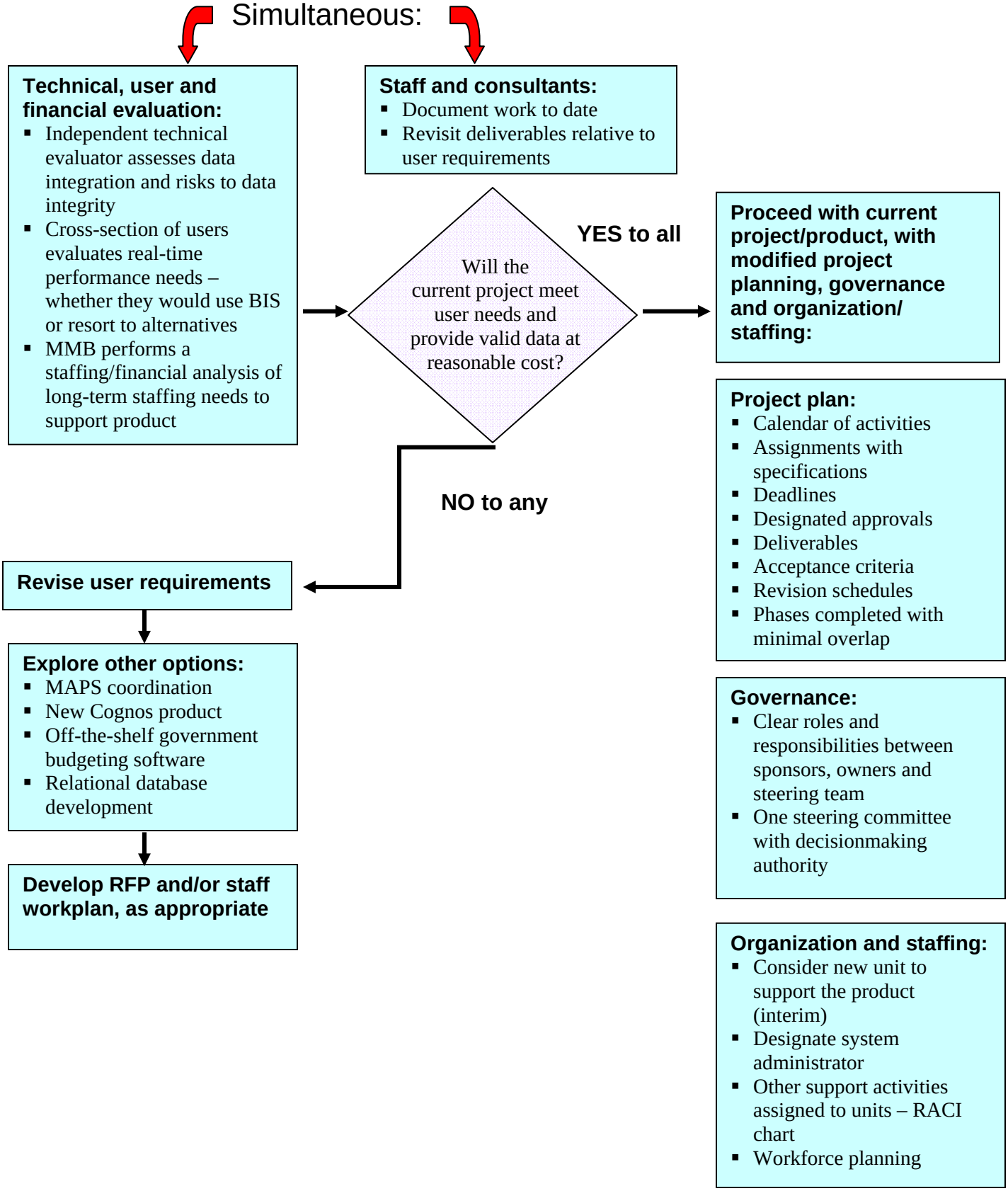
Clearer governance

- The project's role and responsibility matrix, mentioned above, should provide clear delineation of decision-making authorities among the Steering Committee, the Project Owner, Project Manager, Extended Project Team, the Technical Lead and Functional Lead. Ideally, MMB should designate one steering committee with primary decision-making authority, and specify conditions under which MMB leadership should be consulted.
- For governance meetings, clearer documentation of decisions made and rationale supporting the decisions.
- For any meetings, agendas and topics should be distributed beforehand, and meeting attendees should be given sufficient notice so that they can attend or participate electronically.

Effective organization and staffing

- Conduct a work flow analysis and roles/responsibilities clarification discussion with the current units supporting BBS, and consider creation of a new unit to support BIS. Once the product is further developed, the necessary day-to-day administrative activities will be clearer and staff will be able to advise whether the flow of tasks can be accomplished across divisions or would be more effectively performed in one BIS support unit. Discussion and documentation of roles and responsibilities would clarify the roles of units and individual staff in performing activities and in making decisions.
- Identify the lead database administrator to work alongside contractors, review documentation with contractors, and learn about product while it is being developed.
- To address the shortage of qualified staff to continue working on BIS, in consultation with MMB's Human Resource Office, conduct workforce planning for critical IT positions; and develop strategies such as documentation of business processes, recruitment, mentoring, internships, and post-retirement options.

MMB BIS – Analysis and Decision Flow Chart



Appendix: Discussion and Interview Questions

Large group discussion questions

1. Have significant concerns and issues identified by the state to date been adequately addressed?
2. Are there significant remaining project issues that pose high risk to successful project completion? What additional actions do you recommend?

   In addition, ongoing support and operational questions were asked of state staff only:

3. Have ongoing support and operational staffing requirements been adequately identified, and have they changed from initial project assumptions? Are there recommended organizational remedies that should be implemented?
4. Is the knowledge transfer, training, and capability of state staffing adequate to support operations and any subsequent phases with state staff alone?

Interview and small group meeting questions with State staff

1. What are the key "pressure points" for this project in the next two months? What has to happen to make the project a success? How will you know when these things have been accomplished satisfactorily?
2. What are your concerns / what is your comfort level with the status of the following project "chunks?" (You do not need to comment on all dimensions)
   a. salary projections
   b. data integration
   c. hardware and security
   d. testing
   e. application documentation for future development and maintenance
   f. business processes / documentation
   g. end-user training (technical support and business function)
3. To what extent do you understand how and when the major areas of work (development, testing, roll-out, training) will be accomplished? Do you have a schedule of what will be happening each week, and what your role is in those activities?
4. How prepared do you feel to work with and support this system? What do you need to fill in the gaps?
5. How would you assess the "knowledge transfer" (from Deloitte to state staff) aspect of the project? To what extent do you think that state staff are fully able to assume technical responsibilities for the system? Where are the gaps?
6. What is needed organizationally to sustain/maintain the system?
7. What other feedback or advice do you have for the state project managers?

Deloitte Consulting staff questions

1. What are your impressions, from the large group meeting and working with state staff, of their confidence level regarding the success of this project?
2. I understand that your goal is to have the project completed in the next 60 days. Given the level of concern regarding the system's functionality expressed by state staff, help me to

understand how you expect to fully meet the state's expectations for deliverables within this time frame. How will you know whether the functionality meets the requirements? What is your Plan B if the state is not satisfied with the deliverables by then?

3. There are concerns among state staff regarding:
   - batch time / time delay for information
   - staff support needed to manage data integration / data integrity

   These are not mid-project slump issues; these get to the heart of the deliverables. How do you see these concerns being resolved in a way that's satisfactory to state staff?
4. What are the key "pressure points" in the next two months? What has to happen to make the project a success? How will you know when these things have been accomplished satisfactorily? / What are the measures?
5. There is concern that there is no uniform understanding among state staff of what will happen when within the next 60 days, and how and when the major areas of work (development, testing, roll-out, training) will be accomplished. Do you have a schedule of what will be happening each week, and how state staff will plug into those activities?
6. How would you assess the "knowledge transfer" aspect of the project? To what extent do you think that state staff are fully able to assume technical responsibilities for the system? Where are the gaps? How do you propose to bridge the gaps?
7. How would you assess the state of documentation, so that state staff or others can continue application development and maintenance into the future? How will you know when the system has been documented "enough?"
8. What is your assessment of how well the state can support the system, from an organizational perspective? What do you recommend, based on your experience from similar projects?
9. What other feedback or advice do you have for the state project managers?