The IT Engagement Model is a mechanism used to assure that business and IT projects achieve the objectives of the immediate business unit as well as companywide objectives. Along with an understanding of the operating model, the IT Engagement Model provides a foundation for successful execution of the enterprise architecture. The IT Engagement Model involves all key stakeholders to ensure that each new project is consistent with the operating model and overall architecture. The stakeholder groups include IT and business unit counterparts in the areas of company management, business unit management, and project management. There are three main areas of the model, including companywide IT governance, project management, and linking mechanisms. While ODNR has already made steps to create the foundation of IT governance and project management, in the future there will be opportunities to further define these relationships and make sure there are appropriate mechanisms in place to evaluate outcomes. These linking mechanisms will be the key to ensuring that companywide, and business unit objectives are achieved.

**IT Governance**

IT governance is the framework of rights and accountability used to promote desirable behaviors in the use of IT. With the operating model as the foundation, it ensures that decisions regarding the use of IT are in line with the operating model. IT governance goes on to make sure that all stakeholders’ interests are taken into account and that processes provide measurable results. There are five key decision areas to address to ensure successful governance. These decision areas include IT principles, enterprise architecture, IT infrastructure, business application needs, and prioritization and investment.

**IT Principles**

ODNR reorganized to consolidate and integrate IT functions into one office, creating a management team with a broad span of authority to manage the staff. The Office of Information Technology (OIT) helps to define the roles, policies, standards, technologies and decision-making criteria for the acquisition and deployment of information technology. IT strives to standardize as many processes and procedures as possible related to IT support and purchasing but also recognizes that each division within ODNR is unique and many business processes and data related to the divisions cannot be standardized. The OIT uses a chargeback model to deliver services, wherein business units are charged for needed services. This model encourages alignment of IT with business needs and provides funding for initiatives. It also encourages strategic planning within the OIT as well as the various divisions and helps to ensure that IT does not operate in a vacuum.

**Enterprise Architecture**

Many core business processes are unique to each division. All IT functions are integrated and standardized under the OIT. It consists of four organizational units: Administration, Network Services, Client Services, and Application Services. Most staff reside at the main campus with an additional five field technicians to support major field sites. Outside contractors are used for special application needs or technology implementations. In order to create process efficiencies, OIT provides centrally managed administration services such as: IT infrastructure, LAN WAN support, client desktop management, E-mail support, file and print services, application development (internal outsourcing as well as central programming support), coordination and integration of IT input from all divisions, standards and infrastructure consolidation, as well as purchasing of IT services, software, hardware, and electronics. Other division activities that
can be standardized include sharing of customer, supplier and vendor information where possible. Unique division and/or research data is difficult to standardize. Opportunities remain for data integration, but it will be imperative for the ODNR to find ways to govern these unique projects to ensure that they are incrementally advancing the architecture and providing a foundation that can be built upon in the future. Suggestions for how to do this follow in the linking mechanisms, specifically the architectural linking mechanisms. Outsourcing is indicated for many of the projects in the IT plan. Additional care and review will be necessary to ensure that these plans are consistent with the architecture plan.

**IT Infrastructure**

With central IT services and the widespread use of over 130 applications, it will be vital to maintain and improve the current hardware and network infrastructure. The projected flat budget over the next two years coupled with less emphasis on newer technologies, will undoubtedly make it challenging for the department to choose the areas for improvement in the IT infrastructure. The technology plan indicates that emphasis will be placed on

1. improved bandwidth to the department’s field offices,
2. network and data security,
3. business continuity,
4. compliance with IT architectural policies, and
5. utilization of IT to improve the data structures already started or planned.

Most of the 2009 proposed applications require minimal changes to the basic infrastructure, but there are a few including the Soil and Water IMS, and the Watercraft Web Based Agent Reporting projects that require significant infrastructure changes. As the ODNR addresses these specific projects, it will be imperative to commit to service-level requirements that provide the most current and future benefit to all systems. Additionally ODNR’s OIT will need to continue to replace and upgrade outdated equipment and system software, typically on a three to four year basis\(^1\). More sophisticated applications like the GIMS Program\(^2\), which combines a vast amount of data from multiple divisions to assist with decision making, will likely need to be upgraded on a more frequent basis.

As these improvements are identified, it will also be necessary to determine the areas that could be outsourced. Many of the proposed projects indicate a need to outsource the majority of the project. While many of those projects are focused on specific application and business requirements, there are other areas of the IT infrastructure that could also be outsourced including the enhancement of bandwidth capabilities.

**Business Application Needs**

From a corporate perspective, the technology plan indicates a desire to develop and improve the public’s access to natural resource information on the internet, to enhance internal business processes, to improve online services to the public, and to upgrade internal communication systems. While these are the overall objectives, each proposed project may address only a fraction of the overall objectives. As the OIT reviews these projects, it will be crucial to identify commonalities among the projects to determine any areas where architectural standards should be addressed. For the non-standard requirements, however, it will be necessary to provide corporate rules and/or requirements that have to be met in order for the unique process or technology to be accepted.

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\(^1\) ODNR Fiscal Year 2008/2009 Technology Plan, Version 9
As the technology plan indicates, there are many desired business process changes. As OIT determines how to best meet these goals, there may be strategic areas that warrant standardization and integration with technologies and business processes. The technology plan describes 14 different project proposals for fiscal year 2008/2009. Many of the projects indicate a minimal impact on existing business practices, but there are some that suggest there will be significant change to business processes or the addition of new ones upon completion. A plan should be in place to enable OIT to best identify the business processes that are best suited to standardize and integrate, as well as to put processes in place to monitor the progress to ensure the best outcome.

**IT Investment and Prioritization**

The technology plan clearly identifies seven primary objectives including:

1. Administer an integrated information system that supports department desktop computing and facilitates the sharing of IT resources
2. Develop mechanisms that promote and encourage customer communications
3. Implement security measures that maintain the integrity and controls access to the ODNR information network
4. Manage and enhance the department’s Internet and Intranet systems.
5. Provide an efficient and reliable network infrastructure for voice and digital information transfer in support of the communication needs of the department.
6. Provide effective technical and administrative support to the department’s geographic information management system (GIMS) projects.
7. Provide high capacity, reliable and efficient computer servers and database systems to meet the data processing and storage requirements of the Department.

While these objectives are specific to OIT, the plan also identifies the objectives of the other divisions. The technology plan shows a percentage weighting level of each objective, but it is difficult to understand the weighting scale. Of all the objectives listed, there are none that fall outside the range of 0% to 2%. Furthermore, the plan indicates that the sum must equal 100%. While this weighting scale appears to be an attempt to define the most important objectives, the minimal difference in each of the assigned weightings makes it difficult to identify projects that will provide the most benefit to ODNR. As the ODNR moves forward, it will be crucial to have a clearer prioritization of goals associated with each division. A more sophisticated priority ranking system across the entire organization could make it easier for key decision makers to identify projects that help meet overall corporate objectives more quickly.

**Project Management**

Sound project management practices ensure that individual projects meet the desired goals of the project. Often times this is accomplished through well-defined deliverables, checkpoints, and reviews throughout the life of the project. Currently, the state of project management at ODNR is somewhat uncertain since the IT plan indicates that OIT only follows and manages against some project management (PM) practices. It is also stated in the 2008/2009 IT Plan that only four agency staff have received State of Ohio Project Management Certification and that some of their practices are not clearly documented or defined. We would suggest that ODNR train additional staff as time and budget permits, but with funding low and substantial budget restraints forecasted in the near future, this training option might likely be overlooked. These challenges are significant given the size of ODNR along with the amount and scope of current and future projects. Furthermore, OIT must remain flexible in its IT strategy due to the ever-changing environment in which
they work as well as the sluggish economic health of the state and the fact that ODNR revenues are expected to remain flat or likely decrease.

Economic pressures, changing demographics of their customers, evolving legislative mandates, the rapidly changing computer industry, and the dynamic ebb and flow of political influences can force the divisions to re-evaluate their IT needs. All of these forces will have a direct effect on the type of service requirements and the way in which they are supplied. It is imperative that sound and efficient project management practices are used in order to maximize the benefits of these projects in the midst of a time in which funding will be scrutinized. To enforce the need for sound efficient project management, OIT also requires that outside vendors utilize project management practices when involved with ODNR projects. We believe that regardless of potential budgetary cuts this practice/policy should remain intact.

As the ODNR looks towards the future, it will be beneficial to find some way to train additional project managers. While outside training may not be economical, this could be accomplished through a job shadowing program where an individual is assigned to work closely with a certified project manager to learn and develop their skills. While they may not be certified project managers, they could develop their skills to the point where they could manage smaller projects, freeing up the certified project managers to work on larger, more complex projects. As funding becomes available, the pseudo project managers could obtain formal certification that would further strengthen the project management team.

**Linking Mechanisms**

“... Linking mechanisms are mechanisms that link project management with company-wide IT governance—that is, they ensure that project teams remain coordinated and aligned with higher-level strategies throughout their lifecycle.”

There are three categories of linking mechanisms: business, architecture and alignment.

**Business Linkage**

These mechanisms link projects to agency-wide and division level strategy. For ODNR, we noticed that in the IT plan each project is rated according to its alignment with agency business objectives. The projects are rated using three levels of alignment:

- Low (<25%)
- Moderate (25% to 75%)
- High (>75%)

While the technology plan indicates a specific rating for each project, it is unclear how these ratings are assigned. In addition, there appear to be some inconsistencies in the assignment of ratings. For instance, some projects with goals that seem to align with stated agency objectives, such as GIMS, were rated only Moderate, while a redesign of a point of sale system and replacement of a phone system were rated in the high category. Additionally, many of the high priority

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3 Fonstad, Nils & Robertson, David, “Transforming a Company Project by Project: The IT Engagement Model”, MIS Quarterly Executive, March 2006, University of Minnesota, http://wsapi.infospace.com/clickserver/_iceUrlFlag=1?rawURL=http%3A%2F%2Fwww.misqe.org%2Fshowpaper.jsp%3Fob1%3D77%26ob2%3D94%26ob3%3Dfalse&0=1&4=207.97.220.36&5=143.246.2.166&9=e752a253aad74a9f9d8469ab0017c901&10=1&11=pch.feed.meta.v2&13=search&14=239137&15=main-title&17=17&18=3&19=0&20=5&21=12&22=AiyZMZHPkdW%3D%40=mJrf5iBqyy7z68MjkZwQ9w%3D%3D&_IceUrl=true
projects are slated to be outsourced. While likely reasons could include the lack of expertise with the technology, or the desire to gain technological advantages more quickly, there is little indication in the project descriptions as to need for outsourcing.

While the ratings in the IT plan indicate that ODNR-OIT is attempting to identify some business linkages, overall we believe that this needs improvement. We recommend that a formal process be instituted to determine the business linkage. A formal committee could be instituted to determine the business linkage, a director could then review the committee’s findings. This committee should include business leaders from all or most of the divisions. These evaluations should not only occur during the projects infancy, but also throughout the life of the project. Additionally, these evaluations could help get a consensus across divisions as to the areas that are best suited for outsourcing.

Additionally, a funding review committee may help to prevent projects from straying from the agency’s business objectives. Ongoing evaluation from a funding perspective could help identify projects that have strayed from the agency’s business objectives; and could help to find ways to realign the project if possible. In the event that a project can no longer be aligned with agency objectives, the funding review committee should have the authority to halt the project.

Architecture Linkage

These mechanisms help link projects to agency and division architectures. Project managers seem to come from several areas of ODNR, some from within IT and some from other divisions. Integration is a stated goal of OIT, but there is no indication in the technology plan that a group exists to perform a formal review. We also found no indication of a formal architectural plan for the IT infrastructure, which is most alarming. Of the 14 projects listed in the 2008-09 IT plan, we could not find a strong link to the preferred architecture/operating model. The only indicator was the significance of infrastructure changes. While the majority of the projects show a need for minor infrastructure changes, only two projects suggest a need for more substantial infrastructure changes. Ideally, a desired infrastructure needs to be determined, and chosen projects should incrementally define and support this infrastructure.

While there has been an attempt to address the architecture linkage, there is no clear plan in place. In order to address this challenge area, typically there are two popular methods including the establishment of a director of architecture or through committees. Given the tight budget constraints at ODNR, we believe that a committee would be the most cost effective method. The project managers could form this committee, or it could be made of selected individuals from ODNR, who would then act as liaison from the committee to the project team. Once an architectural plan is in place, there should be a continual evaluation of projects to ensure that they meet the infrastructure requirements. In addition, there should be a formal process in place to allow for exceptions or cancellations of projects when necessary.

Alignment Linkage

These mechanisms work across divisions with the goal of linking IT with the rest of the agency operations. In a coordination model, this is an important linking mechanism. It is somewhat unclear as to the current status of the alignment linkage at the ODNR. IT is involved in projects, but there is no clear indication as to how the role is defined. For instance, on some projects the IT staff member appears to be the project manager, but on others there seems to be a blended approach of IT and business unit leaders. Overall, we recommend that a formal process be initiated.

A formal process of ongoing communication should occur between the key IT personnel and the business unit leaders. This continual communication should be focused on ensuring that projects are in line with overall agency operations.
Typically, a business unit CIO is a key player, but given that this position is not currently available at the ODNR, we recommend a formal process of certification and training of project managers. As indicated earlier, it may be difficult to justify funds to train in formal PM certification, but informal in-house certification or job shadowing could prove to be beneficial. Additionally, many organizations look to existing mechanisms to also serve as an alignment linkage. For ODNR, this would mean that alignment would need to be a defined part of the committees and PM practices. Finally, the identification of key project metrics could help project managers identify situations that warrant attention and with their committee if need be, change these metrics in order to meet business objectives.