Implementation of a Project Management Office (PMO)—Experiences from Year 1

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ABSTRACT

Recognized as an early leader in clinical information systems, the University of Illinois Medical Center was challenged to meet the ever-increasing demand for information systems. Interviews with key stakeholders revealed unfavorable attitudes toward the Information Services department. Reasons given were that projects often are not aligned with business strategy, projects are delayed, IS itself is a barrier to progress, and a lack of proactive planning precipitates crises.

Under the leadership of a new CIO, IS began developing a Project Management Office, or PMO, to better meet medical center business objectives and to more effectively manage technology projects. Successes during the first year included comprehensive IT strategic planning. Collaborative relationships were established with departmental leaders for planning, prioritizing, budgeting, and executing projects. A formal Web-based process for requesting IS projects was implemented, project management training was provided, and elements of standard project management methodology were implemented. While a framework for effective project management was created, significant effort is still required to firmly root these new processes within the organizational culture. Project management office goals for the second year include implementing a project portfolio management tool, refining the benefits methodology, and continuing the advancement of the project management methodology.

KEYWORDS
- Project Management Office
- IT strategic planning
- Project management
- Project management methodology
- Portfolio management
- Organizational culture

The University of Illinois Medical Center (UIMC) was an early adopter of automated information systems and is a mature user of many clinical applications. UIMC has been a nationally recognized leader in implementing the electronic medical record (EMR) and associated clinical workflow automation components. UIMC was a 2001 winner of the Nicholas Davies Award for excellence in the implementation and use of health information technology.

While notable progress already has been made with clinical automation, users still want and need more systems. This is evidenced by the numerous requests for interfaces, enhancements and the growing need for expanded technology infrastructure to support increased use of the systems. All of this creates an ever-growing wave of IT demand.

To meet this need, UIMC supports an information services department with 85 full-time staff. Staff time is divided between operations and new projects. IS supports more than 70 applications, 7,500 unique active users, and 3,000 desktop computing devices, and it is heavily focused
on operations to keep these systems running. As in many organizations, when operational issues arise, staff efforts shift from completing project work to resolving crises. Considerable effort is devoted to ensuring acceptable system performance levels for users.

In addition to operations, the IS portfolio is organized by six program areas. The breakdown of projects by program area for FY2006 is displayed in Table 1, FY2006 Projects by Program Area.

Historically, IS effort has been heavily focused on implementing an EMR. This led to many projects in the clinical and technology infrastructure programs. For fiscal year 2006, these two program areas continue to lead the way in terms of funding, dedicated human resources, and number of new projects.

IS now faces challenges in adapting to life after the initial push for implementation of the EMR. Now that systems are in place, IS will address maturation issues that will enable the department to continue to meet the needs of UIMC and provide value.

The State of IS Last Year

While UIMC and the IS department have received national recognition, attitudes toward IS were often unfavorable within the organization. Users dreaded upgrades to systems, and they often perceived projects to be failures. Users believed that the IS department represented a barrier to getting projects done and that it moved slowly. Also, users believe that IT was generally too expensive—benefits did not justify the cost. Finally, they felt that IS did not understand what customers wanted.

These issues first surfaced following the implementation of the Closed Loop Medication Process, which electronically integrated CPOE with the pharmacy system. IS made the decision to pursue this alpha initiative with the systems vendor. All clinical application staff were dedicated to this project for nearly two years, resulting in no other major clinical system implementations during this period.

Implementing a fully integrated medication process would be an innovation in healthcare information technology. However, the legacy of this implementation within UIMC has been that it was perceived as a failure because of the extended implementation time and initial negative effect on clinical operations. This was the predominant attitude toward IS one year ago, resulting in a need to improve the reputation of the IS department within the organization.

Despite these issues, departments continued to request new systems and enhancement projects. While some stakeholders became involved in system selection, committee work and user groups, most believed this was IS work. The relationship between IS and UIMC business units was characterized by the following observation: “IS decided, IS took the lead, IS forced it, and IS took the blame.” This resulted in minimal buy-in from end users and IS being the only group with responsibility or “skin in the game.”
The project request process was informal and fragmented. Hallway conversations with IS staff were interpreted by end users as firm commitments to projects. A variety of request forms were used by different teams within IS, and they were not readily available to users. IS sometimes did not become aware of requests until after capital dollars were awarded and departments already had purchased new systems. As a result, IS did not have an accurate and comprehensive list of projects. This led to a multitude of problems, including budgeting, resource planning, and compatibility of systems with the technical environment.

These issues caused significant problems in 2004, when a new system for patient monitoring was found to be incompatible with the technical infrastructure. The result was extended project deadlines and huge unexpected expenses. It was clear that IS had to capture system requirements in a more formal manner, leverage the existing opportunities to review capital requests and engage departmental decision-makers in a collaborative effort to evaluate proposed projects to enable UIMC to prioritize its technology investments.

A gap analysis conducted by an outside consulting firm revealed that IS processes were not mature; that the department lacked standards and procedures; and that it had no standardized project management practices. The effects of these issues were demonstrated by the IS tactical plan for fiscal year 2006, which identified 131 projects to be completed. These projects were not prioritized and aligned with UIMC business objectives; most had no budget; and all lacked return on investment calculations.

As demand for IT continues to grow, IS struggles to meet this demand. There is a fundamental need to become a more productive, efficient, high-performing team. With 104 projects on the plan for next year, IS cannot afford inefficiencies in project implementations or dedicate resources to only one project at a time. IS needs to develop a culture of discipline, teamwork, and project management.

**Taking a New Approach**

With the arrival of a new CIO in January 2004, the executive staff at the UIMC conducted a transition briefing. The description of this exercise and results are presented in Table 2, CIO Vision of PMO.
IS immediately began to look for opportunities to improve operations and project delivery. A project management office, or PMO, was created as an initial investment toward implementing changes in the department. The office began with two dedicated full-time equivalent staff and was given full support of the CIO.

The long-term goals of the office were set early. Its overall purpose was to manage IT projects as a portfolio of business investments; develop IT strategic plans; centralize management and coordination of projects and resources; formalize the project proposal and prioritization process; standardize project methodology and tools; and establish metrics on how IT investments are performing.

The project management office would be directly involved in planning and implementing needed changes to the IS department at the project and program levels. Its actions matched goals in the following ways.

**Developing IT Strategic Plans**

The first major task of the office was to begin the process of strategic planning. The IS department lacked a comprehensive strategic plan that ensured IS initiatives were aligned with UIMC business objectives. Strategic planning also gave IS an opportunity to engage senior management and stakeholders in discussions to understand their needs. For planning to be successful, it was important to build consensus among operational stakeholders and link all aspects of IS into a programmatic format to focus progress on all areas, not just the clinical systems.

The process for determining which projects could be completed in the next three years began by conducting interviews with key operational stakeholders. The office needed to define organizational needs and start to open lines of communication with departments. During these interviews, IS learned about departmental plans and was able to better consider how IS could support future information technology needs. The interviews confirmed that the top priorities of the stakeholders were to install new automated systems that would help achieve business objectives, leverage EMR data into business intelligence for reporting and ensure the reliability of system performance.

The project management office began to address these concerns immediately. It adopted a learn-by-doing approach that allowed it to quickly apply desired changes within the department. It addressed issues proactively as it built tools needed to improve IS functioning and productivity. One of the first tools developed was a simple project database. Until that time, there was no one place where all project data was kept.

The office then conducted several rounds of meetings with each IS program director to learn what projects IS was working on and their projected timelines. This developed into an iterative process, with different answers being provided at each subsequent meeting. The project list changed frequently, with directors adding new projects, delaying projects or pushing back the dates.

It became clear that it was not easy to see three years ahead in all programs; some directors could only see clearly into the next six months. It also became evident that there was a heavy emphasis on clinical projects, and as a result, that program area had the most clarity. The office also discovered that program areas were not alike in terms of their customer focus. The clinical program had many customers, while revenue cycle and technical infrastructure each had only one main customer. In the Web and supply chain programs, it was not entirely clear who had ownership and was responsible for directing the program.

After establishing a reasonable idea of what customers wanted, the next phase of strategic planning involved research and analysis to explore alternatives to established processes. The office reviewed the feasibility of implementation timelines, staffing models, dependencies between IS projects, capacity planning, rapid implementation methods, and cost-benefit models. It sought to answer questions such as: Why does it take so long to implement systems? How many staff are needed to do certain projects? What are the estimated benefits of implementing some systems first and delaying others until 2007 or 2008? Which interfaces should be completed and in what order? What is a realistic way to fund the growth of the technology infrastructure?

The end result was a plan with a project list that included strategic and tactical projects. This was presented to the CEO and CFO to secure capital funding approval. A clinical operations advisory group was formed to provide recommendations on the prioritization of projects according to the overall goals of the medical center.

**Implementing Changes**

In addition to strategic planning, immediate action was taken by the office to begin driving other departmental changes in five key areas.

The first objective was to centralize management and coordination of projects and resources. One of the first steps to improving IS responsiveness to customers was to get control of all ongoing requests. A Web form, located on the medical center’s intranet site, was developed for submitting new IS requests. Requests initially are received by the office and forwarded to a project manager, who researches the project and conducts follow-up discussions with the requester. The project manager determines whether the request will require more than 40 hours of effort, because 40 hours is the working definition of a project. The results are reported at the project management council, which then decides whether IS can accept the request. When a request is accepted, the project is added to the tactical plan. For requests determined to be less the 40 hours of effort, the project manager can decide whether to absorb the work.

The reviewing process required IS to estimate how many
requests could be accepted. Answering the question of whether to absorb a request as an unplanned project required a better understanding of how staff time was actually being spent. The project management office researched staff time and developed staffing models to describe how time was being spent. Calculations revealed that about 30 percent of application staff time is available for growth projects, while the remainder of time is needed to maintain existing systems. The amount of time available from technical staff is now being studied.

Strategic planning also revealed a need for a way to routinely review the status of projects and requests. Because of the historical emphasis on clinical systems, in the beginning, only project managers for clinical projects attended the project management council. Attendance was expanded to include all IS staff who were leading active projects. The purpose of the council is to review projects and requests, and discuss project-related issues. This provides visibility for all projects from each program area. The CIO attends the council so that project managers can quickly escalate any issues that require CIO involvement.

Standardizing Methodology and Tools

During the past year, the office looked at the project planning process and examined why so many projects’ go-live dates are missed. The percent of go-live dates hit is a key metric on the IS quality report. Although there can be a variety of reasons why a go-live date is missed, planning is one key element that is within the control of the project manager.

To encourage good planning, the concept of Phase Zero was introduced as an extensive analysis and planning phase. This planning now is defined by the methodology and includes estimates of scope, resources needed, costs, potential benefits (in other words, return on investment), and risk associated with doing the project. End dates or go-live dates now are released to the medical center only after Phase Zero is complete.

This year, an extended Phase Zero was first used to plan how to proceed with advancing the EMR. IS leadership considered an idea that is radical to UIMC organizational culture—doing four major installations as one project. Because this idea was such a departure from the normal approach, three months were dedicated to extensive research and planning. The objective of Phase Zero was to answer the question “Can we install four new systems at once?”

As part of this Phase Zero, IS looked at new strategies for rapid implementation, resource planning, and resource options. A model that included both soft and hard benefits was developed to estimate returns on investment. The model, a product of a collaborative effort between IS and the business planning and decision support group, was reviewed with departments to establish dollar amounts for expected benefits. Benefits estimates were completed, and departments committed to achieving the numbers. This is the first time UIMC supported an effort to calculate ROI. The process of determining ROI along with vendor-arranged demonstrations and site visits revealed differences in department readiness to participate in these implementations.

Phase Zero significantly influenced the final decision, which was to install the first two systems in 2006, with the final two being delayed until 2007. IS has adopted the Phase Zero concept for all projects so that decisions could be based on hard data and so user expectations could be better managed.

Collaborative Relationships

Throughout the strategic planning process, the project management office seeks to involve departmental users, raise their awareness and knowledge of IS issues and incorporate their views on how IS can meet their needs. The goal was to move away from the previous way of thinking that all IT projects were the responsibility of IS and move departments toward taking ownership and working collaboratively with IS.
To establish a process of prioritizing projects, an IS advisory group was formed. This group included executives from key operational areas in the medical center, such as nursing, radiology, pharmacy, and facilities management. Information obtained in Phase Zero was shared with the advisory group, which reviewed alternative implementation scenarios and the potential benefits of installing systems. The result was prioritization of clinical anchor projects for the next three years.

The relationship between IS and UIMC business units was characterized by the following observation: ‘IS decided, IS took the lead, IS forced it, and IS took the blame.’”

The ongoing focus of these meetings is to seek leadership support for the IS program, provide opportunities for dialog and communication, develop an understanding of budgetary issues and limitations on resources, and learn about other department needs and capital requests.

Assisting Project Management

At the center of performance improvement efforts was the need to improve project management processes and skills. The metric for projects completed on time—65 percent—revealed a need for a project management methodology and training in that methodology. Because IS works on a wide variety of projects with different customers throughout the medical center, it is imperative that all projects follow a standard process to ensure that projects are subject to necessary planning and control.

An expert was brought in from the outside who had project management improvement credentials and healthcare experience at the executive level. As a first step in selecting a source to provide training, both members of the project management office attended a three-day course on project management methodology. Later, executives decided to roll out a project management training program to all IS personnel.

While several IS staff members had attended other project management classes, it was valuable to expose everyone to this training as a group. The primary goal was to give all attendees the same basic starting point, get them to use the same project management vocabulary, and engage them in a participatory learning experience. The first session was attended by IS leadership, project managers, and 10 project team members. There was enthusiastic participation by staff from all program areas, as well as those with technical, application, and training responsibilities for IS. Eventually, representatives from key departments in the medical center and the remaining IS project team members also will receive this training. This training effort represents a major commitment to and investment in building a high-performing team.

Initial Results

One year later, the project management office can be evaluated to determine whether it has yielded the desired results.

Developing the strategic plan alone was a worthwhile exercise. This effort was started with few assumptions and a desire to understand the business needs of customers. Development of the plan required engaging stakeholders, establishing collaborative relationships within the medical center, and even breaking down barriers within the IS department. In the end, the IS department better understood itself and the implicit expectations that had been established over many years. Customers were more satisfied because they believed that IS was listening and seeking their input.

The resulting three-year strategic plan provided the organization with new goals and an understanding of future objectives, direction, and projects. A presentation of the plan, organized by program areas, to medical center leadership helped executives understand the strategic value of IT and see how multi-million IT investments were supporting organizational objectives. As a result, executives finally had a way to view the entire portfolio of IT investments. For the first time, IS was able to quantify IT activities for leadership.

An unintended consequence of these efforts was the adoption of a new model for IT capital funding. Previously, IT capital investments competed with other capital requests generated throughout the organization. Recognizing the strategic value of IT, the CEO and CFO allocated a significant portion of available capital funding to IT initiatives, eliminating the need for them to compete with other requests.

Because of the strategic planning effort, great gains were made in developing a process for IT infrastructure capacity planning. IT infrastructure is expensive to purchase and maintain, and its importance typically becomes most apparent in crisis situations. According to an article by Howard Rubin in the June 1, 2004, issue of CIO magazine, “On average, 41 percent of IT spending is associated with the infrastructure and the personnel needed to operate it. And with the average company now spending about 3.8 percent of its revenue on IT in 2004, this means that a typical company spends 1.6 percent of its revenue on IT infrastructure.”

UIMC continues to roll out applications and is becoming progressively dependent on software systems. The computing infrastructure must grow to accommodate
growth from new system deployment as well as organic growth related to the increasing number of users and tasks being performed within the systems. Appropriate infrastructure growth is needed to ensure a high standard of system performance, stability and reliability. By evaluating the data on current infrastructure performance, future needs can be predicted, and fiscally responsible investments can be made. The strategic planning process enabled the proactive planning of infrastructure needs to prevent future capacity crises.

Managing the IT Portfolio

As indicated in Figure 1, the strategic plan organized the portfolio of IT projects into six program areas: clinical, revenue cycle, supply chain, technical infrastructure, interfaces, and Web. This enabled medical center leaders to holistically evaluate and appreciate IS efforts at the program level. Executives with operational responsibility for program areas finally could visualize the capital and IS resources that were being invested to support their programs. This provided an opportunity to consider whether all programs are being appropriately supported and to adjust planned investments accordingly.

Evaluation of the three-year project portfolio also indicated that not all program areas are equally advanced in their awareness of how technology can help transform business operations. This awareness is a natural outcome of being exposed to and having experience using information systems. The awareness then creates a desire for even more automation and results in an even larger demand for technology solutions.

For example, UIMC is a mature user of clinical information systems, and the evolution of these systems has traditionally been the focus of the IS organization. The volume of new initiatives proposed for the clinical program area exceeded the IS delivery capacity. As a result, prioritization of the clinical project portfolio was necessary. By contrast, the revenue cycle program area had a harder time identifying major technology initiatives beyond the first year of planning. Less consideration had been given to improving and evolving this program area, a likely outcome of the limited process automation that has been deployed and accepted within this program area.

As a result, IS leadership realized that the revenue cycle and other traditionally under-emphasized program areas need additional attention. IS is working to develop collaborative relationships with stakeholders from these program areas, engaging them to identify and plan automation opportunities. More thoughtful long-term planning and scheduling is expected to reduce the number of unplanned and unbudgeted IT project requests.

The newly developed process for handling user requests has been largely adopted by the medical center. This gives IS leadership and the project management office visibility to these requests. However, some requests are still entering the IS department informally or through previously established processes. The project management office intervenes when it learns of requests that are circumventing the established process. The discipline of the IS staff is a key factor in reinforcing the new process and ending old practices.

Remarkably, nearly every newly submitted request continues to be absorbed by the IS department. While this shows that the departmental culture is one of helpfulness and saying “yes,” the consequences are that IS staff become overcommitted, compromising its ability to meet customer expectations in a timely manner. This leads to project delays and, as a result, low customer satisfaction.

“**One of the first steps to improving IS responsiveness to customers was to get control of all ongoing requests.**”

While, all IS projects are mapped to the medical center’s business initiatives, these initiatives do not influence project selection and prioritization. Similarly, benefits estimates for proposed projects are rarely available, and as a result, benefits are not truly considered when selecting and prioritizing projects. In collaboration with the business planning and decision support group, the project management office has made substantial progress implementing a benefits methodology for technology projects. However, this methodology is not being systematically applied across all initiatives, and the office is still seeking an appropriate framework for impartially quantifying and comparing all benefit opportunities. Soft benefits opportunities, such as patient safety, to which a financial value can rarely be assigned, represent the greatest challenge in developing a benefits framework.

The project management office has had only a modest effect on project management processes. The office has rolled out components of a project management methodology on an as-needed basis. Efforts have largely been focused on the initiation and analysis phases of the project lifecycle.

The project management council meeting provides a regular forum where project managers can interact, raise project issues, and request intervention from the CIO. The opportunity for all IS project managers to meet regularly was a positive team-building step. During the first few months, much time and effort was expended to simply understand the various projects and gather necessary data about projects. The council became a tedious data-gathering exercise. However, as the sophistication of tools and processes has improved, this meeting now hosts useful
Reflecting on the First Year

This one-year anniversary is a good time to reflect on the acceptance of the project management office within the IS department and the UIMC organization. Since the office’s inception, the CIO has been a strong advocate of it. The CIO changed it to act as a change agent, identifying opportunities for improvement and then developing interventions.

Changing established ways of doing business is unsettling and creates some tension. It is not surprising that the office has encountered some resistance, even among IS directors. This resistance has usually been passive, typically revealed as non-compliance with requests from the office. Those promoting this approach realized that change takes time and that persistence would be required. The strategy has involved forging partnerships and building relationships to gradually increase the number of supporters who value these efforts.

It is interesting to note that some processes and structures developed by the office for the IS department have been replicated by the CEO for the UIMC organization. That is an encouraging acknowledgement of the project management office as a positive influence on UIMC as a whole.

Plans for Year 2

In year two, the office will oversee the implementation of a project portfolio management tool, which will be the cornerstone supporting much of the expansion activity within the office. The new tool will reinforce the project management methodology and the efforts of the first year. The management tool will automate components of the methodology that currently are manual, and new components will be added to the repertoire of project managers. It will be one of the project management office’s major challenges to build, manage, and encourage the use of the tool by all project managers.

The project portfolio management tool also will play a major role in expanding portfolio management activities by enabling forecasting, scenario building, and adding an executive dashboard. These analytic and planning tools will provide access to information for effective decision making. This will help the project management office to mature and continue to evolve beyond data-gathering activities to become focused on using the data that is being collecting.

In the second year, more project management training will be provided, aiming to expose all IS staff to the project management methodology and improving the depth of management experience and skills. Project managers will improve planning in the areas of resource utilization and risk management and will work on how to effectively manage a blended team that includes IS, departmental, and consulting partner members. The role of the executive sponsor will be further defined and will become more active. Office efforts will be expanded to build out the execution and closure phases of project management methodology.

During the second year, the office will refine the benefits methodology started during fiscal year 2005. When the implementations are completed, the benefits team will measure actual benefits to see if clinical departments are achieving expected benefits. The office will continue to move toward the goal of doing a return on investment analysis for every major IT investment.

After the experience with Phase Zero, more consideration was given to more fully understand user readiness for implementations and how readiness affects the success of projects. If interventions can be targeted during the course of implementation to improve user readiness, projects will be more successful. The project management office is part of a work team that includes experts from the academic side of the university to study user readiness and organizational culture issues and how they affect the successful adoption of information technology.

The office will continue to push strategic planning efforts for IS. The strategic plan is a working document that will be revisited to ensure that it is an accurate roadmap for IS activities. At the end of the second year, IS must be able to demonstrate that the office’s efforts met IT demands, supported organization business objectives, and provided value.

Conclusions

Establishing the project management office has been a new journey for UIMC. The first year had challenges; however, the office was successful in positively affecting the IS organization. The journey involves cultural change, transforming an organization with minimal structure for project and portfolio management to one that uses disciplined approaches and processes. The unwavering support and
commitment of the CIO is essential for this transformation to be successful. Additionally, project management office staff must be dedicated to developing new methodologies and programs.

The continuing efforts of the office are expected to assist the IS department in becoming a more productive and effective organization, delivering projects on time and within budget. Through effective planning it will set realistic expectations, ultimately resulting in improved IS customer satisfaction at UIMC.

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