

Demand Management in Healthcare IT

Controlling IT Demand to Meet Constrained IT Resource Supply

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ABSTRACT

Healthcare is behind other industries in the ability to manage and control increasing demand for IT services, and to ensure that IT staff are available when and where needed. From everyday support requests to large capital projects, the IT department's ability to meet demand is limited. Organizational and IT leaders need to proactively address this issue and do a better job of predicting when services will be needed and whether appropriate resources will be available. This article describes the common issues that healthcare IT departments face in the efficient delivery of services as a result of factors such as budget constraints, skill sets and project dependencies. Best practices for controlling demand are discussed, including resource allocation, governance processes and a graphical analysis of forecasted vs. actual thresholds. Using specific healthcare provider examples, the article intends to provide IT management with an approach to predicting and controlling resource demand.

KEYWORDS

IT demand management (ITDM), resource management, resource allocation, project management, healthcare IT organization, portfolio management, IT governance, IT management and governance (IT-MG) systems, strategic alignment.

IT ORGANIZATIONS have always had difficulty managing and controlling demand for staff. Although IT is viewed as an integral part of the organization, it is often viewed as a cost center that will do whatever the business needs and whatever gets sent its way. This often translates into the “everything is a high priority” mentality.

Typically, IT departments, like other service-oriented departments operating in a similar model, cannot handle all the demand that comes from the business. Resource constraints, limited budgets and conflicting strategies ensure that IT departments are challenged to adequately staff projects.

Consistent with market findings, Forrester Research believes that IT demand management, or ITDM, is needed. ITDM incorporates the aggregation and management of strategic, tactical and operational demand for IT services.¹ Even though meeting demand requires hardware and software, the limiting factor to getting the job done is typically internal staffing constraints. Internal staffing will account for 38 percent of IT budgets in 2007, or twice the size of any other component of IT spending.² To meet demand and continue to focus on improving efficiency, IT needs to focus on this critical resource and adopt ITDM processes to ensure that the right resources are in place at the right times.

According to Gartner Research, at one time or another all CIOs will be asked if their IT organizations are efficient from a staffing perspective. In some cases, CIOs will initiate this analysis, especially if they are new to their role; more often, questions about IT efficiency will come from outside the IT organization.³ Healthcare organizations traditionally have significantly constrained budgets for IT, compared with IT budgets in other industries. Accordingly, healthcare organizations invest less in demand management and do not always ensure that resources are assigned to work that supports the strategic direction of the organization.

To be effective, executive management needs assurance that the money provided to IT through the budgeting process will be spent wisely, and that IT actually has the resources available to deliver the projects and operational work being proposed. Effective IT demand management addresses and meets this need. Challenges, critical success factors and best practices are pre-

sented in this article, as well as a case study of an effective ITDM implementation.

DEMAND MANAGEMENT CHALLENGES

Healthcare organizations face specific challenges to managing their demand for services so that demand lines up with the capacity and capability to provide those services. Here are the challenges and issues that make effective resource management critical in light of ever-increasing demand.

Limited budget and limited staffing. Healthcare organizations are typically faced with smaller IT budgets than their counterparts in other industries, and smaller staffs as a result. Limited staffing and skill sets not only make doing the work harder, but make it more difficult to effectively plan staffing needs.

Inability to understand current demand. Most healthcare organizations do not have a defined protocol for tracking requests for IT work, regardless of whether that work is project-related or operational, such as service requests, production problems and maintenance. Customers request services through many different channels, including calling their preferred IT analyst or even calling the CIO directly. For IT to be successful, there needs to be a defined and well-communicated project intake process. This process should be different for small projects vs. large projects; for example, large projects will need a defined scope along with a project charter and a governance process that ensures project alignment with business strategies. However, all projects must follow an efficient, working and understood process for requesting and tracking IT work.

Limited visibility into staff productivity. Questions always come up in relation to staff effectiveness—how much work is the staff actually delivering? Are a few highly talented IT staffers doing the work of many? Why is so much overtime being logged? IT departments often are faced with burning issues of the day and do not do an effective job of tracking individual project work. There are few spreadsheets or systems that match units of project or operational work with the staff resources performing them. The concept of resource management is well-defined in industries like manufacturing, insurance and financial services, but typically not in healthcare delivery. To make appropriate decisions, IT managers need to know exactly what their employees are working on, what their skill levels are and what demand is coming from the business.

IT planning is separate from business planning. Planning for IT projects and their associated budgets is often done separately from formulating the organization's strategic plan. IT budgets are often proposed with limited input from the business side, resulting in IT departments frequently soliciting funds for projects that are not on the executive management's priority list. IT planning should ensure that, at a minimum, projects are aligned with the organizational direction and goals for the particular year, or set of years, in which the projects are scheduled for delivery.

Limited portfolio management. The concept of portfolio management for healthcare organizations is in an earlier stage of maturity than in other industries. Portfolio management is the process of defining and managing a specific group of work packages or projects within a defined budget. It enables the IT organization

to show the specific strategic alignment, financials, risks and resources needed for a group of projects or operational activities. Often, portfolio management in healthcare IT is non-existent, and IT management does not have the real-time data to describe their plans to executive management. Portfolio management is important in aggregating data into useful reports for executive decision making and to ensure that the business and IT know what particular IT services will cost, what the cost benefits are, and what can be accomplished with the limited IT resources available.

No central repository for work tracking. IT organizations do not have a single source of information about the effort they are spending on their work. If work is tracked at all, it is done so in a number of disparate ways, providing the CIO with a hodgepodge of information to sort through. Having a central repository that catalogues all work, regardless of whether it is related to projects or operations, along with all the time and documentation associated with that work, enables more effective resource management and understanding of active and planned demand. Having a reporting capability built into a central repository makes executive bottom-up and top-down reporting much easier and more accurate.

IMPORTANCE OF PROPER FORECASTING

Addressing the challenges associated with ITDM can seem daunting. The most important factors in meeting the challenges are effective resource forecasting and work tracking. Forecasting and tracking facilitate an understanding of what IT staff are working on and when—a cornerstone of ITDM.

IT needs to effectively plan for work based on the volume of project requests, operational needs and current resource availability. The business side of healthcare organizations is deservedly demanding when it comes to IT, and it requires that IT departments are nimble when it comes to managing requests and accurate with their estimates of when work will be delivered. For example, when an organizational director submits a help desk ticket, it is important to be able to determine where in the queue that ticket falls, what resources are required to address and close the ticket, and when the request will be completed so IT staff can plan their work accordingly. Communication with the director should be clear and complete. Delivery planning is especially important during the budget planning process to show when particular projects can be completed, based on current resources and operational workloads.

That sometimes can be a struggle for an IT staff. Healthcare IT resources are constrained, and staff burnout is a significant consequence. Signs of burnout include increased stress, low morale, decreased productivity and even hostility toward taking on more work. If an IT organization can effectively and accurately measure the work that staff members are doing, then IT management can more effectively balance individual workloads. Accurate forecasting also enables management to hire more staff before they are needed to prevent staff burnout. A good all-around IT staff is hard to assemble and harder to maintain — it is important to retain the best staff and not overwork the key “go-to” individuals.

It is particularly difficult to achieve executive buy-in on the IT work currently under way, and, more importantly, on the work

that IT is planning for the future. One of the key reasons for this is executives' limited information on constraints affecting IT resources. Aside from just being told about limitations, ITDM can help demonstrate IT resource constraints in graphical and tabular formats that are intuitive. The best sources of information to gain buy-in from executive leadership are reports that show resources matched up against the anticipated demand during a specific timeframe or for specific resource roles. That enables leadership to be actively involved in planning on how to handle potential resource gaps.

Providing leadership with a view of what IT is spending (in terms of dollars and resources) and delivering (in terms of both project-based and operational services), will demonstrate that IT is effectively controlling its resources and managing its money. This information, along with a better understanding of the associated return on investment, enables better planning and helps elicit executive management support.

Healthcare IT sourcing is particularly difficult because there is high market demand for skilled staff resources. With a tight market and limited dollars available for use by the CIO, it is important to understand what resources are needed, at what skill level, and at what point in the future so IT can manage an effective sourcing program. By having accurate resource forecasts based on known demand and a factor for future demand and resource roles, sourcing additional resources through a direct hire, contractor or third party becomes easier and enables the CIO to better plan a forward-looking budget.

Healthcare IT traditionally has taken a reactive rather than a proactive view of resources and demand management. Much of the time spent reacting to issues that occur because of constrained IT environments could be prevented with a proactive approach to demand management. For healthcare IT organizations to be competitive in their own industry and ensure that they can become more efficient over time, they must become proactive in forecasting.

BEST PRACTICES IN DEMAND MANAGEMENT

Resource forecasting is a cornerstone of ITDM, but it and other demand management components need to be effectively implemented to create a successful system. An effective, best-practice ITDM strategy includes top-down and bottom-up reporting that is both beneficial to line management in IT and also to the organization's leadership.

A well-balanced and efficient approach is one that incorporates resource information; demand-intake information for both project and operational work; intuitive reporting; a good communication plan; an automated system or repository to capture all information; evidence of IT strategic alignment; and the management responsible for keeping all components running smoothly. Putting these components in place requires a good plan of action with the following well-defined rules.

Establish resource managers. While a project manager is responsible for individual projects, a resource manager is responsible for planning an employee's overall schedule. In some organi-

zations, this role may be filled by a direct supervisor or other line manager, a mentor or a central staffing function. For example, in the LAN services group, the group manager might be the resource manager for all staff in the group. That manager is responsible for knowing what staff are currently working on and what they have been forecasted to work on. The resource manager function is key to effectively allocating staff.

Employ a resource allocation strategy. Managers must determine how to allocate valuable resources to operational and project work. The best approach is to split a person's 40-hour work week into segments broken into operational work, such as service requests, maintenance and system problems; personal and administrative time, such as vacation, jury duty and other such time constraints; and project work. Forecasts need to be based on all these components, and it will be necessary to describe in detail to management what people are actually doing.

For operational and administrative work, resource managers should create a baseline for each group of employees on a specific team. For example, the LAN services group might be predicted to spend 20 percent of its time on service requests. For project work, managers should identify specifically what each employee is working on and note that staffing situations can change daily.

Healthcare organizations invest less in demand management and don't always ensure that resources are assigned to work that supports the strategic direction of the organization.

Emphasize consistency in work planning across projects. Quite often, projects are planned according to what the project manager believes is the best way to accomplish a project. If the manager believes that Project Management Institute rules should be followed and another manager does not, there will be inconsistency across projects or project managers. To address this and myriad other disparate issues in work planning, the project management office needs to mandate a consistent project management methodology that project managers are taught and expected to follow. Consistency is key for large-scale project demand management. There is plenty of room for flexibility in any good methodology, but the organization must achieve a level of consistency at the highest level. It is most important that this methodology be carried through to workplans so that the phases of a project, the key work being done and any potential bottlenecks at particular stages are clearly visible when IT leadership rolls up reports for internal and external organizational management purposes.

Standardize resource roles. Effective demand management requires that resources can be "rolled up" into increasingly higher grouping levels for purposes of planning and reporting. For example, clinical managers, senior clinical analysts and clinical analyst roles may fall under the category of clinical IT staff. It is important to understand the makeup of the pool of staff resources and the role of each individual in the IT organization. However, IT organizations may have hundreds of roles, and not every role can be viewed and managed on its own.

To efficiently manage demand, roles should be grouped. Typical high-level role categories in a healthcare IT environment include clinical analysts, financial analysts, database developers and DBAs, web developers, infrastructure resources, interface resources and project managers. At the highest level, role categories like these will help plan, manage and track where time is being forecasted and spent. In addition, standardized roles enable the creation of cost matrices by role, which can help track IT spend vs. delivery of services and, consequently, help drive efficiency and enable better visibility into the total cost of ownership and return on investment.

Create a reporting strategy. A critical component to any demand management strategy is understanding which reports will be used for daily management and which reports will be provided to IT and business leadership to detail how IT is providing services to the rest of the organization. It is important that these outputs show strategic alignment, resource constraints, risks, financials and project priorities, and they also should tell a story that helps IT become more proactive and use its funds more wisely. The case study in this article shows a sample of the desired reporting outputs in more detail.

Develop intake processes. Most healthcare IT departments have demand coming from throughout the organization. Requests come from the help desk for incidents; service requests are e-mailed, faxed and called in; and project requests come from multiple locations, including from the IT staff directly. The IT organization has to develop the appropriate definitions for each type of work and plan where these types of work should be funneled.

Ultimately, all work needs to be compiled in one place where management can assign it to resources and accurately project when work will be done. It is essential that any refinement of current intake processes or implementation of new processes be thoroughly communicated to all business and IT staff for the intake process to be successful. It will take some time for people to realize that calling their favorite IT analyst is no longer an acceptable way to get problems fixed. This is often a system problem in an organization, but IT can make significant progress through effective intake processes.

Offer a single repository of information. The common theme in all of these components is that information will ultimately reside in a single repository. Whether that is in a database, spreadsheet or a new breed of system known as an IT management and governance system, or IT-MG, it is important that data be aggregated in one location to accurately report on it. An IT-MG system is recommended for facilitating this data manipulation, especially in larger IT organizations.⁴

Provide training. Thinking through and plotting a training strategy is critical to the success of any demand management strategy. Training needs should be identified based on responsibilities and training logistics. Classroom training in demand management and portfolio management has proven to be the most effective way to train, although it is not always the most cost-effective. Having training in a classroom also ensures that all participants can ask questions and participate for the entire training period without distraction. Handing out a brief exam at the end helps ensure that trainees actually understand the material being taught.

Communicate, communicate, communicate. An approved communications plan and consistent and well thought-out communications to the right audience are a must for demand management. Without effective communication, the same old processes and behavior will occur, and fingers will get pointed at the lack of communication. Communication is important if any changes are to occur in the status quo, but especially when the changes are as significant as those expected from a new demand management strategy.

UNIVERSITY HOSPITALS: ADOPTION OF A STRATEGY

In 2006, First Consulting Group helped to implement demand management at University Hospitals in Cleveland, the primary partner for the Case Western Reserve University School of Medicine and an IT department for which FCG serves as an outsourcing partner. University Hospitals' executive leadership was looking for better visibility into the demand for their IT resources and better ways to control that demand.

University Hospitals was in the midst of an aggressive series of system rollouts, and executive leadership wanted to ensure that the right staff would be available at the right time. The CIO was particularly interested in ensuring that the required skill sets would be available when needed and that no particular group of IT resources would be overtaxed. The planning committee determined that instituting an ITDM process and establishing a 12-month view of resource demand and capacity would enable the system to effectively plan.

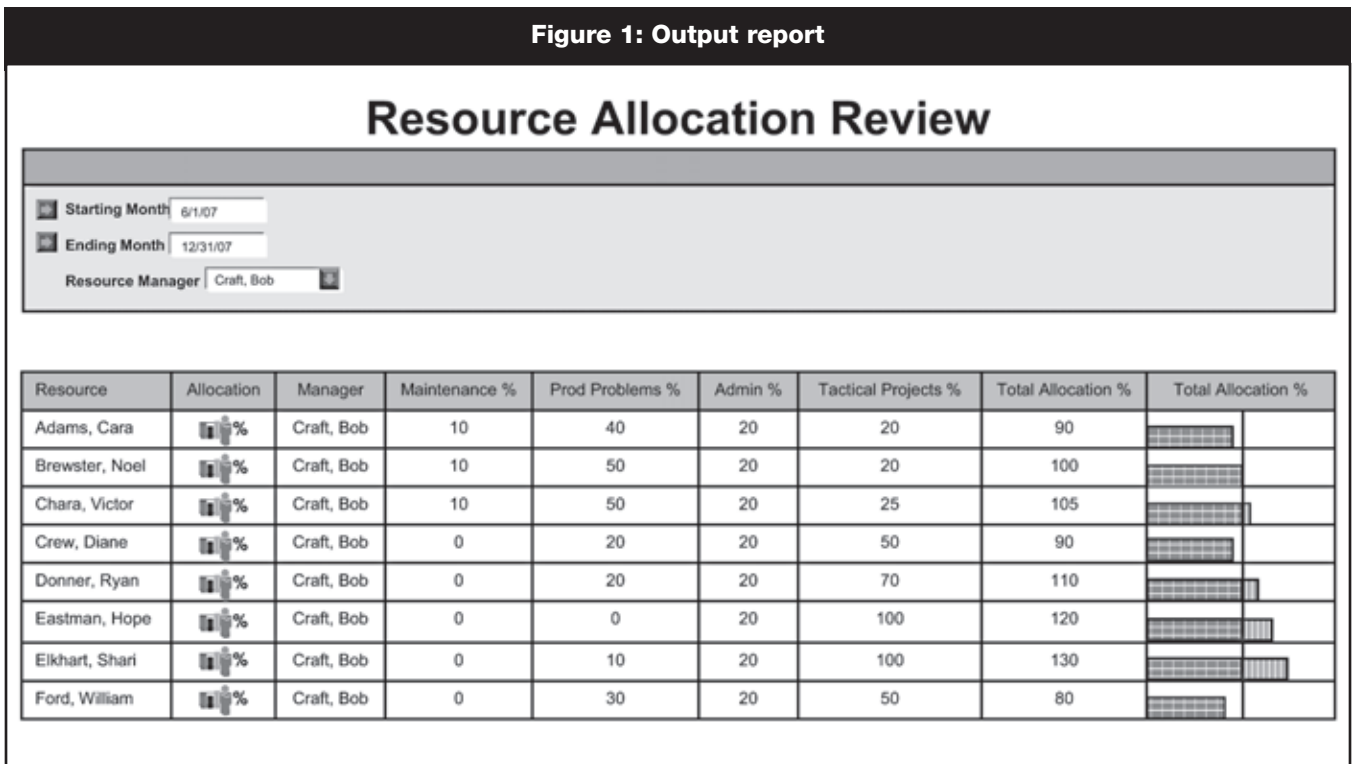
Fortunately, University Hospitals already was using the Clarity IT management and governance system from Computer Associates for project management, project workplans and employee time tracking. An automated IT management and governance system is not a requirement for demand management, but it is a considerable help in establishing an effective program, especially in larger IT organizations. Automated IT-MG systems offer streamlined data entry and manipulation, and integrated modules for such critical processes as time entry, resource forecasting and capacity planning.

As a management tool, IT-MG systems facilitate the demand management process, and they also are kept current themselves as a result of being used and updated with demand management data. By having an IT-MG system in place, University Hospitals knew what projects their IT staff were working on and how many hours were being charged to those projects. To implement ITDM, University Hospitals would need to leverage that knowledge and use it to begin forecasting the staff's time.

To do this, University Hospitals realized that it would need three key pieces of data—an understanding of how much time staff needed to spend on operational work, such as fixing problems, conducting routine maintenance, addressing service requests and even general administrative time like department meetings, corporate e-mail and vacation time; an estimation of how much time could be spent on actual project work, or in essence, the time that was "left over" after their required operational work; and a solid forecast of time and budget to be spent on future projects.

To address the first component, the system first ensured that a resource manager was assigned to each IT staffer for purposes of

Figure 1: Output report



planning their work. University Hospitals then established what became known as “operational allocation plans,” or placeholder projects to which associates could be assigned for purposes of forecasting their operational work. Operational work was broken down into administrative time, maintenance time and production problem time. An allocation plan was established for each of these areas. Next, resource managers reviewed each associate’s work and determined the appropriate forecast for their time, by percentage, to each of the allocation plans. For example, Web developers might be forecasted to spend 25 percent of their time on problems, 10 percent of their time on maintenance and 15 percent of their time on administrative duties. That would leave 50 percent of their time to work on projects.

University Hospitals used the CA Clarity system to track their resource allocations, as resource allocation is one of the strong suits of IT-MG software. In truth, a good IT-MG system is a practical addition to any IT department. It can be used for a multitude of IT work management, governance, project and portfolio management functions, and it streamlines the introduction and use of concepts like ITDM. An IT-MG system also offers a real-time transactional approach, and its ability to maintain data in a data warehouse allows for extensive prospective and retrospective reporting and analysis. An automated system is not a requirement to get started with demand management; however, IT organizations can start allocating resources with as little as a spreadsheet.

After the resource managers allocated staff to operational allo-

cation plans, they were able to work with the project managers to allocate staff to the actual projects on which they needed to work. After planning was complete, the system had its first complete view of its staff’s operational and project allocations. One of the output reports from this process is shown below (Figure 1). This report is used to review the amount of time allocated for each staff member. For any future time period, the resource manager is able to identify the amount of time being forecasted in each of their staff’s schedules for maintenance, production problems, administrative time and projects, also known as “tactical” projects. The report also shows in graphic form when more than 100 percent of an associate’s time is allocated.

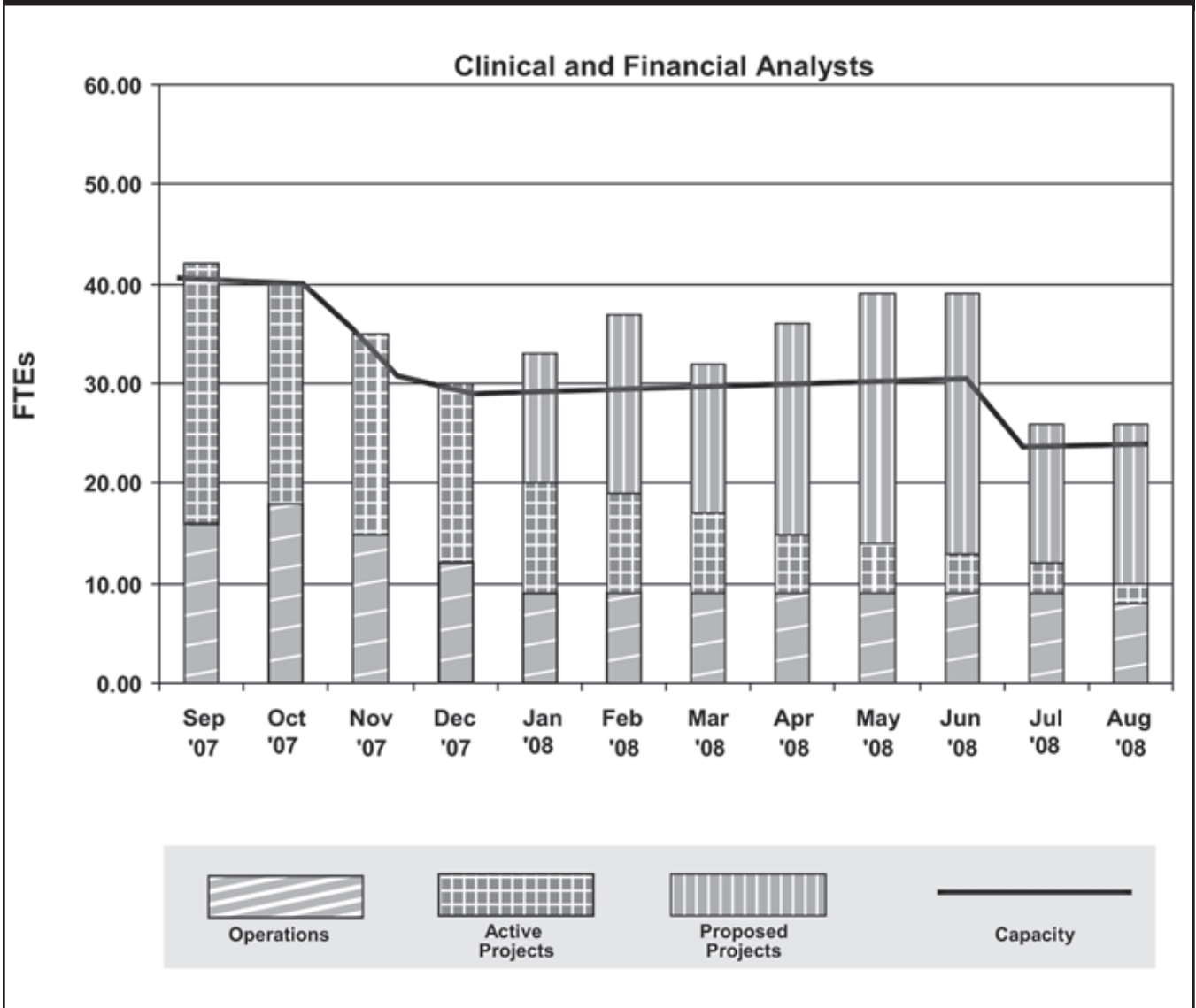
The third data point that University Hospitals needed to effectively forecast resources was a much better understanding of future projects. As indicated in one of the previous sections, methodology and process for proposed projects is typically lacking in

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healthcare, and IT departments constantly struggle with project prioritization. The key to solving this problem is a sensible and flexible project intake process by which a consistent approach is taken for getting the right projects into the queue.

There are great ideas and processes in place for project intake,

Figure 2: Resource project by resource group



and its intricacies warrant more discussion than is feasible in the article. ITDM relies on effective project intake that takes into account project cost, benefit, risk, strategic alignment and several other factors. At University Hospitals, after projects are properly scoped and then approved for operational or capital expenditure, they are considered to be a “proposed” project. Roles then can be allocated to projects, so that the projects appear on the output reports with an appropriate forecast of expected staff needs.

For the demand management reports to account for future project demand, it is important to assign roles to projects after they are approved, even though the projects still have a ways to go before they will be kicked off. This means allocating roles such as project manager, clinical analyst and Web developer to the project, even though the specific resource’s names are not yet known. University Hospitals uses its system to save time by automatically assigning roles based on the type of project and its complexity.

For example, an IT system upgrade project of medium complexity might require 0.5 full-time equivalents of project manager time, 0.25 FTE of financial analyst time and 0.25 FTE of interface analyst time. Based on a template, these roles and allocations are pre-assigned to proposed projects and can be changed later when the project’s actual requirements become better known.

With the proposed projects added to the mix, the system is able to achieve true ITDM through the use of reports (Figure 2). This example of a report demonstrates the demand for clinical and functional analysts over a 12-month period. The bottom section of each bar represents the total number of FTEs worth of analysts that are being forecasted for operational work, such as problems, maintenance and administration. The middle section indicates the forecast for project work. The top section indicates the time forecasted for proposed projects. The black line running horizontally through the chart represents the forecasted staff complement for

Figure 3: Resource allocation vs. actuals

SMITH, SUAN						
Project Name	ID	Status	Start	Finish	Allocation	Actuals
Clarity Maintenance	PRJ-0001787	Active	3/24/2006	2/8/2008	128	120
Administrative Time	PRJ-0008018	Active	1/1/2007		40	40

RUDOLPH, TOM						
Project Name	ID	Status	Start	Finish	Allocation	Actuals
Administrative Time	PRJ-0008018	Active	1/1/2007		10	10
Production Problems	PRJ-0004575	Active	1/1/2007		120	140
Surgery Scheduling System Impl.	PRJ-0004815	Active Roadmap	5/14/2007	11/14/2007	20	20
Electronic Health Record	PRJ-0001447	Active	12/19/2005	6/18/2007	20	20

JONES, BOB						
Project Name	ID	Status	Start	Finish	Allocation	Actuals
Administrative Time	PRJ-0008017	Active	1/1/2007		30	35
Maintenance	PRJ-0000261	Active	1/1/2007		18	12
ePrescription	PRJ-0004245	Withdrawn	9/25/2006	8/31/2007	40	40
Single Sign-on	PRJ-0002064	Active Committed	9/15/2006	3/17/2008	40	30
Lab System Upgrade	PRJ-0001654	Active Committed	5/1/2006	8/31/2007	20	40
Knowledge Management	PRJ-0004244	Active Committed	11/30/2006	2/6/2008	0	15
Blood Bank System Selection	PRJ-0002294	On Hold	6/11/2007	8/28/2007	21	0

each month. In this example, the downward trend in the black bar is a result of contracts expiring for current contractors. In many organizations, the black bar will remain relatively flat because the number of staff may not fluctuate much.

Several conclusions can be drawn from this type of chart. It appears that there is enough staff capacity to handle the work that the analysts will need to do in September and October of 2007; however, as current projects wrap up and future projects kick off in early 2008, it appears there will not be enough analysts to handle the demand. Staff could be hired or contractor contracts renewed to meet the upcoming demand, or it might make sense to defer some projects based on the lack of staff capacity.

At University Hospitals, this chart can be displayed for one particular grouping of roles over time, as shown above, or for all roles for one particular month. So, in addition to seeing the analyst group for the next 12 months, leadership could see a snapshot of October, for example, that includes analysts, project managers, Web developers, interfaces, resources and others.

ONGOING CHALLENGES AND LESSONS LEARNED

Along with the visibility that ITDM provides comes the challenge of maintenance and upkeep. University Hospitals has found that several routine steps must occur to keep the demand

management reports accurate and current. First, accurate ITDM requires consistent and timely data review because incorrect data is magnified on the reports. On a weekly basis, University Hospitals resource managers are responsible for reviewing their staffs' allocations.

Reports such as the one in Figure 3 are useful in this process. It helps identify whether forecasted time is in line with actual hours being reported. The time that a staffer has been allocated to future work appears in the "Allocation" column, and the actual time that they billed on their timesheet appears in the "Actuals" column. By comparing actual to allocated time, the resource manager can tell whether a staff member has been working on the projects to which they have been allocated and whether a discussion or a change in future allocations is warranted.

Second, project managers must keep project plans up to date, including tasks, finish dates and other workplan parameters. As project timing and resource needs change, projects and their associated resource allocations need to remain current for the output reports to be correct. In addition, proposed projects need to be maintained, with new projects getting into the system, and cancelled, completed, and "on-hold" projects being tagged accordingly.

Next, various ITDM parameters need to be adjusted when they change. For example, as employees are hired, terminated or

transferred, the capacity parameters must be adjusted in the system. Resource and role groups, proposed project templates and workday calendars also need to be maintained. Orientation and training for new staff needs to encompass ITDM as well so new employees understand the value and the importance of keeping their information accurate and current.

CONCLUSION

IT demand management should be a significant part of running a healthcare IT organization. Management needs and deserves to know how the funds they are allocating to IT projects and operations are being used and whether IT can meet the staffing demands of current and future projects. By employing some key tactics to manage incoming demand for IT work, determine the proper supply and resource makeup, and communicate actual supply and demand to executives, healthcare IT organizations will be in a better position to obtain necessary funding, become more efficient and effective, increase customer satisfaction, reduce employee negativity, and start to show a real return on investment.

ITDM is no longer a future-state or leading-edge technology—it is being employed effectively in several industries and is gaining traction in healthcare IT organizations that recognize the opportunity and the ability to do more. **JHIM**

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