ABSTRACT

There is a tremendous amount of pressure driving organizations to implement computerized provider order entry. To unlock the greatest value, a more enterprise-wide strategic approach to healthcare IT is needed.

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CPOE Benefits

Before thinking beyond CPOE to integrated IT strategy and management, it is important to understand the benefits and challenges associated with CPOE. It is easy to see why many are pushing for greater adoption of CPOE within healthcare organizations. IT is one of the primary contributors to quality of care and there are certainly benefits that can be gained from a successful CPOE implementation. Studies suggest that more than 50 percent of medical errors could be eliminated from CPOE alone.

True CPOE functionality, which goes beyond order entry to include clinical decision support with evidence-based rules, alerts, and treatment guidelines, offers many benefits that contribute to improved quality of care and reduced medical errors. The primary benefits include:
complementary solutions. Both are cash- and resource- enablers order placement with clinical decision support, are information available at the point of care, and CPOE, which makes patient challenges, there is also the question of where to start. The approach helps organizations harness their information technology capability to achieve strategic and operational advantage. See figure 1, “A Strategic IT Management Approach,” for an overview that includes:

• Enterprise Excellence
• Portfolio Excellence
• Technology Excellence
• Solution Excellence
• Operations Excellence

Enterprise Excellence. The good news is there are ways to overcome IT challenges. Just last year, the Institute
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of Medicine noted that “despite some laudable examples of integrated care, the delivery system consists of silos.”

When IT decisions are made in different silos or departments, it severely impacts the ability to access a single view of patient information across the organization and exchange information between departments. Yes, one can build interfaces and most organizations do, but interfaces alone are not enough to create an enterprise-wide solution. There are several reasons why the decision to purchase a laboratory information system (LIS) should not be a lab-only decision. The decision should be made after broader consideration involving IT and the “CxOs” (chief executive officer, chief financial officer, chief information officer, chief medical officer, etc).

A broader decision means looking at the other systems in use or being considered for future use. While it is difficult to find one complete healthcare IT solution to meet all the needs of an organization, there is the option to purchase best-of-suite solutions that reduce the interface work and get some departments exchanging information and coordinating care delivery more efficiently. This is not to say that best-of-suite solutions are the right answer, but it is
helpful to know what other vendors are being used and think through the tradeoffs of one option over another. Involving IT in the decision-making process is a given, but the point to note here is that CPOE or other healthcare IT options should not be treated just as IT initiatives. Organizations need to focus on deploying healthcare solutions, not just applications or IT projects. Granted there is an IT component and IT direction is needed, but it is broader than that. An effective way to get this broader perspective is to align IT initiatives and spending with CxO strategy. But what does that mean in practice?

**Portfolio Excellence.** First, it means managing IT projects differently than how they are typically treated today. Rather than treating IT as a cost center that supports the requests from various departments, it should be managed as a strategic investment. This means the CIO should work with the other executives to translate the organization’s strategies into a supporting mix of IT projects. The CxOs should function as an IT Portfolio Management Team making tradeoff decisions in terms of funding, resources, risk, and return across the portfolio of IT projects. A key element of this is periodic reviews and monitoring the performance of the entire portfolio, at both an aggregate level and for each major project. Best-in-class organizations manage IT investments as a portfolio and focus on fewer, high-value initiatives. See figure 2, “Portfolio Management Intent versus Realities,” for some examples of things to watch out for with portfolio management.

The executive level is the right governance level to balance business priorities and allocate resources and funding to the most strategic initiatives. Managing a portfolio of IT projects also implies thinking about CPOE in the context of the EMR, and other healthcare IT options. This enables the organization to think cohesively about solutions and still choose to implement them a piece at a time.

**Technology Excellence.** Along with setting up the executive-level Portfolio Management Team to integrate IT planning with business strategy, supporting tools are also needed to drive technology excellence. These include metrics, an IT roadmap, and a risk impact assessment.

**Metrics.** As with any good process, metrics are important as a way to look at the aggregate progress and results. Metrics provide a quantitative, objective measure of process performance, which helps to identify areas requiring immediate intervention where the process is not functioning as expected.

Tracking too many metrics can make it difficult to know how and when to respond. Simply tracking a dashboard of metrics, such as schedule slippage, resource variance, and scope creep, can identify problems earlier when adjustments can be made. In order to do this, a consistent set of metrics must be defined and collected at the project level so it can be rolled up in the aggregate. Monitoring the performance of the portfolio is important, not just to keep things on track, but also to drive continuous improvement. Metrics enable the organization to continually raise the bar as increasing levels of performance are achieved, so they are an important tool for the Portfolio Management Team.

**IT Roadmap.** An IT roadmap is usually proposed by the IT organization to the Portfolio Management Team. An IT roadmap is a prioritized implementation plan designed to lead an organization to maximum returns on IT investments. It clarifies where the organization is going with respect to automation priorities and how to get there in the most efficient manner. Key questions answered by an IT roadmap include:
- What are the organization’s technical operations risks?
- Is there the proper focus on scalability and critical outage issues?
- What are the high-level business and clinical process requirements that must be supported over the next two to four years?
- What are the competitive differentiators, core competencies, and business operations risks?
- What does the current applications blueprint look like?
- What do the systems, processes, key data objects, and interactions look like?
- What should the future applications blueprint look like?
- What processes, key data objects, and interactions are needed?
- How does the organization get from the current to the future blueprint?
- What are the candidate package applications that meet business and clinical needs?
- What portions of the blueprint should the organization address and when?

An IT roadmap is a tool to help balance technical needs with business and clinical needs. It establishes the vision to support the business objectives and shows how to get there.

**Risk Impact Assessment.** Once an organization knows where it is going with respect to IT, next come the processes to help it get there. One of the traditional IT challenges is the interconnections and dependencies from one IT solution to another. This challenge is particularly tough in a fragment-
ed IT area such as healthcare. Getting different systems to talk to each other and share data is a full-time job. A risk impact assessment is a tool the IT organization can use to understand these interconnections and manage interface planning. It concentrates on the critical features/functions and the interaction of those functions between the systems.

Leveraging risk impact assessment requires the business and IT to use a structured and coordinated approach, which includes:

- Organizing the system layers in a framework that is flexible and scalable
- Organizing business functional layers in a framework that is aligned with a company's operations
- Connecting the systems and business frameworks in a manner that can be understood by both groups
- Ensuring that both business and IT have confidence in the completeness and accuracy of the data and commit to using the impact assessment techniques
- Defining a standard approach for the risk valuation of each systems-related component
- Creating the tools and techniques whereby the business and IT can quickly and easily leverage these concepts and apply them to real-world projects
- Determining the mechanisms required to ensure the underlying data is kept up-to-date and the processes can be enhanced over time.

The implementation of risk impact assessment can provide immediate, tangible benefits to the business and IT. The evaluation of concepts early on for potential systems risk provides business owners with valuable information to guide their interaction with specific IT resources. The visibility of systems risk can guide business owners in the elimination, grouping, or prioritization of features/functions. The control of the communication to business of the types of risk associated with changes to production systems elements can be achieved through IT’s management of risk profiles.

**Solution Excellence.** A good portfolio management process that aligns IT initiatives with executive-level strategy helps ensure the organization is focusing its resources in the right areas. The next step is managing projects on time and within budget. Best-in-class organizations use cross-functional teams to manage projects. This is particularly important in a fragmented and departmentalized industry such as healthcare.

The typical team structure is a Core Team composed of a lead representative from each key functional area. These team members drive the project and coordinate the effort of additional resources from their respective areas that make up the Extended Team.

Knowing the horror story of the organization that implemented a CPOE solution and then turned it off within a matter of days, the suggestion to include physician representation on the project Core Team should come as no surprise. It is important to have the internal users of the system involved right from the beginning to help define requirements for the system. Deploying healthcare solutions means thinking beyond system implementation and integration to thinking about business and clinical practices. To do...
this effectively, the team needs representation from the business and clinical areas. Automating the status quo is overlooking a huge potential value from the project. What workflows and behaviors should change as part of the solution? What can the organization gain by thinking beyond the departmental walls? This is where non-IT resources can help. They help move from Technology Excellence to ensuring that organizations deliver IT solutions that meet the business and clinical needs.

Clearly this is easier said than done. Clinicians are busy with their primary jobs so there is a need to show them the value of participating. Part of this comes from framing the project as a healthcare solution, not just an IT project, and part comes from the visibility and alignment with the enterprise-wide strategy. Beyond workflow considerations and clinical needs, clinicians can serve as lead users in later phases of the project to review proposed applications and test early installations while there is still time to adjust.

**Operations Excellence.** Even once the system is implemented, there needs to be an ongoing process for maintaining Operations Excellence. Operations Excellence includes:

- Optimizing operating cost (unit cost, service level, volume)
- Managing service delivery (internal market economy and policies)
- Sub-processes – Define>Measure> Analyze>Improve>Control (DMAIC)

It also includes a focus on the human aspect of change management associated with the system and helping the organization to work with the new practices. Once installed, it's important to assess the benefits gained and make adjustments if the users are not using the system as anticipated. This leads to increased customer satisfaction by collecting feedback and adjusting the system based on its use once implemented.

**Conclusion**

With a wide variety of IT packages and vendors, the implementation choices for a healthcare organization can be overwhelming. At times, healthcare IT can feel like a knee-jerk response to the hot topic of the moment and the pressures to keep up. While the decision to invest large sums of money in CPOE or other healthcare IT solutions is not taken lightly, they are all too often made one solution at a time. Certainly there are benefits that can be realized from such a decision, but to unlock greater value a more strategic approach to healthcare IT is needed. See figure 3, "Benefits of STIM," for a summary.

Value is left on the table when organizations make system selection decisions within a silo or make IT decisions that are not part of a broader clinical strategy. To realize the greatest benefits from CPOE or any other healthcare IT solution, the decision to invest should be made as part of a broader enterprise-wide strategy. Strategic IT management can yield substantial results:

- 15%-30% improved payback and ROI
- 10%-30% reduction in operating expenses
- 60%-80% increase in IT project success rate
- 50%-80% improvement in critical system availability

For cash-strapped healthcare organizations, the potential returns on IT investments are too important not to fully realize.

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**References**