

Barriers to Successful EHR Implementation

by Gary Reed

Barriers to Success

If the financial and clinical benefits alone were sufficient justification for implementing these advanced health information technologies, then adoption would be higher and health care would be further ahead in reducing costs and improving quality. But for a number of reasons, even demonstrating tangible benefits is not enough to propel adoption. Barriers and challenges stand in the way of more rapid adoption of advanced health care technologies.

Lack of information about the true costs, benefits and experience.

Information about what it takes to purchase and install these systems and the actual benefits of doing so has not been widely published for many of these advanced technologies even though industry experts agree that the associated benefits should be compelling. A recent focus on inpatient CPOE has only just led to an increase in published information about the costs, benefits and challenges of the technology beyond earlier years of research by several nationally recognized academic medical centers.

High costs versus competing needs.

In many cases, the initial purchase and associated implementation costs for these advanced technologies are known to be significant. Administrative and clinical executives at health care facilities cite the lack of financial support as the biggest barrier to implementing information technology. Only organizations with the financial resources and strategic vision to undertake such an investment purchase these systems especially when competition for capital dollars is high.

Benefits don't accrue to the purchaser.

In the case of several of the advanced technologies profiled in this report, the benefits of the technology do not accrue to the user-purchaser. For example, e-prescribing applications have been shown to help payers and pharmacy benefit managers reduce their drug costs through better formulary management and higher use of generic medications. Physicians who typically purchase these systems, however, reap no financial benefit (since they do not reap drug formulary savings and are not reimbursed for using these systems) and have few rewards or incentives for purchasing them. Ambulatory CPOE, disease management, physician/patient communication systems and other applications have a similar "cost-benefit disconnect."

Cultural resistance and inertia.

Physicians' resistance to change is commonly cited as a significant barrier that limits more widespread deployment of IT. While physician adoption of information technology does appear to be slowly improving, physicians understandably resist new systems that require dramatic change in how they practice, particularly if these systems take more time to use and provide few benefits to physicians themselves. There are physicians who get comfortable with a way of doing things and resist change. In addition, some physicians are critical of using computerized systems like CPOE and e-prescribing to care for patients, regarding such an approach as "cookbook medicine" (though, in fact, these systems can better support the ability to quickly access and manage large amounts of patient data and information about current clinical practices).

In the larger setting, adoption of technology and the associated operational changes can be a significant cultural challenge for whole organizations and for communities of caregivers. The use of many of these advanced technologies represents wholesale change in the way care is delivered. The benefits can be worthwhile, but the required effort to overcome cultural resistance can be enormous.

Vendor product immaturity.

In a few instances, development of the technologies is still early enough that the market has not yet "shaken out," making the vendor leaders – or even the predominant approach – less than obvious. Early adoption of technology can be risky when vendors exit the market or if unproven approaches fail. The complexity of health care coupled with this vendor market immaturity means that many solutions must be tailored to an organization's needs. There are few "off-the-shelf" applications that are easy to install without significant preparation. In addition, vendor product immaturity in an emerging market means that evidence of the effectiveness of the technology is often lacking. Finally, there are few industry-wide benchmarks or standards in place for the use and performance of some of these technologies. The CCHIT is an early attempt to address this last issue.

Legal/regulatory barriers.

In a few cases, legal and regulatory concerns associated with these advanced technologies prevent more rapid adoption. Lack of adequate patient privacy protections, for example, is often cited by cautious physicians as a reason for not adopting electronic communication with patients. Similarly, concerns were raised by privacy advocates in the past when regional data sharing efforts were proposed as Community Health Information

Networks (or "CHINs"). Newly finalized national privacy and security regulations along with new technical capabilities for transmitting and protecting electronic information – should minimize some of these concerns. In addition, changing laws requiring actual signatures to permit electronic signatures where appropriate may speed adoption.

Required infrastructure and lack of standards.

For some of these technologies, the infrastructure to support the application requires significant coordination among competing health care entities. Furthermore, a lack of industry-wide standards means that integrating disparate clinical systems, exchanging patient information and collaborating among entities is complicated if not impossible. Patients have office records, and hospital records and pharmacy records but there's no single uniform record and certainly not an automated one right now.

The hospital or medical office will require not just the technical infrastructure to simultaneously distribute and protect patient-identifiable data across a wide-area network, but cooperation among hospitals, physician practices, public health agencies, pharmacies, pharmacy benefit managers and laboratory vendors throughout design and implementation as well. Similarly, successful implementation of e-prescribing will require agreement to be reached between

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several competing approaches that are technically and politically divergent. There are a number of efforts underway nationally to address the adoption and implementation of standards for clinical systems in health care.

However, in establishing this network, a number of technical barriers and issues must be addressed:

- System interoperability and an open-system architecture
- Availability and cost of technology for remote regions
- User-friendly access
- Communications security (PKI standards)
- Rapid evolution of technology
- Current initiatives with proprietary hardware and software may limit EHR functionality
 - Merging of legacy systems into the new architecture
 - Interaction with other networks

Additional Barriers

The healthcare industry provides a unique vantage point to examine IT implementations considering the rapid infusion and diffusion of technological innovations in a highly legislated environment. It is further complicated where the primary focus centers not only on delivering quality patient care but also on facilitating continuous billing and reimbursement activities.

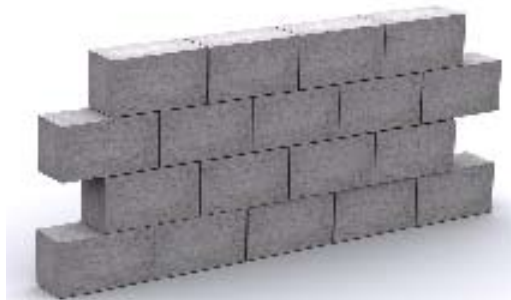
There is uncertainty surrounding many healthcare organizations' future technological resource and capital requirements because of the enormous scope of the necessary compliance activities, which have been brought about by legislation such as the Health Insurance Portability and Accountability Act (HIPAA). This indecision serves to emphasize the need for a higher level of efficiency within the management of IT processes, especially as it relates to the success of technology implementation projects.

The idea that successful IT implementation projects can be hindered by factors beyond those that are technology-based is not a new concept within project management education and research initiatives. Organizational factors do affect the success of information systems implementations, but the measure of success "must be individualized to the organization and to the various system users."

Fortunately, most non-technical factors can be controlled — or at least mitigated — within the project process if they are proactively recognized, properly understood, and ultimately expected.

Lack of leadership

Strong leadership and vision are the keys to a successful EHR implementation. The CEO, board of directors and senior management must believe that technology is the key for the future. Strong leadership is also needed on the departmental level. Managers and staff know the operations of their departments and they too must take a leadership roll in the adoption of electronic solutions and change management.



Lack of policies on key issues

While technological developments related to EHRs are moving rapidly, the development of key policies central to adopting EHRs has not kept pace. Until agreement is reached on such policy issues as privacy and liability, EHRs will face a slow and sometimes difficult implementation.

Privacy is the most important policy area that needs to be addressed in relation to EHRs. Without public support on how privacy will be addressed, EHR systems will not be able to proceed. Privacy involves the right of individuals to determine when, how and to what extent they share information about themselves and others.

Survey after survey has found that patients are concerned about the loss of privacy in an electronic world. Some of the broad privacy issues relating to EHRs are as follows:

- What information should be included in the EHR?
- Who should have access to the EHR?
- Which information in the EHR and under what circumstances should the EHR be shared with other health providers?
- How will a patient be able to access his or her own EHR?
- In what instances can the information in an EHR be used for secondary purposes (e.g. research, administration)?
- When is consent from the patient required?

Pre-implementation phase

The initial or pre-implementation phase is possibly the most important part of any IT initiative and should focus on activities that facilitate project success such as goal setting, planning, and communication. Successful IT implementations are perpetuated by factors such as key actor participation in goal development and challenge anticipation. In most cases unfavorable or undesirable consequences occur when there is a lack of focus regarding what to look for and think about.

Pre-implementation activities set the tone for all other phases of an IT implementation project, and it is important to recognize any potential progress impediments and be prepared to proactively address them. Some of the non-technical factors that can adversely affect a project before it even begins include:

- Insufficient communication to end-users/stakeholders regarding the project goals and objectives.

- Insufficient end-user/stakeholder participation in setting the project goals and objectives.
- Lack of project manager participation in pre-project decisions (e.g., vendor contract negotiations, project budget development, project time-line development, project resource projections).
- Development of an inappropriate/ -unrealistic project timeline.
- Inappropriate end-user/stakeholder expectation levels.
- Inadequate project workplan development.
- Inadequate/unrealistic project scope.
- Inadequate amount of budgeted capital for projected project costs.
- Lack of end-user/stakeholder buy-in and support of project-related initiatives.

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IT implementation projects require an executive-level “champion.” Within healthcare-based initiatives, that role is often filled by a physician stakeholder with a particular interest in the clinical system or application being implemented. During the planning stages of the impending implementation, it is important that the project champion and the end-user department leadership drive the goal-setting and scope-development activities, with the information systems leadership and IS implementation project manager taking on an advisory if not concomitant role.

However, project managers must be included in the earliest stages of pre-project decisions regarding budgeted capital, resource requirements, timeline, and vendor contract negotiations (if the application or system is vendor-supported). Without this early involvement, the credibility and leadership of the designated project manager is severely diminished and can lead to issues of accountability further into the life of the project.

A difficult situation can also occur when the project objectives set forth by the organizational leadership are truly unrealistic in terms of scope, resources, or technical deliverables, and therefore threaten to create a credibility gap between IS and its customers. This may call for a “push back” approach on the part of the project manager, which will force a rethinking of the project impetus, thereby further defining the goals or objectives to be achieved, “in what time, for how much, with what resources, and with what degree of risk.”

It cannot be overstated that open and frank communication between stakeholders, end-users, project team members, executives, and vendors must take place early on in the process to ensure that expectation levels are set appropriately between all parties, and common goals and objectives are clearly defined.

Implementation phase

One of the chief complaints among IT project managers is the lack of viable participation from end-users and stakeholders during the project process. The hospital should focus on the expectations of the stakeholders, use stakeholders as playing a major role, not only in the outcomes of a particular IS implementation, but in the organization’s competence in designing and implementing information systems as well. Positive and realistic stakeholder expectations are a necessity for success.

Regardless of the number of entities involved in an IT implementation project, the actual implementation phase requires closely managed workflow and resource oversight with particular attention paid to meeting predetermined milestones identified within the project’s critical path.

Training

No technology implementation can be successful without proper training, and many people in today’s workforce are very adept at using the technology at hand and seem to derive much more value from the training they receive because of their high comfort level. Yet there are still those who experience high anxiety at the thought of learning a new application or system, but given the necessary encouragement and support, they can become productive end-users.

Project resource management

Cooperative interdepartmental interaction between project participants is vital to the continued progress of workplan tasks, especially when specific technical expertise is spread across a number of different employees and/or disciplines. It could be said that project management at this stage is as much concerned with recognizing and managing organizational politics, mores, and cultural aspects as it is with ensuring task completion.



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Non-technical factors that should be recognized and managed as the project progresses forward include the following:

- Difficult/counterproductive project group dynamics (i.e. personality traits/characteristics).
 - Lack of appropriate/effective senior management oversight.
 - Insufficient end-user participation in completion of project tasks.
 - Inappropriate/inadequate project staffing (i.e., skill sets, experience levels).
 - Insufficient project workplan management.
 - Existence and/or perpetuation of cross-departmental agendas within the accepted project scope.
 - Inadequate management of project budget.
 - Absence of project critical path development/tracking.
 - Inadequate tracking/management of external project resources (consultant/vendor).
 - Insufficient/ineffective end-user training.
 - Insufficient pre-project resource planning/cost analysis.
 - Project scope “creep” (expansion).
- Uncontrolled and unbudgeted project expenditures.
 - Insufficient pre-production application testing (to include parallel testing if replacing a legacy application).
 - Insufficient LIVE event planning.
 - Insufficient end-user participation in LIVE event.

Post-implementation phase

The post-implementation phase is the culminating activity of an IT implementation initiative. The “LIVE event” typically involves the migration of the new application or system into a production environment, hopefully with the benefit of well-trained end-users, properly functioning hardware and software, and a sufficiently staffed support contingent ready to address any system or operational issues.

Realistically however, LIVE events are often high-stress situations with anxious end-users and an almost overbearing feeling of vulnerability and uncertainty that is shared between all parties. This is particularly evident in healthcare IT implementation projects where the performance of newly installed applications or systems is often an essential part of maintaining the flow of patients across the continuum of care.

Non-technical factors such as inadequate or insufficient post LIVE support staffing, post-LIVE end-user anxiety, and a lack of sufficient post-project issue remediation can have a negative effect on the final stage of the project and tarnish what may have been an otherwise successful and supported initiative. Most project managers would agree that post project end-user issues are less prevalent when the system or application training has been well received and there has been a high level of participation.

To ensure the smoothest possible transition from implementation to productive use, this final phase should be given the same planning and attention to detail as was given to the previous phases of the project. Project managers, implementation team members, and stakeholders must remain engaged in the project objectives and goals and bring to bear all the training, expertise, and experience necessary to carry the initiative to successful fruition.

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