



# Reaping the Benefits and Avoiding the Risks of an Epic Implementation

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and clinical leaders

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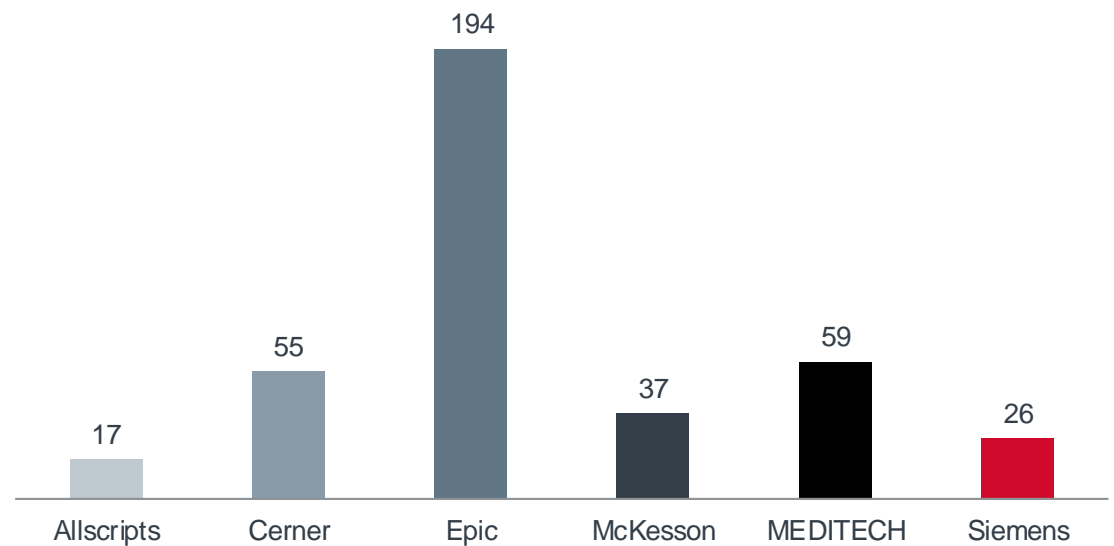
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Epic Systems Corporation boasts a significant share of new EMR implementations and a successful track record. However, because of Epic's strengths some customers may rely too much on the Epic implementation approach, advice and tools, resulting in increased risks. Leading organizations avoid these risks by taking an aggressive "advise and consent" approach which benefits from, but places a critical eye upon, Epic's implementation process. Providers should resist over-reliance on Epic and embrace ownership of key success factors: benefits identification and realization, project governance, results reporting, project staffing levels, project sequencing, applications standardization, and integration testing.

## In the US, it's mostly Epic

Our recent research report (see "Driving Too Fast without a Clear Vision Can Cause a Crash," Applications and Technologies Collaborative, 2013<sup>1</sup>) described risks that can be associated with the rapid, big-bang implementation of any EMR vendor's product. In the US one vendor is doing the lion's share of recent implementations. As shown below, Epic Systems Corporation has as many hospital EMR installations in progress or planned as all other major vendors combined.

**Figure 1: US hospital EMR\* installations, in process and contracted/not yet installed, 2012 and 2013**



\*Source: HIMSS Analytics vendor database, clinical data repositories; report generated on 11/05/2013.

Given Epic's large share of new EMR implementations, we wondered how the risks and potential solutions described in our previous report differed for Epic customers. We interviewed some of Epic's most experienced US hospital customers and the busiest Epic implementation consultants, and analyzed their responses, to determine how Epic implementation projects differ from those for other vendors' systems.

1) Thompson, D., Kleinberg, K., Mohan, S., "Implementing an EMR for the Money: Driving Too Fast Without a Clear Vision Can Cause a Crash," Applications and Technology Collaborative, August 2013; available at <http://www.advisory.com/Research/Applications-and-Technologies-Collaborative/Research-Notes/2013/Implementing-an-EMR-for-the-Money>.

# Epic's implementation approach

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Epic does a number of things designed to ensure the success of its EMR implementations:

- Customers
  - Selects organizations as customers that it believes have the ability to succeed—generally larger organizations with adequate resources to devote to the EMR implementation
- Planning
  - Describes in candid detail the resources and commitment that are required for technical success
  - Provides a comprehensive implementation approach including work plans and timetables; multiple on-site readiness assessments; staffing recommendations by application to be installed; staffing recommendations for optimization and maintenance of the systems post go-live; and starter configurations and best practice recommendations for design, build, and implementation
  - Educates senior provider executives on its “principled implementation” approach and encourages operational (not IT) leaders to own the implementation
  - Encourages an intense focus during its implementations, often quoting a customer CEO who told his organization that Epic implementation was their only strategic initiative at that time
- Resources
  - Strongly encourages dedicated full-time staffing of customer project resources
  - Requires certification of customer project team staff before they participate in the implementation; certification is done on-site in Wisconsin and involves passing multiple tests and completing projects that give trainees practical experience in the system
- Standardized Implementations
  - Focuses on going live quickly, and on time rather than including highly configured functionality
  - Trains its staff to strongly resist local provider pressure to deviate from the recommended implementation approach
  - Encourages adherence to its recommended implementation approach (e.g., certified and dedicated project team staff) by providing a substantial “good install” discount
- Networking with successful clients
  - Connects new customers with those who have already implemented its EHR through its Community Library of clinical content, Epic Earth platform for provider-to-provider interaction across organizations, users’ group meetings, and advisory councils (focused by role or applications, such as the Physician Advisory Council)

On the other hand, Epic's approach has limitations:

- Some of Epic's enthusiastic young implementers lack operational experience in hospitals or physician practices, so they must rely heavily on Epic's standard methodology and tools; their advice is not always correct when situations or needs vary from what is typical or average.
- Even though Epic's recommended implementation staffing is higher than that of most other vendors, it often falls 20% to 30% short of the full requirements for the implementation project, for reasons described in the *Seek External Input on Project Staffing* section below.

- Epic’s “foundation” (model) installation plan limits customization or extensive configuration until after go-live, which can hinder initial physician buy-in, end-user cooperation, and value realization.
- Some of Epic’s build tools (e.g., for care plans and other areas in which outside content is used) are less automated than they could be, increasing the resources required for building.
- Epic’s approach does not fully address the staffing and methodology needed for project governance, process redesign, change management, and benefits realization, which are essential components of a fully successful EHR implementation.

That said, Epic’s methods are generally very effective in delivering a successful technical installation. Unlike other leading EMR vendors, Epic reports that it has had no de-installs due to customer dissatisfaction in its history.<sup>2</sup> A large majority of the most highly functional US EMR installations (classified as HIMSS Analytics EMR Adoption Model Stage 7), for both hospitals and physician practices, are Epic customers. The high success rate for Epic’s implementations is one of the key reasons for its current position atop the US EHR market.

## The challenges of success

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While Epic has been the primary beneficiary (among EMR vendors) of the HITECH Act, its high sales volumes and reputation for fast, large, and successful EMR implementations have resulted in some challenges which affect Epic more than other vendors, and which have led to recent changes in its approach and emphasis.

1. In prior years Epic was known to push customers to move more quickly; however, as meaningful use pressures increase, the situation has been reversed. Epic leadership told us that today as many as two thirds of their customers are trying to go faster than they recommend, while very few need to be pushed to implement more rapidly. As Epic grows it can no longer select its “ideal customer” to the same degree; as a result, some of Epic’s newer customers are less sophisticated than its earlier customers. In many cases these customers picked Epic partly because of its reputation for being able to implement rapidly, and are under pressure due to meaningful use deadlines. This increases implementation risk and stress on both Epic and customer resources. Epic is now trying to slow down some of its customers, while thinking creatively about how to modify its implementation methods to accommodate their desires.
2. Until 2005, an Epic EMR system was largely built from scratch. Responding to pressures from its customers, who felt this was too expensive and time consuming, Epic introduced its “model system,” which included preconfigured settings based on lessons learned from previous Epic customers.

While a model build shortened the time to go-live, the term “model” seemed to imply a goal or ideal system, instead of the starting point for needed configuration. However, in some cases the model system was not well matched to local or specialty specific-care processes, documentation needs, or other workflows, leading to dissatisfaction and a lack of adoption. For example, Texas Health Resources implemented Epic’s surgery management system (OpTime) about three years ago. One of OpTime’s releases had an option to change the user’s default view from patient list to schedule. Then-CMIO, Dr. Ferdinand Velasco, explains:

2) The HIMSS Analytics database shows only two Epic customers ever changing vendors, in both cases switching to MEDITECH because of a merger.

“This approach (default schedule view) went fine at a couple of hospitals, but pushback from surgeons started building up. We wanted to go ahead and finish the implementation of schedule view because we weren’t sure if this was just a change management issue or if it was actually negatively impacting workflow. We really wanted to give physicians more time to adjust, but they couldn’t quite get over the issue. It became evident that this was not about resisting change—it was about things not working well. So we decided that the right thing to do was to deviate from the model system.”

Recently Epic changed its term for a standardized approach to “foundation system,” in an attempt to clarify that it is a starting point, not a destination. Epic now emphasizes that there is no single right answer for a “percent of foundation” that a customer should implement.

3. In general, a big-bang, foundation-built implementation requires more enhancement and optimization after go-live in order to realize expected system benefits of quality, safety, and efficiency. As senior executive focus on EMRs has increased in the US, and as Epic has moved into other countries where IT investments require more rigorous financial justification, their need to realistically estimate, reliably deliver, and accurately measure tangible benefits has grown.

Epic recently developed a “benefits workbook” which helps its sales people and customers identify and estimate potential benefits, and has promoted the use of an extensive library of automated process and outcome metrics, or key performance indicators (KPIs), which it encourages customers to select and track. Epic collects and has increasingly promoted the use of a database of customer metrics, or “metrics framework,” which includes, but is not limited to, the KPIs, which can guide customer benefit realization efforts. Epic has encouraged customers to work together to understand and pursue tangible benefits via its national user group, local and regional groups, advisory councils, and informal collaboratives.

## Avoiding the risks, Epic style

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In our previous research report (see “Driving Too Fast without a Clear Vision Can Cause a Crash,” ATC, 2013), we described six risks of a rapid, large-scale EMR implementation driven primarily by meaningful use deadlines, namely:

1. Loss of organizational goodwill
2. Withdrawal of support
3. Conversion or duplication
4. Burnout and exit of IT staff
5. A strategy gap
6. Lack of measureable value

These risks can affect any vendor’s EMR implementation; however, as we already mentioned, most new US EMR implementations are Epic systems. And many of those customers selected Epic at least partly because they wanted to implement rapidly, so it is likely that these risks are affecting mostly Epic customers.

We also recommended a number of ways to avoid or mitigate these risks, under the following headings (see “Driving Too Fast without a Clear Vision Can Cause a Crash,” ATC, 2013):

1. Begin with the End in Mind

2. Governance, Governance, Governance
3. Reporting and Transparency
4. Seek External Input on Project Staffing
5. Consider Slowing Down
6. Get the Sequencing Right
7. Manage Change
8. Don't Hijack, Integrate
9. Select or Hire the Right Project Director
10. Learn from Other Customers
11. Standardize Intelligently
12. Consider Postponing Major Changes
13. Get Organized
14. Hold the Line on Testing

These recommendations generally apply to all EMR vendor implementations; however, there are Epic-specific nuances in several of these areas that are important to note, as described below.

## Begin with the end in mind

Even though Epic encourages operational (instead of IT) ownership of its implementations, in most cases operational project owners are still focused primarily on a successful technical implementation rather than on achieving specific, measurable benefits. While Epic's new benefits workbook gives customers some help in clarifying their most important strategic benefit priorities, customers still need to figure out how to configure their system to support specific benefits, measure benefits where reporting cannot be automated, and actively manage benefit realization activities after go-live.

Epic does provide a number of other tools beyond the benefits workbook to help its customers better understand and measure benefits, including the above-mentioned database of customer benefits. The automatic reporting of KPIs begins at go-live, but if customers collect and share their own pre-implementation baseline data, those baseline measures are also kept by Epic. Customers should contact their Epic representatives and get their help in identifying other sites that have successfully realized the benefits they desire. Studying those cases and their reported KPIs will help clarify the benefit mechanisms and potential pitfalls. New Epic customers should contact existing customers to ask questions and hear more about how they approached the benefit realization effort. Most Epic customers are willing to share this information, and may allow others to visit, or may be willing to make on-site visits if their expenses are paid.

Because of Epic's intense focus on a successful go-live, some of its customers under-appreciate and under-resource the optimization work required after go-live. As Gary Ginter, IT executive at Premier Health Partners puts it, "Implementing an EMR is not the end-all—it's not even close. It's the beginning of the transformation." Most of the benefits of an Epic implementation will be realized as a result of optimization, and realizing those benefits will take time and effort. MaineHealth's former CIO, Barry Blumenfeld, has this cautionary advice: "A lot of organizations make the mistake of looking at go-live as the end. They have to plan up front for post go-live optimization. Having no money left at the end of the perceived finish line is a bad situation."



## Governance

One often-neglected element of governance is assigning appropriate roles and responsibilities. As mentioned above, Epic stresses operational ownership of the implementation project. Because Epic implementations are more integrated and generally larger in scope, and have a greater initial impact on every aspect of daily operations, operational ownership is especially important. As one Epic customer CIO explains: “Epic’s way requires more organizational change in terms of workflows and processes than other systems. For example, all Epic’s processes are spawned by an order activity. Therefore, in Epic, you end up creating an order that you traditionally would not need to.” Epic customers who tried a more traditional IT-led implementation generally came to agree with the need for greater operational ownership.

Among those was Premier Health Partners’ Gary Ginter, who says: “What we learned in hindsight from our first implementation project was the need for an operational owner. During our first go-live, there were difficulties with getting a buy-in from the departments because the implementation was perceived as an IT project. After first go-live, it was realized that an operational position having an authority to engage departments was absolutely essential. A VP was assigned the role and given the operational authority over the project. This was a huge help, and a key reason why the rest of the implementations went so well. The operational leader was able to drive the departments and have a representative from each department report the efforts, readiness, risks, training progress, and workflow changes at meetings six months ahead of the go-live. The project manager still monitored milestones, tracked projects, etc., but teamed with the operational owner.”

## Reporting and transparency

Epic’s extensive list of automated KPIs can give operational leaders the sense that they are measuring the necessary project benefits; however, the available KPIs do not include good metrics for many of the most important EMR benefits (e.g., adverse drug event/adverse event [ADE/AE] reduction, staff time savings, risk-adjusted outcomes). Most Epic KPIs are tactical and/or limited to specific functions and departments rather than reflecting the accomplishment of over-arching strategic priorities, which are the most important things to measure.

The growing number of meaningful use and accountable care reporting requirements should increase the number of useful metrics available for EMR benefits reporting in the future, but will not eliminate the need for non-automated and/or non-standard metrics as described above.

Once customers have established their own short lists of desired benefits, they should review the available KPIs and determine which desired benefits can be measured using the KPIs. Other metrics will likely be required that cannot be automated. As one Epic customer’s CIO notes: “KPIs from Epic are good, but organizations need to develop metrics beyond those—metrics that are specific to the organization and are more strategic than process- and workflow-oriented KPIs that Epic brings.”

Epic’s benefits workbook, mentioned above, includes long lists of potential outcomes associated with EMR use, and a recommended process for tracking those outcomes. Epic provides some support for developing the business case around the benefits workbook prior to implementation; however, the realization and measurement of strategic outcomes associated with an EMR remains the responsibility of the customer (as it should).

## Seek external input on project staffing

Epic recommends basic staffing for a standardized design, build, and implementation. Because Epic has a reputation for honesty in staffing recommendations, some customers try to run their implementation with the staff recommended by Epic. In many cases this is 20% to 30% fewer resources than they need, for several reasons:

1. Software customization needs are often greater than what Epic estimates.
2. Epic assumes hospitals will follow its implementation methodology, including a foundation build.
3. Certified but inexperienced staff may not be able to match the coding productivity of Epic's own resources, and the Epic build tools are not as automated as those of some vendors, especially in areas (such as care plans) in which external content is used.
4. Epic's recommended staffing does not include all of the resources required for change management, benefits realization, process improvement, etc.
5. Epic's staffing calculators may yield low numbers for some functions, depending on local culture and operations.

While recent customers report that Epic has improved the specificity and accuracy of its staffing assumptions and estimates, most agree that one of the most useful things you can do before beginning an Epic implementation is get an objective, external estimate of your true staffing needs. Arthur Harvey, former Director of Applications and Development at the Boston Medical Center, says, "The best money we spend on the planning for our Epic implementation was on getting experienced help, including staffing estimates."

VP of Dean Clinic and Regional CIO of SSM Health Care of Wisconsin, Dave Lundal, says: "One of the toughest things for a new organization just starting with Epic is to get the staffing right. Now that we have ten years of experience implementing Epic we think we have a pretty good handle on how to staff an implementation. Now, we drive those estimates, not Epic, and it's a complex process. After we present at conferences there's always a long line of people wanting our staffing and budgeting calculator."

Robert Slepik, CIO at John C. Lincoln Hospital in Phoenix, suggests comparing Epic's staffing recommendations with those from other customers or outside consultants. "This helps with triangulating the estimates and arriving at a close-to-accurate number for staffing," he says. "It is also essential to consciously look at types of skills (not just the numbers) required in terms of staffing by area."

If you think you might have begun your implementation with insufficient staffing, immediately get an outside readiness assessment done by the most experienced Epic consultant you can find: start with recommendations from other Epic customers, and the KLAS implementation planning ratings to find the right firm.

## Get the sequencing right

Because Epic is a highly integrated system, sequencing is even more important in an Epic implementation than it would be with many other vendors. A leading Epic consultant notes that "Epic works best in real life if all of its modules are used together—having other vendor modules that require interfacing creates a lot of integration issues. In some situations, leaving the lab module out is manageable, but leaving rev cycle out presents a lot of issues. This is why a big-bang approach is most effective for Epic."

In addition to the technical issues, sequencing should also be driven by the implementation of the organization's primary goals or expected benefits. Harris Stutman, CMIO at MemorialCare, says, "Core clinicals were the focus of our original big bang (ED, Inpatient, Clinical Documentation, Nursing Documentation, CPOE, Physician Documentation, and Pharmacy) because our primary initial focus was on medication safety and clinical efficiency. Splitting up clinicals to do a phased rollout would have realistically not been a coherent strategy. Ancillaries and revenue cycle are different. They represent separate challenges and if resources are constrained can be done later on."

## Select or hire the right project director

It is important to find a project director who has many of the required characteristics described in our general note on EMR implementation (see *Driving Too Fast Without a Clear Vision Can Cause a Crash*, ATC, 2013), and who can also integrate Epic's well defined implementation approach with organizational needs and characteristics. The Epic project director at a large multi-hospital system agrees: "If you have a project director/projector manager who has never been through an implementation before at the helm, chances are that a lot of things will be missed." Daniel Barchi, CIO at Yale New Haven Health System, and former CIO at Carilion Health System in Virginia, feels that "Financial experience, clinical exposure, and IT experience are an absolute must" for an Epic project director.

An organized project management approach can be especially helpful because of the size and complexity of many Epic implementations. An experienced consultant who formerly worked for Epic explains: "In spite of the structured/disciplined methodology that Epic has for implementations, they are not known for doing well on the project management front. So the customer must have an organized project management approach. At least 40% of the people on the project should have prior project management experience."

For this reason, a properly staffed and managed project management office (PMO) can be really helpful in an Epic implementation, if they are able to adapt their approach to work with Epic's methodology. An experienced Epic consultant explained that, "Most PMOs are not equipped with people who really understand project management of a major clinical system install. There is a need for clinical expertise and a need to work with vendors on project plans they bring. So a PMO doesn't eliminate the need for a strong project management at the project level. That being said, if the PMO can complement Epic's methodology and provide visibility and support, then this can be a very successful model."

## Learn from other customers

Most EMR vendors try to connect new customers with older, successful customers. Epic is uniquely positioned in this respect, with large numbers of highly functional installations to choose from, including two thirds of US HIMSS EMRAM Stage 7 hospitals. Epic customers generally feel that they are part of an exclusive club, and are especially willing to talk with other "club members."

Dr. Ferdinand Velasco, former CMIO at Texas Health Resources, explains: "We frequently ping our colleagues who are perhaps ahead of us to get guidance about handling a particular upgrade or to ask them about their approach to dealing with a certain challenge. For example, in Epic's version 12 that we have recently upgraded to, there were significant changes in the order management workflow in the CPOE module. Although I was very involved in providing inputs to the development team, I was also very anxious about how the changes would look and how they would be received. Fortunately, a peer hospital implemented this a month ahead of us and didn't have any problems. They gave us specific recommendations about how to approach training and support, and it worked very well for us."

Epic's user group meeting facilitates networking, and not just for IT leaders and staff. A large number of hospital CEOs and other senior executives also regularly attend. This allows opportunities to get IT and other executives on the same page, and foster a dynamic vision of the potential benefits of Epic optimization. IT stakeholders additionally maintain formal and informal relationships through conference calls, independent user communities, meetings, private conferences, etc. Best-practice sharing and discussions on regional/state level activities (e.g., health information exchanges [HIEs]) happen in these events.

Epic Earth is an online repository of data/presentations, a discussion forum for interaction and posting questions, an e-learning module, documentation of functionality, etc. Benchmark data from other customers are available, including operational, clinical, financial, and capital expenditure information for comparison with other organizations, although the comparisons are not at a cohort level.

Some advanced Epic customers have also developed tools and approaches to help with implementation and optimization, which they are often willing to share. Examples include Sentara Healthcare's benefits-driven implementation and optimization approach, and Dean Clinic/SSM Health Care's staffing calculator, mentioned above, designed to help Epic customers estimate costs for customizations to evaluate affordability and timelines.

## Standardize intelligently

As discussed in the Challenges of Success section above, there are pros and cons to Epic's foundation build approach. On the one hand, a foundation build offers a substantially faster and less costly initial installation. As an experienced Epic consultant notes: "Going with a [high percentage foundation build] reduces time and resource requirements to get the users on to the system. This can be followed by identification and prioritization efforts for key optimization projects/customization efforts that are required. The key to making this approach successful lies in the ability of the establishment to convince end-users/departments about adopting the initial model installation and to assure them about coming back to improve the workflows eventually." Yale's Daniel Barchi adds, in relation to their model implementation: "Some physicians felt a sense of loss on specialized tools, but the focus for new systems was on the greater good, patient benefits, and an integrated system."

On the other hand, as the previously cited experience of Texas Health Resources illustrates, there are times when the foundation configuration is not the right answer, and it would be better to take the time to design something different as part of the initial installation. Figuring out the right solution for a particular organization can be difficult, but having an experienced project manager and project staff can help, as they bring perspectives from their previous implementation projects. Talking with other Epic customers can also be helpful, especially with organizations that share characteristics and/or goals.

## Hold the line on testing

Because of the solid design and reliability of the Epic system, Epic has reason to be confident in the performance of its applications, but it cannot take responsibility for the performance of third party products that may have been integrated with the Epic software. Epic correctly asserts that there are diminishing returns to testing and that some problems are easier to spot in production after go-live than during a test cycle. The issue is where to draw the line.

The past experiences of many Epic customers teach them to be cautious about testing, particularly when it comes to the integration of applications from multiple vendors. The customer organization has to judge the readiness of the whole, not just the Epic software, before committing to go-live, so it is only natural that there is some tension over this issue. The pressure that Epic applies to its customers to get through integration testing as expeditiously as possible can be beneficial and prevents paralysis, but it has to be balanced against the levels of risk that its customers' cultures will allow. As Kris Clickner, Sentara's VP of Information Technology, notes: "Standing firm (insisting on more integrated testing) and working with the Epic implementation team to help everyone understand the rationale for the testing was a good thing (for us)."

# Conclusion

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The pressure to implement an EMR very rapidly increases the stress and risks of the implementation effort. Careful planning, based on a clear idea of how an EMR delivers its benefits, can mitigate these risks, and may lead to adjustments in the approach, timing, or sequencing of the implementation. Hospital providers that are now in the midst of an EMR implementation can still do many things to reduce risk, stress, and negative consequences. This is true for Epic implementations, just as it is for other EMR vendors.

Epic's strengths can help ensure a successful EMR go-live; however, one consequence of its track record of successful implementations is that some customers rely perhaps too much on the Epic implementation approach, staff, and tools. There are a number of areas in which it is important to think carefully about the planning and execution of an implementation, where an over-reliance on a vendor's approach or assistance can cause problems. Customers should use all of Epic's considerable resources, but in the end they must understand and take organizational ownership of benefits identification and realization, project governance, results reporting, project staffing levels, project sequencing, application standardization, and integration testing.

# Advisors to our work

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