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2019 Fall Reading Guide

A Healthcare Executive's Guide to Digital Transformation

Table of Contents

Setting the Stage for Success

Digital transformation involves leveraging technological innovation in new and novel ways to improve the quality, efficiency, and accessibility of product and service delivery across all aspects of daily life. Some examples include online shopping, mobile banking, ride sharing, home automation, and more. Digital transformation is all around us – there are very few facets of our lives that we can't control with the simple tap of a screen.

In healthcare one of the earliest examples of digital transformation was the transition from film to digital imaging, which delivered significant improvements in reading efficiency, shareability, traceability, and cost. What followed was the wide adoption of electronic medical records (EMR) (thank you Affordable Care Act), which provided further improvements for managing a wide variety of patient information. Once bleeding edge, these technologies have sailed the innovation curve to become mainstream applications that every healthcare organization has adopted in some form or scope.

Now, technological advancements such as micro-processors, 5G, and machine-based intelligence have opened new doors for improving accessibility to care through remote visits or monitoring, leveraging 'big data' to improve the efficiency of care delivery by predicting demand patterns, disease states, and treatment outcomes, and

providing a better healthcare experience for both patients and providers alike all while providing opportunities to reduce costs.

Technology is advancing faster than ever before, and there are countless ways it can be leveraged to deliver significant and measurable improvements to the quality, efficiency, and scalability of healthcare. You might be wondering, what technologies make the most sense and will deliver the greatest value for your organization and patients? How can you drive buy-in and adoption across your organization? How can you avoid the risks and pitfalls associated with adopting new technologies?

In this guide we will address all of these questions, and more, to help you develop strategies and tactics for fostering a culture of innovation in your organization, evaluating the value propositions behind new technologies, avoiding common failure -points and pitfalls, creating the structures and processes necessary to be successful, and measuring and monitoring your success. After all, digital transformation is already all around us – is your organization ready to reap the benefits by staying ahead of the curve?

Digital transformation is already all around us – is your organization ready to reap the benefits by staying ahead of the curve?

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Creating a Culture of Innovation

The first step in beginning the journey towards digital transformation is ensuring your organization is on board with the vision and process. However, if you've ever undertaken a process re-engineering effort or introduced a new technology into your organization then you understand that change is hard. It's often met with resistance that is driven by feelings such as fear, powerlessness, skepticism, and a misguided comfort in the status-quo.

Building a culture of innovation in your organization that not only accepts but embraces positive change through innovation calls for these feelings to be addressed head-on by challenging your assumptions, engaging and empowering your employees, and introducing innovation -friendly processes that reward creativity and support continuous improvement and learning.

Building a culture of innovation calls for challenging your assumptions, engaging and empowering your employees, and rewarding creativity.

You know what they say about assumptions, why not let go of them?

Your assumptions are based on your organization as it is today and were formed through the collective past experiences of yourself, your predecessors, and your employees. Fostering a culture of innovation means bringing fresh new ideas and perspectives to the table – which means constantly challenging assumptions and reframing expectations based on your evolving current and future state.

Your employees are catalysts for positive change

There's generally no shortage of ideas and insights on the front lines, but few organizations manage to successfully harvest and support them so that they can realize their full potential. You can overcome those feelings of powerlessness by empowering your employees to become catalysts for positive change by building a process that encourages and fosters innovation. The following 5 steps outline a framework for efficiently and effectively gathering, evaluating, and implementing new ideas:

1. Encourage staff from all departments and levels to share their ideas, and make it easy for them to do so

2. Implement an idea review team that includes representation from leadership, as well as key stakeholders from across the organization

3. Create a checklist of core criteria that an idea must meet before it is seriously considered, such as its alignment with your organization's overall direction and vision, importance of the problem to be addressed, perceived feasibility based on available resources and budget, and perceived positive impact if implemented

4. Leverage progressive investment to further vet promising ideas by defining clear gates such as stakeholder validation, business case development, and proofs-of-concept to validate assumptions and measure potential cost and outcomes and define clear and measurable success criteria that must be met before progressing to the next phase

5. If value is demonstrated give your employees the runway to test and implement their ideas by putting them into action

Nothing can stifle creativity and innovation faster than an unhealthy obsession with the f-word – failure.

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Celebrate creativity, don't punish failure

To keep motivation and spirits high it's important to take some time to celebrate successes and recognize the efforts and accomplishments of your employee-innovators. This reinforces the benefits innovation can bring and demonstrates forward momentum – both can help combat some of those feelings of skepticism and fear.

Conversely, nothing can stifle creativity and innovation faster than an unhealthy obsession with the f-word – failure.

When an idea doesn't work out as expected it doesn't always mean it's destined for the trash can. Rather, it presents the opportunity to identify some lessons-learned, re-think the solution, and work towards a better final solution. Imagine if Roentgen had given up after his first failed attempts at developing x-rays? A strong culture of innovation celebrates and learns from the innovation process, rather than playing it safe because of a fear of failure.

So what? 4 key takeaways

1. Establishing a culture of innovation that engages your team and embraces changes in your organization is a critical first-step for successful digital transformation

2. Let go of the status-quo. Encourage your team to think outside the box and bring forward ideas for positive change.

3. Make sure there is a process in place to vet and prioritize new ideas according

to your organization's objectives, capabilities, and resources to assess feasibility and ensure those with the greatest potential are identified and executed upon.

4. Reward creativity and effort through regular communication, recognition, and celebration of key milestones.

Evaluating the Value Proposition of Digital Transformation

IT leadership in healthcare organizations around the country struggle to decide how their organization should invest in innovative technology to help reach the goals set by the organization's executive team. In order to stay relevant IT leadership must invest in innovative technology, but who determines if a technology is innovative? Is there an objective measuring tool, or is it mostly influenced by subjective buzz generated by the industry? As with most questions there is no single answer.

What makes a technology valuable varies from organization to organization. Each organization must have a methodology to evaluate the value proposition of innovative technologies based on their own burning platforms, future objectives, resources, and competencies. Unfortunately, it is far too easy to follow the industry buzz without fully evaluating the underlying technology to determine the level of value within your specific organization. Watch out for internal and sometimes external politics, which often come into play as there can be many influencers and constituencies that affect the decision-making process.

Sort through industry noise to identify the digital transformation investments that are best for you

The challenge facing today's CIO is to sift through all of the industry noise to determine where there is true value, and even more importantly how their organization can tangibly benefit from investing in certain technology innovations. In order for organizations to stay competitive in their market they must stay ahead of the technology innovation wave because when you fall behind it can become exponentially more disruptive and expensive to catch up. Conversely, it should also be noted that it could be just as costly when you get too far in front of that wave and fall off due to the technology not producing the value to the organization that was expected.

Perspective is the fundamental component needed to build an evaluation process that will provide standard, codified, objective results. CIOs should keep relevant trade periodicals for at least a ten-year period to provide perspective on the buzz of innovative technologies from the past. Looking back, did the technology live up to the hype, and was it worthwhile for those who chose to invest? As we all know, hindsight is 20-20. Use this concept to gain perspective on the current buzz to help determine if the technology innovation will have been worth investing in ten years from now. For instance, is current cloud technology worth the investment? How about artificial intelligence? I personally find genomics to be fascinating. The potential for improvements in clinical care seem almost limitless. However, not all new technologies are able to deliver on their expectations and promise, so it's important to look through multiple objective lenses when evaluating the risk-reward balance and determining whether a technology is worth investing in today.
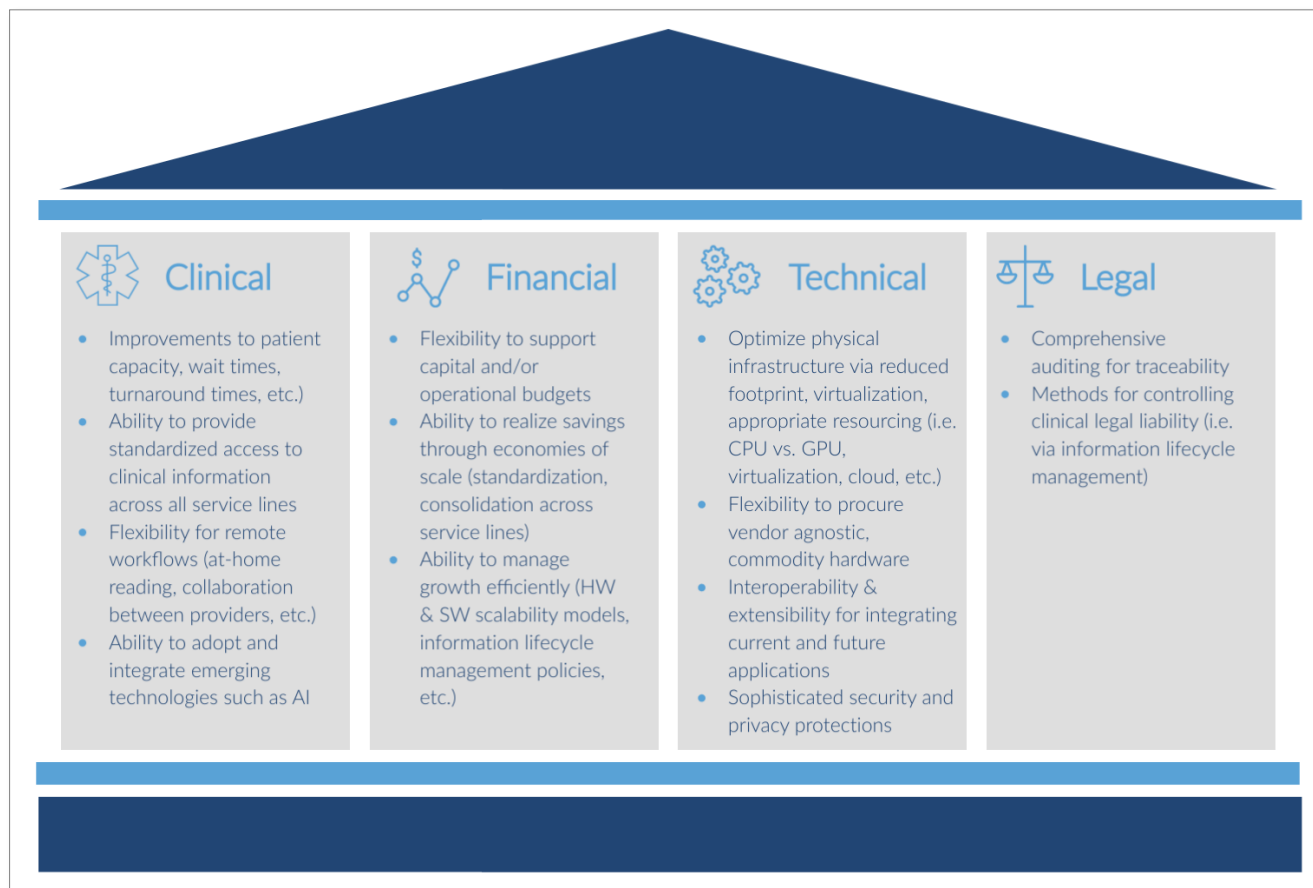
Not all new technologies are able to deliver on their expectations and promise, so it's important to look through multiple objective lenses when evaluating the risk-reward balance and determining whether a technology is worth the investment.

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Objective evaluation and prioritization of digital transformation initiatives

When evaluating digital transformation opportunities, it is important to not base decisions solely on the financial bottom line or clinical benefits alone. Figure 1 below illustrates the four pillars, which encapsulate the evaluation criteria pertinent to any healthcare organization: Clinical, Financial, Technical, and Legal. This is typically the order of priority that many organizations seem to agree with; however, the order can be evaluated and changed on a case-by-case basis.

It is important that the evaluation is not limited to a single point in time, but rather considers the time horizon over which the organization expects to realize and maximize the associated benefits. By prioritizing and weighting the evaluation criteria within these pillars your organization will be able to more accurately determine the value that innovative technology will provide.

Figure 1: the four pillars of health innovation evaluation

Clinical
- Improvements to patient capacity, wait times, turnaround times, etc.)
- Ability to provide standardized access to clinical information across all service lines
- Flexibility for remote workflows (at-home reading, collaboration between providers, etc.)
- Ability to adopt and integrate emerging technologies such as AI

Financial
- Flexibility to support capital and/or operational budgets
- Ability to realize savings through economies of scale (standardization, consolidation across service lines)
- Ability to manage growth efficiently (HW & SW scalability models, information lifecycle management policies, etc.)

Technical
- Optimize physical infrastructure via reduced footprint, virtualization, appropriate resourcing (i.e. CPU vs. GPU, virtualization, cloud, etc.)
- Flexibility to procure vendor agnostic, commodity hardware
- Interoperability & extensibility for integrating current and future applications
- Sophisticated security and privacy protections

Legal
- Comprehensive auditing for traceability
- Methods for controlling clinical legal liability (i.e. via information lifecycle management)

So what? 3 key takeaways

1. Ensure your organization has a methodology in place to evaluate the value propositions of new technologies based on your own burning platforms, future objectives, resources, and competencies.

2. Don't fall victim to the industry 'buzz'. Not all new technologies are able to deliver on their expectations and promise, be sure to critically evaluate new innovations according to past trends to separate truth from fiction, and even more importantly evaluate whether your organization can tangibly and meaningfully benefit from the investment.

3. When evaluating digital transformation opportunities do not base decisions solely on the financial bottom line or clinical benefits alone. Consider all perspectives including clinical, financial, technical, and legal.

Common Failure-Points that Hinder Digital Transformation and How to Avoid Them

Digital transformation projects often kick-off with feelings of enthusiasm and hopefulness for the problems that will be addressed and benefits to be realized. Unfortunately, all too often these same projects end with feelings of frustration and disappointment, and even worse, typically months if not years later than originally anticipated with significant budget over-runs. Through our experience in more than 100 digital transformation projects we have found that there are 9 common failure-points which often led to this result. The following list provides a summary of each pitfall, and how they can be avoided to ensure digital transformation projects are setup for success from the onset, are executed smoothly on time and on budget, and end on the same high-notes as they began.

Lack of effective governance

Technology implementations are complex. While this is a commonly held belief, it is always surprising to me how many organizations failed to establish a framework of governance for the design, the decision-making, the implementation, and the organizational change components of an enterprise imaging initiative. I suspect that many times technology projects are launched from middle tier management that has experience in deploying health IT solutions and departmental technologies but have not experienced the turbulence, the political minefield, and the high visibility of a modern-day health innovation project.

Some of the key things a good governance committee or model will manage include weighing special inclusion requests within the project. This may include technical design components, it may include decisions around chronology of deployment, and it may include the technical support models associated with these types of both expensive and resource heavy projects.

Establishing a governance committee that reflects the audience of your initiative who are empowered to make decisions within a framework that allows for agility throughout the lifecycle of your project is key to a successful implementation.

Absence of courage

There are many decisions that need to be made in a digital transformation project. These decisions are often very difficult due to several factors: unreasonable stakeholder requirements, unreasonable executive expectations, unforeseen issues and deficiencies, and conflict of interests within the project team itself. There are also external factors that drive difficult decision-making such as poor vendor performance, misrepresented functional technology, and peripheral projects taxing shared resources and technologies.

Good implementations always have a courageous leader managing the initiative. However, it is unfair to expect one person to assume the burden of making all the hard decisions — this is another place where good governance is critical. Finding a

Successful digital transformation initiatives need a courageous leader at the helm who can make and support difficult decisions.

subject matter expert with leadership experience can be quite difficult and is a source of failure for many organizations.

A successful organization that seeks to achieve an optimal outcome for its digital transformation initiative must go the extra mile and find subject matter experts who aren't afraid to speak the truth and empower them to make hard decisions in light of internal and external pressures.

Refusal to enforce accountability

Accountability is critical to the success of any project. Unfortunately, the existing health IT culture has reinforced a lack of accountability both with internal resources as well as with external vendors. It is astonishing how often resources are missing from calls, late in their deliverables, and misrepresentative of the work that they are achieving.

Oftentimes vendors provide resources with tools they have developed that have no specific bearing on the project the customer is seeking to achieve. These are boilerplate template documents that are slightly tweaked to minimally meet the expectations of the project and all too often customers do not push back hard enough to require vendor resources to provide specifically designed documentation for the initiative.

It's essential to hold both your team and your vendors accountable for delivering on key milestones. As well, be sure to vet your vendors carefully during your selection process. Monitor and measure their performance throughout the design and implementation phases to ensure they produce the features and documentation required to support your specific initiative.

Oversight or underappreciation for planning and design

Many healthcare digital transformation projects are launched due to burning platforms. As a result of this, all too often projects begin at a frenetic pace with very little time given to design. Skipping the detailed design work then leads into slow moving implementations that often require backtracking due to assumptions and deficiencies in architecture. Ensure your team budgets a sufficient amount of time in the design phase and require them to produce a listed set of objectives, outcomes, and deliverables.

Using the wrong people

There are two types of wrong people. There are people who are unqualified for the work that they have been assigned, and there are people who were unfit for the job they have been assigned. The former is the result of assuming someone who has a specific title can do the work of a SME. In our experience there are many people within healthcare technology that have risen through the ranks with very little vetting and once they are assigned to a critically important project, they are exposed for not having the skills required to do the work they have been assigned. The latter is the result of placing someone in a position because of the skills or knowledge they have but are not capable of managing all of the peripheral capabilities of someone in their specific position (aka the Peter Principle). This can include challenges with social skills, reporting and authority issues, territorialism, and non-collaborative behaviors.

Peter Principle: the theory that members of a hierarchy are promoted until they reach the level at which they are no longer competent.

Be sure to vet your resources carefully from both a skills perspective as well as from an organizational and social perspective. Assign tasks and resources based on their proven competencies and strengths, not political pressure or to simply fill gaps.

Incorrectly managing end user communications

Communication is a common problem in nearly every project. When deploying a health IT initiative you are nearly always interacting with specialists across the enterprise. These are physicians who are busy but want to be kept aware of the status of their project. This can be managed by setting communication expectations at the beginning to ensure the appropriate vehicle and content is presented in the right amount, at the appropriate depth, and at the right time. Be sure to establish and harden your communication plan and channel(s) at the beginning of the project, and do not deviate.

> *Establish communication expectations and processes early to ensure continued engagement momentum.*

Listening to the wrong people in the room

Buyers spend too much time listening to salespeople. Salespeople in the healthcare industry typically know very little about the technology they sell. They have memorized the catchphrases, they have learned to say what people want to hear, and they are good at making promises. The problem is once the project is initiated, salespeople go away and you are left with people that you have never interacted with, and worse, are not aware of or are unwilling or unable to deliver on rogue promises of their sales counterparts.

Make sure you fully vet your vendor resources — including technical, implementation, and service and support teams before you make a decision.

Underestimating the data problem statements

It is well-established that the standards within healthcare are adhered to only to a degree from a vendor and technology perspective. Unfortunately, while this is well known, too often people assume that technology will work based on the standards that have been established (HL7, DICOM(web), FHIR, etc.). It is very rare to find off-the-shelf technology that can plug into your existing infrastructure and work as designed. Every digital transformation project we have been a part of has required supplemental and peripheral technologies and data manipulation in order for systems

to work seamlessly. The devil is in the details. You'll spend more time solving data problems than on any other aspect of your enterprise imaging initiative, so let your subject matter expert lead you through careful articulation of your data problem statements, your dataflow, and your systems design to avoid future pitfalls.

Misshaped escalation paths

You can expect to experience dozens if not hundreds of escalations over the lifecycle of a digital transformation project. The escalations are often driven to mid-level managers or account managers who typically do not have good understanding of the technology and often do not have the authority to truly solve the problem you're seeking to address. As a result, many escalations just enter a black hole of the ticketing system or via email. These escalations often delay projects and drive (potentially significant) cost overruns. This is why it's essential to establish an escalation path at the onset of the project that goes all the way up to someone who has the authority to bind the company.

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So what? 9 key takeaways

1. Establish a governance committee that reflects the audience of your initiative. Give them the power to make decisions and the framework to be agile throughout the lifecycle of your implementation.

2. Find a leader with subject matter expertise who is not afraid to speak the truth and empower them to make hard decisions in light of internal and external pressures.

3. Hold your team and your vendors accountable for delivering on key milestones, and be sure to vet your vendors carefully during your selection process. Monitor and measure their performance throughout the design and implementation phases to ensure they produce the features and documentation associated with your specific initiative.

4. Ensure your team budgets a sufficient amount of time for the design phase and require them to produce a listed set of objectives, outcomes, and deliverables.

5. Vet your resources from a skills perspective as well as from an organizational and social perspective. Assign tasks and resources based on their proven competencies and strengths, not political pressure or to simply fill gaps.

6. Establish and harden your communication plan and channel(s) at the beginning of the project, and do not deviate.

7. Vet your vendor resources including technical, implementation, and service and support teams before you make a decision.

8. Let your subject matter expert lead you through careful articulation of your data problem statements, your dataflow, and your systems design.

9. Establish an escalation path at the onset of the project that goes all the way up to someone who has the authority to bind the company.

Successfully Executing Digital Transformation

In addition to avoiding the pitfalls above, another common success factor in any digital transformation initiative is the organization's approach to project and change management. To ensure that your projects begin, execute, and close-out smoothly and yield the desired end results it is essential that the following 3 key areas are considered early, and adhered to throughout your digital transformation programs and projects.

Laying the groundwork: establishing strong governance and project management

If your organization doesn't yet have a digital transformation governance committee or a Project Management Office (PMO), it is essential that these are established – and the sooner, the better.

A successful governance committee will include clinical, technical, and business leaders who are empowered to make decisions. This group will ultimately be responsible for setting and communicating

> *Digital transformation in healthcare has been around since the early 90's and it has drastically evolved to include almost the entire healthcare continuum. Careful planning of the strategy, resources, and systems needs to be in place to yield successful results.*

the vision and objectives for the digital transformation effort and will ensure a comprehensive strategy that considers your organization's distinct challenges and opportunities. As well, the governance committee will be responsible for defining the program charter, which outlines the phases of the digital transformation program, defines focused scope and objectives for each initiative, and provides clear lines of ownership, accountability, and escalation paths.

Establishing a PMO will also allow your organization to prioritize digital transformation projects and balance the perceived benefit and value of each initiative against the available resources and projected costs. This becomes increasingly important as these types of project tend to have a 'snowball effect'

gathering mass and momentum as they progress. Having standard PMO project artifacts in place, such as charter, communication, risk/issue management plans, stakeholder analysis, and status reports will ensure that all project leaders follow consistent methodology and processes, thus avoiding unnecessary (and often pricey) confusion, redundancies, or delays as project demands increase.

Additionally, maintaining a single platform for project documentation access and tracking will make information sharing and collaboration easier and will ultimately lead to smoother and more efficient project implementation and future support.

Digital transformation in healthcare has been around since the early 90's and has drastically evolved to include almost the entire healthcare continuum. Isolated departmental projects (i.e. Radiology PACS alone) have become increasingly rare, therefore careful planning of the strategy, resources, and systems needs to be in place in order to yield successful results.

> *A PMO/SME can help you prioritize digital transformation projects and balance the benefit and value of each initiative against the available resources and costs.*

Why your project manager should also be a subject matter expert

Digital transformation initiatives will change how your organization approaches future patient care, business intelligence, and technical infrastructure/dataflow. It can have a significant (albeit positive) impact to the status quo and should not be taken lightly. As the transformation strategy is defined, it is essential to have an experienced expert in your corner (whether from within or sought externally) who has relevant subject matter expertise and demonstrated hands-on experience in clinical and technical healthcare settings.

Certified project management professionals (PMPs) are intimately aware of all associated best practices and methodologies required to steer general project initiative and are an important part of any project team. However, project managers who are also subject matter experts better understand the needs of clinical stakeholders, how data flows and systems interact, and know what pitfalls may lie ahead, which allows them to take proactive steps to help ensure their healthcare IT projects run smoothly, and are delivered on time and within budget. They accomplish this by:

1. Managing project scope to ensure continued focus and momentum and protecting against scope creep, an 'Achilles heel' of digital transformation projects

2. Monitoring project progress and proactively identifying and mitigating common roadblocks and pitfalls, which helps to avoid financial losses, project delays, and most importantly ensures smooth and successful project delivery

3. Guiding resource planning and management to ensure projects are appropriately staffed and to avoid shortages, bottlenecks, and staff burnout that could delay critical path activities

4. Providing clear and timely communication to ensure efficient project execution and continued motivation and buy-in from within and outside the core team

Adapting future support models and enterprise processes

Unfortunately, due to all of the excitement related to designing and implementing new technologies it is not uncommon for post-deployment operations and support to become an afterthought. Some digital transformation initiatives will absolutely shift your support model; therefore, it is recommended that support transition planning is considered early-on and throughout the project lifecycle. Key considerations include:

1. Analyzing the effectiveness of your current support models and processes. What works well? What doesn't work at all? What could work with some improvements? What new resources or skills will be required to support the new system(s), and conversely, what resources or skills may no longer be required as a result of retiring legacy ones?

2. Assess the knowledge and skills of your current support teams to ensure they are willing and able to learn how to support new and divergent systems and integrations – support teams need to have the determination to learn and embrace new challenges. If gaps exist, steps should be taken as early as possible to augment your team

3. Identify training requirements and ensure your staff are afforded the time, environment, and resources necessary for effective learning

4. Ensure an effective change management process is in place to support the transition from legacy support to the new digital model

So what? 3 key takeaways

1. Establish a project management office (PMO) and governance committee that includes clinical, technical, and business leaders who are empowered to make decisions early-on.

2. Ensure your project manager has sufficient subject matter expertise to appropriately steer the project according to best practices and the needs of clinical, technical, and operational stakeholders, and can take proactive steps to identify and mitigate common risks and pitfalls that occur in healthcare digital transformation projects.

3. Make sure the transition to post-deployment support is considered early and often throughout the project to ensure you have the skills and resources in-place to support the new technologies, workflows, and processes once they've gone live.

Measuring and Monitoring Success

Digital transformation projects present the perfect opportunity to evaluate the current state of your organization's data. There is a lot we can learn from ourselves, our teams, and our organizations. In many cases data is there to drive change and continuous improvement, but the data can quickly become overwhelming. Across industries the rise of data scientists and conferences exploring graphing algorithms is an apparent result of the demand by organizations to better understand and leverage the value of their data.

As described in *IT Governance: How Top Performers Manage IT Decision Rights for Superior Results*, organizations with a strong IT management and governance framework have 25% higher profits than organizations with poor IT governance, given the same strategic initiatives. A critical component of a governance framework is the need for performance management – performance management that uses real-time data to help drive and continuously improve service delivery across an organization. It sounds simple enough; but in reality, it can be quite complex.

We recently performed a clinical workflow assessment for a client, which revealed that two short but highly repetitive tasks were taking as much as 75 minutes per day per physician, time that if reduced could

improve clinical turnaround times, decrease patient wait times, and reduce physician burnout. Although initial task timings and evidence was obvious via simple observation, systematically measuring and monitoring the metric following an investment to improve the workflow proved more challenging. To properly measure the return on investment, data from multiple applications needed to be banded together, enriched, and delivered in a manner that was consumable by the client and in a way that could influence change.

There are 5 keys steps to consider when seeking to measure and monitor the performance of your organization.

Step 1: What are your key performance indicators?

Determining what needs to be measured to affect change is not always obvious. A good place to start is with the business strategy and goals of your organization. The goals are hopefully well defined, for example, reduce patient waiting times by 15%, but the KPIs that deliver a 15% reduction in patient waiting times may take some investigation. Where are the bottlenecks within departmental workflows? Those are the areas to focus on measuring and changing within your organization. Although some gains may be seen by simply driving a team to work harder towards a high-level KPI, better results are often found by investing the time to better understand the lower level workflow activities. Help drive your team to working smarter, not harder.

Step 2: How are you going to capture the raw data?

It is not unusual for KPIs to require data from across multiple applications and sources to be properly measured. Off-the-shelf solutions and tools to pull data from across databases, log files, interfaces, and even network traffic are readily available, but some may not be focused on healthcare and/or your type of organization. There are two aspects to consider. First, how does the solution scale? Although you may initially focus on a handful of KPIs and data sources, next year when the applications, goals, and KPIs change, what is the solution and infrastructure overhead to index and make available a new set of data for analysis? Second, extracting the data doesn't always come with the push of a button and many vendor support organizations are not going to hold your hand through the process. Having knowledgeable and independent

data services for identifying and extracting relevant data points can help to shorten the effort and reduce associated organizational costs. The same services and resources will further provide value in the following steps. Take your time when evaluating the options.

Step 3: Does your multi-source data need to be banded together?

Banding data is the process of forming associations between data points from across disparate data sources. This is often needed to get a complete picture of a dataset. In a simple example, associating imaging order data between your PACS and EMR to more fully understand the transitions between order status codes may be as simple as banding the data based on a common order or accession number. In other circumstances, it can be more complex, requiring multiple data attributes, translation tables, and at times Natural Language Processing (NLP) and Optical Character Recognition (OCR) capabilities to band structured and unstructured data. Some business intelligence and data analytic solutions will further be able to

apply searchable attributes to the relationships formed from the banding, which can be helpful in optimizing analytic capabilities and discovering new patterns within your data. At this step, capable tools and knowledgeable resources are critical for achieving the depth of information and maximum value potential to be gained from your data.

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Step 4: Does the data need to be enriched?

Data or the results of data are not always clear. Enriching algorithms may be used to further describe the data. Some enrichment algorithms may perform simple calculations to determine timings of transactions based on start and end times, as an example,

where others leverage complex algorithms developed by data scientists that help to predict events and prescribe actions. A common example of predictive analytics is the prompting of driving directions and commute times by our mobile phones

when we start the car. These same algorithms can be used to identify tendencies of clinical users, predict the number of specialists to staff over a long weekend, or prescribe a maintenance activity next week to prevent a future system failure. To leverage published scientific algorithms and/or to develop your own the technology and architecture of your data analytics platform and having the appropriate resource capabilities are critical.

Step 5: How are you going to deliver the KPIs to your organization in a way that best drives change?

Potentially the most important step of all is determining how the KPIs are going to be presented across the organization. While a simple report or a handful of charts within a presentation may fulfill the needs of an executive steering committee, KPIs will need to be presented across the broader organization to truly drive change. At times, a common dashboard presented across an organization may work, whereas in other cases an email, text message, or chart directly integrated into a clinical application may be needed. Having the tools and flexibility to direct and customize the presentation of KPIs is essential. KPIs should further be presented in a motivating fashion. Publicly shaming teams and departments is not often the best approach. Try to find ways of highlighting positive progress with your metrics.

Data can drive organizations, but the execution is going to be dependent on a clear organizational strategy, strong leadership, a culture driven by the numbers, and the data analysis tools and services to drive success.

So what? 4 key takeaways

1. Be sure to establish specific, measurable key performance indicators (KPIs) that reflect your organization's specific challenges and objectives to measure and monitor the success of your digital transformation initiatives.

2. To ensure your analytics program remains relevant and meaningful ensure you have the right people and processes in place to adapt KPIs and data sources/models to accommodate changes in organizational priorities, workflows, and data patterns.

3. When selecting an analytics platform, be sure to evaluate its ability to rationalize and correlate both structured and unstructured data across disparate data sources and consider current and future capabilities such as advanced data modelling, data banding, and predictive analytics to ensure the technology can adapt to your unique needs and deliver maximum value for your organization.

4. Make sure KPIs are available in a format and context that caters to the needs and workflows of each stakeholder group to ensure relevant and timely access to information that can positively drive continuous improvement at all levels of your organization.

About Paragon Consulting Partners, LLC

We are a team of passionate healthcare professionals with more than 100 years of collective clinical, technical, and business leadership experience within the healthcare IT and diagnostic imaging fields. Each partner contributes a unique set of skills that together guide collaborative efforts to unify and improve healthcare delivery alongside our care provider and vendor partners.

Offering a wide variety advisory, consultative, and professional services we have become trusted partners in digital transformation, workflow optimization, and health data management and analytics strategies for luminary health systems, hospitals, accountable care organizations, and vendor organizations across the United States and Canada.

Our experts can bring relevant experience to your unique situation to augment your team, accelerate success, and increase your return on investment. Our approach to strategy development and project delivery blends subject matter expertise, quality, and even some fun in collaborating with our client-partners to achieve their digital transformation and

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