A New Model for Healthcare Transformation

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# A New Model for Healthcare Transformation

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Executive Summary

Realizing value from the delivery of healthcare services is a critical area of focus for senior healthcare executives from all sectors of the industry as well as policy makers. Investments in all areas of healthcare must be scrutinized to determine the extent of value contribution to the overall enterprise. Healthcare information investments are among the fastest growing IT areas with a focus on information infrastructure, applications, process redesign and training exploding. Taken together, these investments often exceed — over a number of years — the more traditional healthcare investments, such as physical plant updates and diagnostic equipment.

Over the last several years, a chorus of legislators, consultants and healthcare experts has called for the “transformation” of medicine supported through the appropriate and effective deployment of information technologies. Many organizations have embarked upon transformation efforts only to either fail in their quest or fall far short of expectations by clinicians, managers, and governance alike. This paper provides an overview of the major issues that are driving support for care transformation. More importantly, it outlines an approach for achieving value from the IT investments made by healthcare organizations in support of these transformation initiatives.

The Environment

As a backdrop to calls for healthcare transformation, there are many intrinsic and extrinsic forces impinging upon the industry. The confluence of these forces is synergistic and forcing change in the very fabric of our complex clinical environment in dramatic, substantive ways. In many respects, the pace of change is increasing as the healthcare industry desperately searches for successful transformation solutions — a pace of change comparable to the introduction of antibiotics or Medicare and Medicaid in prior decades.

In addition to the ongoing escalation of healthcare costs — which is a dominate concern for all concerned parties — many environmental factors are also at play in precipitating change for healthcare. Across the industry, a series of dominant forces have created an unstoppable shift in the way patient care needs to be planned, organized, delivered, monitored, supported, reimbursed and measured. In particular, over the last decade, major changes in the “business” practices and models throughout the healthcare industry have been driven by the deployment of IT solutions. Just as we have witnessed changes as a result of IT deployment in back office operations, the industry will witness even more dramatic changes as information systems are deployed in the “clinical” arenas.

The healthcare climate in America has changed so dramatically that a “call to arms” has been issued by organizations ranging from The Institute of Medicine and the Leap Frog Group to industry-led initiatives, such as the 100,000 Lives Project sponsored by the Institute for Healthcare Improvement. In the forefront of the many proposed changes are new approaches to care delivery that will have a far-reaching effect on when, where and how healthcare is delivered and by whom. Five issues that will have the greatest impact on the future of healthcare are Pay for Performance (P4P), Quality and Safety Demands, Workforce Shortages, Demand for Productivity and Efficiency, and Delivery Transformation.
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Pay for Performance (P4P)
In essence, P4P initiatives are based on the principle that patient outcomes must be linked to provider performance to effectively hold providers accountable for the care they render. To meet the clinical performance standards, transformation of the care process is a key contributor to the achievement of enhanced outcomes. To meet the standards of P4P initiatives, providers must have access to timely and comprehensive clinical information in order to deliver better care. Collaboration between providers and stakeholders has begun in earnest in an effort to develop and implement significant performance improvements that involve established expectations, measurement and rewards (financial and other incentives) that flow from the delivery of quality patient care. The Centers for Medicare and Medicaid Services (CMS) are highly involved in these collaborative efforts. Their strategy is to promote the delivery of the right care for every patient, every time.

CMS Pay for Performance Results

<table>
<thead>
<tr>
<th>Condition</th>
<th>Improvement Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Myocardial Infarction</td>
<td>4%</td>
</tr>
<tr>
<td>Heart Failure</td>
<td>9%</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>10%</td>
</tr>
<tr>
<td>Coronary Artery Bypass Grafts</td>
<td>5%</td>
</tr>
<tr>
<td>Total Hip &amp; Knee Replacement</td>
<td>5%</td>
</tr>
</tbody>
</table>

In November 2005, CMS reported results from its Premier Hospital Quality Incentives, which showed improvements in clinical quality using a P4P incentive. Hospitals in the top 10 percent for a given condition were given a 2 percent bonus in Medicare payments.2

Quality and Safety Demands
Both regulatory and accreditation standards — in addition to public expectations — are changing to more stringently monitor quality and safety throughout healthcare. An example of the change is the recent Joint Commission decision related to the handling of de-identified patient data from hospitals. The Joint Commission intends to:

- Allow users to download hospital performance data at no charge
- Make available performance reports to accredited organizations for use in internal clinical improvement efforts beginning in 2007
- Provide customized performance analysis reports upon request
- Launch a national, public-policy initiative related to the management of performance data and the creation of a public national utility for performance measurement data

All of these new, evolving standards will drive the need for the collection of more granular, clinically rich information that is based on care delivery within the organization.3 The older practice of determining "quality" based on data derived from claims-based information will cease to be a viable approach in the future. Clinical transformation plays a major role here because, as the name implies, clinical environments will need to alter the way care is delivered through the advent of technology that is focused on the safest, most advantageous care possible.
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**Workforce Shortages**

The growth of the healthcare workforce is not keeping pace with the demand, resulting in an increasingly difficult workforce insufficiency — especially, in the clinical areas. While there is a projected decrease in acute care capacity requirements over the next decade, due to a shift of care to more ambulatory delivery models, there remains a growing shortage of healthcare personnel. In 2000, the average age of registered nurses in the U.S. was 43.3 years, which is comparable for most other health professionals (e.g., pharmacists, radiology technicians, physicians, etc.).

According to the US Department of Health and Human Services, nearly 35 million Americans live in areas designated as health professional shortage areas. Furthermore, the federal government estimates that to relieve this shortage, the U.S. would require an additional 16,000 doctors in areas of need, as well as 126,000 nurses, 8,500 dentists and 4,000 mental health professionals — a solution that is not likely to occur in the immediate future. It is, therefore, incumbent upon the healthcare system to improve the work accomplished in the clinical setting (a.k.a. engage in clinical transformation).

**Hospital Professional Vacancy Rates**

![Graph showing hospital professional vacancy rates]

The Ohio Hospital Association noted that year-to-date vacancy rates in hospitals as of June 2, 2006 were 5.7% for RNs, 9.8% for radiology technologists, 10.1% for respiratory therapists and 7.2% for medical technologists.5
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In March 2006, The New York Center for Health Workforce Studies at the SUNY School of Public Health conducted an assessment of the impact that aging Americans will have on the healthcare workforce. The report establishes a baseline of information about the healthcare workforce that serves older adults and identifies key factors expected to affect the ability of the healthcare system to meet these future needs in the U.S. In essence, the report projects a substantial increase in the need for healthcare workers of all types to meet the delivery demands of society. The following graphic shows the increasing need for general healthcare providers, based on salient trends and issues associated with the needs of the next generation of older adults. The complete report can be found at the Center’s Website, chws.albany.edu.

Projected Growth of Health Occupations and Professions in Home Healthcare, Nursing Homes and Non-Nursing Residential Homes, U.S., 2000-2010

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Demand for Productivity and Efficiency
When the dynamics of productivity and efficiency are factored into workforce shortages, the healthcare community requires clinical transformation as a framework for healthcare workers to provide services in an era of constrained resources. While much progress has been made in diminishing the inefficiencies in the back office, these areas represent the “low hanging fruit” of care productivity and efficiency. Furthermore, the potential contributions for these areas substantially pale in comparison to clinical areas. Therefore, the next target, which will yield even greater productivity and efficiency, is in the clinical care arena. For example, using clinical information systems to electronically track and monitor patient movement in the emergency room has been shown to clearly enhance throughput for the system and reduce diversions. Clearly, a focus on similar problems that exist throughout the system will dramatically reduce costs, increase quality and enhance service.

A few studies are beginning to show improvements in productivity and efficiencies from the use of health IT. A 2006 article in The Annals of Internal Medicine revealed — after studying the direct total costs per admission — that health IT improvements resulted in a 12.7% decrease in costs associated with a 0.9-day decrease in length of stay. Another study in the article found that the use of computerized order entry, with alerts to physician pagers, resulted in an 11% decrease in the time it took to deliver care.

Delivery Transformation
Traditionally, the healthcare industry has treated all healthcare problems as a “service.” Whether a person is undergoing treatment for a glioblastoma or an uncomplicated Urinary Tract Infection (UTI), the delivery model is essentially the same. Use of a singular delivery model creates certain problems. For example, the treatment of a glioblastoma requires complicated interventions from highly trained experts with access to a diverse care support team. In contrast, a simple, uncomplicated UTI can be treated very efficiently and effectively without direct involvement of physicians if protocols and/or guidelines are used by physician extenders and other clinical providers. Such an approach; however, will require healthcare to demarcate care delivery into a set of “products” (e.g., standardized, replicable care) versus a set of “services” (e.g., complicated care requiring specialized knowledge and/or resources).

In a consumer-driven healthcare world, acceptance of a product approach will be driven by increasing requirements for quality, satisfaction, service and results — all requiring data-driven outcomes. Workflow changes influence work productivity, and the ultimate result is delivery transformation. Factors that are instrumental in delivery transformation are technology innovations, effective across-the-board communication, care delivery by teams of healthcare professionals, better use of knowledge, and changes in the way work is performed. The care that is delivered is measurably more effective, and the knowledge surrounding the healthcare decisions made is immediately available, more accurate and incorporates all of the data about the patient so that clinical decisions are truly comprehensive and patient-centric.
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Lessons Learned

Focus on discipline and rigor
- Focus on the people and process elements
- Use a person-centric model to facilitate an effective outcome
- Agree on metrics that measure care process outcomes and results over time

The Old Paradigm

With more than two decades of healthcare IT experience and the expertise of hundreds of clinical specialists, Perot Systems (part of Dell Services) has observed that four major elements are under-emphasized in most of the care transformation approaches used by the healthcare industry. Those four missing elements include:

- **Insufficient Discipline and Rigor** – Too frequently, healthcare organizations initiate care transformation without adequate attention to the discipline and rigor required in pursuing a major, organization-wide change project. Our experience reveals that the best results occur when the transformation methodology is applied with “discipline and rigor.” This focus fosters an understanding of the needs of clinicians, supports change in clinical processes, and couples performance improvement with effective technology design and implementation. Too often, organizations embark upon major change efforts — such as care transformation — without a clear path for addressing the major issues that will affect implementation. In addition, there is a lack of focus on the value the new technology will bring to improved clinical operations, and an organization proceeds forward with a technology install that is missing critical operational impact analysis. Inflexible and rigid approaches are not attributes that facilitate effective care transformation. The application of good discipline and rigor clearly contributes significantly to successful efforts.

- **Inordinate Focus on Technology** – Value in care transformation initiatives is, typically, derived from a focus on the people and process elements, rather than on the technical deployment of technology. In our experience, as a highly competent, health IT and business process company, far too much emphasis has been placed on the technology of the solution, rather than the people and process issues. While technical competence and effective program management have historically been hallmarks of success in clinical transformation efforts, true transformation of the system will require that more attention be placed on the essential missing elements — people and process improvement.

- **Organizational, Rather Than Person-Centric Focus** – Traditional approaches to managing healthcare information have been focused on the needs of the organization or vendor, rather than the needs of the individual patient. Patients, generally, access care in many different facilities and locations, and by many different methods. Similarly, healthcare workers are mobile, and increasing their flexibility as workers in the environment must be a tactical outcome of any care transformation initiative. Effectively implemented clinical information systems improve care coordination by sharing information anywhere, anytime and anyplace using a longitudinal, person-centric patient data model. In a dramatically changing environment, where consumers are the focus of care coordination efforts, using a person-centric model is an important approach that facilitates an effective outcome from the investment in IT.

- **Inadequate Attention to Metrics** – Finally, far too many organizations pursue large-scale, transformation initiatives without a clear definition of expected outcomes. Effective deployment requires agreed-on metrics that measure care process outcomes and results over time. It is essential for the organization to engage in an internal dialogue on the expected outcomes and to establish clear guideposts for the care transformation effort. Given the magnitude of the investment, the potential impact of the resource on the care delivery process and the implications for the system users, the attention to defining clear metrics is an essential foundation for defining future success from care transformation initiatives.

The following section provides an overview of the Dell Services clinical transformation point of view, methodology and framework, which was designed to address these important “lessons learned” and to create measurable results from clinical transformation efforts.
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The Dell Services Perspective

A Value-Add Focus
Dell Services has been involved in multiple clinical information deployment and support initiatives across all of the major IT vendors and suppliers. Historically, much of the work was accomplished with a focus on the more technical aspects of deployment. Through experience and discussions with customers, however, the need for a better approach to care transformation became increasingly evident as we moved from deploying and supporting back office IT systems to a focus on clinical IT systems. In fact, most healthcare provider customers told us that achieving enhanced value through the effective deployment of clinical information systems as a goal would be “one of the most important value-add activities” that could be provided in support of healthcare organizations. As a result, in 2004, we embarked upon a new and innovative approach to clinical information systems deployment. The team set out to identify the right people and technical resources, and design a methodology and approach, as well as identify the right tools that would help its healthcare provider customers ensure success related to care transformation initiatives.

The Clinical Transformation Point of View
The implementation cornerstone for the Dell Services approach to clinical transformation is the Clinical Transformation Point of View noted below.

Historically, we used a framework of “people, process, technology and results” as the guiding theme for our approach to IT support. However, this theme was always depicted in a linear fashion. Through much internal discussion, we realized that while the elements were correct, a linear approach to clinical information systems initiatives did not articulate an approach that would effectively drive value for our customers. The new perspective was designed to capture the integration and intersection between people, process and technology. We realized that by combining the right mix of these key elements, healthcare organizations can achieve a more successful, value-driven approach to clinical information systems design and deployment. Balancing these forces is truly the key that enables the effective use of technology that allow healthcare providers to manage organizational change and clinical implementation.

Our Perspective
By combining the right mix of people, process and technology, healthcare organizations can achieve a successful, value-driven approach.
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People
There are many activities critical to the “people” function within a clinical transformation initiative. Examples of critical people issues include establishing a flexible, learning culture; fostering an organization-wide commitment to change; aligning leadership within the organization to the objectives of the clinical transformation effort; defining clear performance incentives and results metrics; establishing a collaborative governance and structure; and developing a clear communications plan, among other efforts. As a core component of transformation, a focus on people is frequently one of the most neglected areas.

Process
An equivalent degree of attention must be paid to the “process” of the organization if a successful clinical transformation effort is to be fostered. Examples of process issues include examining the patient throughput and tracking issues prevalent throughout the organization; determining how support for effective clinical information flow can occur; analyzing workflow management (e.g., records, medication management, orders/results, clinical knowledge management); establishing an organization approach to benchmarking best practices; and supporting data analytics — to name a few key areas. Like people issues, a lack of focus on process represents one of the core problems with traditional approaches to clinical transformation.

Technology
A focus on technology does not imply determining which technology to deploy. Rather, the technology focus must address other important issues, such as adopting data standards for the organization; establishing a common approach lexicon and data dictionary; integrating applications; building infrastructure connectivity; and — more generally — appropriately and effectively using the various deployed tools and technologies. As a traditional focus, technology has most frequently been the primary consideration in clinical transformation initiatives. While critical, it needs to be considered an enabler and supporter of the critical people and process elements.

While the focus on each of people, process and technology elements is important, Dell Services believes that the intersection points of these three areas require an equivalent degree of attention from those who are leading clinical transformation initiatives. For each one of these intersection points, an organization will require customized approaches to the change management (the intersection of people and process), implementation management (the intersection of process and technology) and enablement management (the intersection of technology and people) areas to foster an effective deployment. The following paragraphs describe these management approaches.
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**Change Management**
The intersection of people and process requires change management. Simply stated, change management is the process of developing a planned approach to support change within an organization. Effective change management consists of five essential phases.

- **Analysis and Assessment** – This activity is included in several phases of effective clinical transformation — ranging from an assessment of the current state of the organization, including an analysis of the people resources, organizational activities and corporate culture — to the future state. The perspective of stakeholders from throughout the organization will identify how these stakeholders feel about the current state, how the proposed change(s) will affect them, and what their anticipated stake is in the change(s). In addition, a clear delineation of those factors that drive or support the change, and the barriers that may inhibit the change, is also critical. Analysis of all these factors will provide a clearer picture to the organization on the likelihood of a successful change.

- **Vision Clarification** – To drive change, a clear vision of the organization’s future state must be articulated. Sponsors or champions for the change must be enlisted to lend credibility to the project and overcome resistance. These individuals are, generally, “thought leaders” within the organization and not necessarily technology champions. Again, the focus is on the people and process rather than the technology. Once a clear vision is crafted, a gap analysis can be performed to compare the current state to the future state and what must be done to support the change.

- **Change Plan** – Strategies for overcoming resistance to change are also developed. Furthermore, it must be recognized that the change process must be supported throughout the project — not just at certain points along the project. To facilitate such an approach, an overall project plan must be developed and used by the team in support of change management.

- **Resource Leverage** – Effective change involves a three-step approach that includes modeling, piloting and, finally, organization-wide dissemination. Retraining, or skill development, is an essential element of the overall effort, including education and training on the redesigned processes and new systems. Change agents are frequently utilized to translate the change initiatives to those for whom the change will affect.

- **Change Maintenance** – Too frequently, organizations discontinue their support of change management with implementation. In fact, effective change management requires ongoing support through the use metrics that measure compliance with the change, as well as support for performance adjustments on an “as needed” basis to facilitate acceptance of the change in the organization.

Represented above is the intersection of People and Process, which requires **Change Management**.
The end result of implementation management is that the stakeholders have streamlined, effective and measurable processes that provide continuous process improvement.

Implementation Management

The intersection of process and technology requires effective implementation management, driven by several key considerations.

- **Infrastructure** – Infrastructure refers to the network infrastructure and consists of various components (e.g., bandwidth, RFID, wireless capabilities). The various components of the infrastructure represent the backbone that allows these components to function together in an integrated fashion.

- **Technical Support** – This area refers to the people and processes that sustain the organization’s information systems as a usable, yet dynamic, resource (e.g., database, network, and desktop administration).

- **Package Obsolescence** – Package obsolescence refers to those legacy systems that are no longer able to meet or support the organization’s growth or operational needs. The organization must develop a plan to integrate any non-core clinical system within a major new clinical system and ensure additional workarounds by clinicians are avoided.

- **Business Direction** – With any large-scale implementation, it is difficult to keep everyone working toward the same end goal. A global understanding of the business direction of the organization is important. A regular review of task completion status enforces individual accountability, while providing knowledge of the impact on dependent tasks, and keeps all initiatives aligned with the overall business direction.

- **Regulatory Compliance** – Regulatory considerations must be maintained at the forefront of any implementation effort. Compliance with all governmental — federal, state and local — laws and regulatory requirements is of utmost importance when supporting implementation management.

- **Application Deployment** – Application deployment refers to the support for software applications already in use, or those chosen by the organization (i.e., Cerner Millennium, McKesson Horizon, Epic, etc.) as the foundation for a clinical transformation initiative.

- **Project Planning** – Project planning encompasses both the development and maintenance of a project. It is the process used to quantify the amount of time and budget that a project will require. Project planning must focus on the timelines that are reasonable for a given healthcare provider versus those determined or set by the vendor.

- **Project Management** – As a critical component of implementation management, project management is the structured planning and coordination of a project from inception to completion. Throughout this process, specified targets are defined and achieved over a pre-determined period of time. The goal of project management is to meet the overall organizational and project objectives, while at the same time ensuring completion of the project as an “on time, on budget” effort.
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Enablement Management

The third point of intersection in the Dell Services model is enablement management, which focuses on the individual needs of clinicians based on the work they perform. In essence, the requirements of the individual clinician groups must be evaluated and solutions deployed that meet their ongoing work process requirements. For example, an anesthesiologist who is involved in gathering, reviewing, evaluating and managing structured clinical information in a controlled setting (e.g., the operating room) has vastly different IT support requirements than the primary care physician who is frequently engaging the patient by gathering, reviewing, evaluating and managing unstructured information derived from multiple, disparate sources.

Organizations that rely on a singular “cookie-cutter” approach (e.g., PDAs for everyone) frequently experience resistance from clinicians when the tool does not fit the user requirements or needs of the individual clinicians. The end result is that the efficiency, productivity and effectiveness of the technologies, along with the needs of those using them, must be assessed so that the usefulness of the technology is enhanced. In some cases, a PDA is a perfectly acceptable approach for supporting a clinician. In other cases, a full-screen EMR is needed for compiling information in support of the care process. Regardless, the essential focus is on “enabling” clinicians to perform the work they provide in the healthcare environment.

In summary, the Dell Services belief is that value for the healthcare organization is driven through an effective focus on people, process and technology, while concomitantly supporting the management of change, implementation and enablement issues. It is integration of the Dell Services Clinical Transformation Point of View with the four major elements of under-emphasis in clinical information systems deployment initiatives — insufficient discipline, inordinate focus on technology, organizational rather than person-centric focus and inadequate attention to metrics — that drove Dell Services to develop a clear methodology or framework for supporting clinical IT deployments. The following pages provide an overview of the Dell Services framework for supporting effective clinical transformation initiatives.
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The value of a focus on people, process and technology for the healthcare organization is derived when the methodology used supports the management of change, implementation and enablement issues.

The Dell Services ADOPTS Framework

Assess
Design
Optimize
Prepare
Transform
Sustain

The ADOPTS Framework

Beyond a clear definition for clinical transformation and point of view related to the management approach that must be used for sustaining success, the Dell Services experience is that far too many healthcare organizations have not embraced a clear methodology or framework for managing the entire clinical transformation process. Although many consulting organizations and vendors offer methodologies, the issue for most healthcare organizations is the lack of understanding how these methodologies can augment and support the care and operational redesign process. The following pages provide a high-level overview of the Dell Services healthcare transformation framework and methodology.

Framework Approach

In debating the best approach that could be deployed for use by customers, Perot Systems (now part of Dell), elected to support a “framework” as the basis for our approach to a methodology. The primary reason is that in our experience, organizations are frequently at very different places in their journey of support for clinical or care transformation. As a result, an inflexible approach that required the rigid adoption of certain approaches and tools, in our experience, frequently met with significant resistance from those involved in the frontline of healthcare delivery. We determined that a more flexible, but rigorous, framework that offered a customized approach to clinical transformation would offer a better solution for meeting the particular needs of healthcare organizations. In the final analysis, Dell Services has concluded that such an approach to clinical transformation initiatives is a requisite element for predicting success.

Developing ADOPTS

The Dell Services ADOPTS (Assess, Design, Optimize, Prepare, Transform, Sustain) framework originated from work by our clinical expert teammates across the spectrum of our customers throughout the world. Two major sources of expertise were identified as we began to consider how we could enhance success for customers through the use of a more rigorous methodology.

First, Dell has been involved in very substantive work in support of the UK’s National Health Service (NHS) healthcare transformation initiatives. The UK team’s approach consisted of six independent modules designed to assist organizations in their care transformation efforts. In essence, these six independent modules carved out major areas for healthcare improvement.

Second, Perot Systems (now part of Dell) has traditionally been organized around supporting the needs of individual customers. As such, considerable pockets of expertise were discovered at various customers around the nation.

However, these pockets of expertise were infrequently shared among the Dell Services team.
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Learning the best approach to clinical transformation tended to be an independent, iterative process for each individual customer related to that particular clinical project.

To mitigate this problem, our company formed a task force of clinicians (physicians, nurses, pharmacists and ancillary support staff) from the UK and the US to begin a dialogue for sharing “best practices”, which, ultimately, culminated in the creation of the ADOPTS clinical transformation framework. The framework was based on our company’s Point of View for clinical transformation and integrated the six independent modules developed by the UK, the extensive IT clinical experience of the various client sites, and the expertise of individual task force members who had been recruited from outside the organization to help lead the clinical transformation practice; and, existing Dell Services methodologies, along with important lessons learned, derived from failed experiences in the clinical transformation arena. The major lessons include:

- **Reframe the culture** – For care transformation to succeed, it must be woven into the fabric of the organization.
- **Create improvement capability** – The organization must use a flexible framework for solving problems and applying knowledge.
- **Collaborate across boundaries** – Cross-disciplinary teams must create more effective, long-term results.
- **Make decisions based on evidence** – Data, not anecdotes, must drive process improvements and performance.
- **Drive results and benefits** – Ideas are good ... execution is better ... pace is critical.
- **Maintain constancy and ongoing focus** – The attention of leadership on the importance of care transformation must be present, palpable and persistent.
- **Allocate resources** – Ensuring the adequacy of people, time and funds in support of the initiative sends critical messages and generates support.

The task force then deconstructed the six independent modules, the experiences and the materials collated from various clients and wove them together into a framework called ADOPTS.

Finally, we also developed a partnership with Dearborn Advisors in 2005 to strengthen its physician-specific clinician adoption process, delivery and adoption capabilities. Dearborn Advisors developed the Clinician Adoption Methodology (CAM©) based on detailed research and the dissection of lessons learned from clinical transformation efforts. CAM© addresses, through tools and templates, the adoption success that comes from accomplishing the implementation of complex clinical information systems.

Through a strategic licensing agreement, our team mapped and integrated the CAM© modules...
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The ADOPTS framework represents an integrated framework that signifies the integration of advanced clinical practices and clinical systems, which is one of the first in the healthcare industry. It enables Dell to truly affect healthy outcomes and patient safety.

Implementing ADOPTS

The Dell Services Clinical Transformation philosophy states that “clinical transformation is not a project, but a process.” Restated, clinical transformation is ongoing work for the organization that must be integrated into the fabric of how work is accomplished by the organization. We firmly believe that the healthcare organization must take the lead in clinical transformation initiatives with Dell Services providing guidance, support, methodology, tools and other resources that help our customers in accelerating their capabilities. As such, our approach is not the typical consulting model, but a long-term partnership designed to span the many years of a contractual relationship with our customers. Dell is in a unique position, as the leading provider of Healthcare IT outsourcing to US hospitals, to focus its efforts on the ability to transfer knowledge, capabilities and resources over a period of time versus to provide intermittent consulting on projects. Such initiatives, frequently, take years and leadership perseverance and cannot be accomplished as a mere project over the course of months. The multiyear IT outsourcing contracts Dell Services enjoys with its healthcare provider customers places us in a unique position as a technology advisor, as well as a leader in the deployment of clinical information solutions.

The Dell Services ADOPTS framework establishes specific goals and objectives to ensure the clinical transformation support process will:

- Reduce fragmentation in the approach to operational improvements and clinical transformation, while allowing flexibility to deploy any component of the program based on organizational needs.
- Provide the end user with tools to facilitate and sustain process changes, while reducing conflicts and overlap between departments and processes.
- Improve the quality of project management, change design, outcomes measurement and tracking.
- Involve stakeholders, including clinicians and physicians, in the requirements and decision making.
- Advance the rigor used in measurement of change through advanced benefits realization program implementation and use of selected Six Sigma and Lean methodologies.
- Promote patient care quality and advanced training programs, while moving the organization towards a learning organizational culture.

Finally, it is important to recognize that the ADOPTS framework is not a linear model. It is a fully
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integrated approach to clinical transformation. As such, elements of “sustain” come early in the process just as elements of “assess” are considered near the end of clinical transformation initiatives. The end result is that the ADOPTS framework offers an approach that recognizes the complexity and interrelated nature of clinical transformation work. Each of the six major components of the ADOPTS framework is highlighted on the following pages.

Assess

Assess is the first component of the ADOPTS framework. This step gives the organization the opportunity to carefully examine its current state, clinician needs and readiness for a cultural and organizational change that will lead to future success. This process highly engages all of the stakeholders, including physicians, clinicians and support workers, and is aligned with the organization’s overall business strategy. Without going through all of the assessment activities, following are some examples of assessments performed during this phase.

Governance Assessment

At the outset of the initiative and throughout the ADOPTS process, governance is assessed and reassessed. At the beginning, it is important to establish a Client Steering Group (CSG) who will maintain responsibility for gathering documentation on the current governance mission, goals, structures, membership, roles and responsibilities for guiding the efforts of the transformation initiative. The Governance Assessment also details the future state for these same areas. Gaps between the current and future state are identified, and an action plan is created to close identified gaps.

Likewise, a similar assessment is conducted by the organization on physician governance strategy, goals, objectives, structure, function and critical success factors. The active involvement is required of physician executives, the medical information officer, or the equivalent, as well as selected physician advisory group members — which includes sponsors and champions. For hospitals engaged in the clinical transformation process, the involvement of the medical staff, along with the requisite understanding of roles, responsibilities, time commitments, compensation (if applicable) for project involvement and education or support requirements, must be completed. It is important as part of the overall governance assessment process to integrate the physician governance structure with the overall initiative governance structure for the enterprise. Finally, it is critical that a subgroup of governance has full accountability for resolving implementation conflicts and ensuring local facilities (plus corporate stakeholders) have fully defined accountability standards linked to organizational strategies, as well as personal performance goals.

Environmental Assessment

The environmental assessment requires a formal review of the organization’s people, process and technology issues, which must be addressed in order to foster change and implement, or enable, the change required for the initiative.

One outcome of the environmental assessment is an Organizational Change Management
The Dell Services ADOPTS Framework

**Assess** the environment of the enterprise to define the business and clinical needs in response to a proposed change.

**Design** the ideal solution and determine how the environment can support a change in the business and clinical processes of the enterprise.

Plan, which provides an overview of the people, process and technology issues involved in the initiative. Barriers to implementation and tactics for overcoming these barriers are outlined in the same way that gaps are mitigated or closed as the initiative moves forward. A secondary outcome is the Readiness Summary, which is a compilation of the information gathered during all of the activities discussed above and articulates the customers’ readiness for undertaking the project.

**Stakeholder Analysis**

Representative stakeholders are identified from each of the organization’s departments or groups (e.g., administrative team, business office, patient access, nursing, medical staff, pharmacy, social services and other ancillary departments, among others). The stakeholder analysis requires that in-depth interviews with selected stakeholders be completed, along with surveys of others throughout the organization. The end result is an executive summary of readiness. The stakeholder analysis is not a singular activity, but rather a process that will occur regularly and repeatedly through the clinical transformation initiative as an approach for sustaining involvement in the effort throughout the enterprise. Stakeholders should include both individuals who are initially identified as being supportive and critics of the original implementation plans in order to mitigate the risks that occur within most groups of clinical constituents.

**Risk Management Process**

The risk management process is instituted in order to protect the assets of the institution. An overall risk analysis and gap assessment is completed, during which all project components are reviewed to identify any weaknesses, problems and gaps. A plan to mitigate the risks and gaps identified is then formulated so they can be satisfactorily addressed.

**Quick Wins Identification**

Quick wins to identify “low-hanging fruit” must be identified, and a plan must be developed to achieve the identified wins. Through the various performed, changes in workflow processes that represent high-impact and low-effort areas are identified for achieving more rapid results and benefits. The quick wins are proposed and agreed on by the executive and clinical leaders. Every effort is made to ensure the early identified high-risk people, process and technology implementation issues are successfully resolved in order to increase the organizational early wins that will help set the tone for future waves of implementation. A detailed approach document is developed to mitigate individual risks within each organization.

**Design**

The work products produced during the Assess phase of ADOPTS are instrumental in the delivery of the high-level functions that are part of the Design component of clinical transformation. Following are some of the major activities associated with this phase.

**Vision Clarification**

Vision clarification occurs throughout the entire ADOPTS process; however, as a checkpoint, it is important to conduct a review at the outset of the Design phase. Clarity of vision is a preventive measure for ensuring the ultimate success of the initiative; therefore, periodic assessments of the vision are an important part of the overall process.

**High-Level Current State Workflows**

An initial step is to conduct a high-level current state workflows analysis to identify and document pre-existing process patterns. These current state workflows are then used to identify areas of potential process improvement that could result from the initiative. If existing workflows have already been documented, these processes are validated through a series of workshops to gain consensus on a multidisciplinary basis. The primary reason for this step is to facilitate interaction among the disciplines. In the experience of Dell Services, one of the major problems with workflows analysis is that it is too often accomplished on a disciplinary basis and, therefore,
misses critical requirements that may be different among the various participants in the workflow. Review of multidepartmental workflows, such as medication management, with an impact on the nursing, lab and pharmacy clinicians, will require additional focus. Excess time in the assessment phase often prevents an organization from meeting timelines and ROI benefits, so increased emphasis on work plan development and governance is a critical success factor for this part of any project.

**Current State Failure Mode and Effects Analysis (FMEA)**

An FMEA is conducted on high-impact, current state processes. An FMEA considers potential failures in the selected process and assigns scores based on the impact of the failure, the incidence or volume of the potential failure and the ability to discover the failure. Working sessions are conducted to gather the scoring from end users who fully understand the details of the high-impact, current state processes. FMEA scores for the processes are then compared to the proposed future state processes to determine the level of impact for the process redesign effort. The results of the FMEA frequently will guide the organization’s decisions as it moves to a new future state.

**Future State Design**

Workshops are conducted to design the “ideal” future state for the organization “without consideration of any constraints related to pre-existing decisions on the technology platform to be used to support the transformation initiative.” The intent of these workshops is to allow participants to define the ideal future state. It is an important element in gaining support for the overall transformation effort. Unless participants are able to clearly articulate their “desired” future state and engage in debate on the merits and demerits of the ideal future state, actual design implementation can be compromised. The ideal future state workshops are coordinated to include maximum participation from throughout the organization.

**Optimize**

Optimize is the third component in the ADOPTS framework. At this point, the clinical transformation methodology calls on the organization to “Optimize” the work done thus far by performing further analysis and implementing change management principles. All vendors have strengths and weaknesses, and it is critical for any implementation team to be educated on how to maximize the functionality of the vendor’s clinical solution, plus optimize the ability of a given provider organization to use the full capabilities of the chosen vendor solution. Some of the components of this phase may include:

**Gap Analysis**

Current to Ideal Future State — Gaps between the current and ideal future state workflows are reviewed and identified. A gap mitigation design plan is created to address critical, immediate and longterm organizational requirements. A plan for achieving gap closure, along with defined milestones, must be developed. Governance sign-off is required, including a review by executive leadership of the enterprise. Elements of the gap analysis include:

- **Optimized Future State FMEA Review** – As with the current state FMEA review noted previously, an FMEA review must again be conducted on those high-impact future state processes agreed to by the work teams. The results of the FMEA, frequently, guide decisions as the organization moves forward in deploying the negotiated future state.

- **Feature/Function Matrix** – The gap analysis report is reviewed and followup on all questions and issues is performed. The outcome of the process is the development of a requirements definition document based on the ideal future state of both the vendor and the organization.

**Negotiated Future State Analysis**

Workshops are conducted on the ideal future state for the organization based on the technology platform that will be used to support the transformation initiative. Current state workflows are
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The Dell Services ADOPTS Framework

Assess the environment of the enterprise to define the business and clinical needs in response to a proposed change.

Design the ideal solution and determine how the environment can support a change in the business and clinical processes of the enterprise.

Optimize the solution design by considering the design within the context of the technology or change required to meet the business and clinical needs of the enterprise.

Prepare the organization for a successful deployment of the solution by educating and supporting knowledge workers.

Transform the enterprise through effective implementation and deployment of the solution.

Once again reviewed for accuracy, along with the clinician needs analysis. Individuals with deep experience in the workflows, along with individuals with strengths related to the technical platform, are important participants in this phase of the initiative. The outcome of this effort will be an optimized or negotiated future state workflow based on the desired future state considered within the context of allocated organizational resources and the requirements of the technology platform.

Pilot Analysis

It is frequently advisable for the enterprise to conduct a pilot of the negotiated future state design in a selected clinical area. Such an approach allows for the complete evaluation of the optimized model to determine if further modification is required. Such a process also allows for incremental refinement of the clinical information system infrastructure so that disruption of existing clinical practices is diminished. Choosing a pilot is critical, because the success of the pilot and the ability of the organization to improve, based on lessons learned from the pilot, will often set the pace for the future success of the clinical implementation.

Benefits Realization, Prioritization and Validation

Current measuring metrics from hospital Quality Improvement (QI) departments and risk management are gathered. A Benefits Realization meeting is scheduled, and an agenda is created. Case study examples are presented, as are vendor-specific benefits. Negotiated Future State process workflows are presented so that the identity of benefits can begin, and the benefits identified during the “Assess” and “Design” portion of “Optimize” are validated.

Prepare

The Prepare phase of the framework, as the name implies, is the component of the clinical transformation process where the organization prepares for implementation of the clinical transformation process. Here are some of the high-level functions associated with this phase.

Identification and Timing of Training Resources

Resource requirements for training are identified. In addition, skill sets for trainers are defined, identified gaps are reviewed and considered for addition to the defined skill sets, and a plan is created to close these gaps for the trainer skill sets. Timing is a key element of training, as an organization can extend significant resources without return by attempting training too early; likewise, poor adoption may occur if training is too close to go-live.

Team Building

Team building is a planned effort made to improve communications and working relationships. Team building is initiated once the innovation teams are formed. Despite the fact that people have worked together within the organization, team building is an essential activity for building and gaining trust among the members of the various teams.

Change Agent Training

Training includes an “Adapting to Change” class for individuals from the organization designated as change agents. Change agents are taught techniques needed to realize change. Techniques include skills needed on how to facilitate discussions, handle resistance and manage the change process.

Transform

At this point in the ADOPTS framework, the organization is ready to begin implementing systems and transforming workflows that will deploy the negotiated future state. Most organizations specializing in clinical transformation tend to focus all of their efforts on this phase and neglect to take into account the important people and process steps encompassed in the previous phases. Dell Services realizes the significance of including the “right” people and effectively managing the change. The focus is not just “system” oriented. Two of the major activities in this phase are discussed below.
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**Technical CIS Build**

It is critical for the technical build to be interoperable and for all of the "moving parts" to interact as planned; thus, avoiding any technical issue. The functional requirements will not be performed as desired, if the new applications, legacy systems, networks, desktops and devices do not interact as planned. When business processes are defined simultaneously with application design and build, the opportunity for the technical components to become disconnected and the risk of timely delays in project completion is significant. Design decisions made about any application can impact the way other applications function. A continuous review of all design decisions must take place regularly to avoid application build rework or unanticipated testing results.

**Go-Live Support Plan**

The go-live support plan includes developing a physician support schedule, reviewing training and conversion support requirements, refining issue monitoring tools and initiating a process activation plan concurrent with the vendor plan, an implementation notice and a cut-over plan. The time commitment of support by the vendor and design team for facility-employed and non-employed clinicians or physicians is one of the key elements affecting the cost and ROI in any clinical implementation.

**Sustain**

The Sustain component of clinical transformation really teaches and helps the organization "maintain the gain." During this phase, the focus is on anchoring change with ongoing benefits realization via metrics. Following are examples of activities completed during this phase.

**External Networking**

External networking is the involvement of the organization in vendor or solution user groups related to solution use, best practices and other solution-focused considerations. It is important for a core team from the organization to remain connected to the clinical transformation initiative on an ongoing process, as well as to continue to measure and evaluate workflow processes.

**External Validation**

The best practices of the health system are benchmarked with those that are nationally recognized in the applicable field.

**Compliance Review**

Compliance with the changes that have occurred is continually reviewed and observed. Any outliers are identified, and modifications are made accordingly.

**Knowledge/Gather Review**

Current publications are reviewed for pertinent findings, and a mechanism for regular review of publications and case studies is created.

**System Maintenance Plan**

The system maintenance plan is developed as a mechanism for prioritizing system upgrades and schedules. Mapping of current issues, upgrades or fixes is determined, and a process is devised for decision making and approval of upgrades.

**Ongoing Communication Plan**

The communication plan is continually refined, and communication strategies are defined throughout the project on an ongoing basis. New information from publications or vendor solutions is added to the communication plan, and the revisions are submitted to the CSG for approval.

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**The Dell Services ADOPTS Framework**

**Assess** the environment of the enterprise to define the business and clinical needs in response to a proposed change.

**Design** the ideal solution and determine how the environment can support a change in the business and clinical processes of the enterprise.

**Optimize** the solution design by considering the design within the context of the technology or change required to meet the business and clinical needs of the enterprise.

**Prepare** the organization for a successful deployment of the solution by educating and supporting knowledge workers.

**Transform** the enterprise through effective implementation and deployment of the solution.

**Sustain** the clinical transformation initiative by establishing and anchoring the change for ongoing benefits realization.
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The ADOPTS framework, when viewed in total, regardless of the project or organizational culture, is an integrated whole that has been built by clinicians and technical healthcare experts to help healthcare providers meet the needs of their clinical transformation situations and, ultimately, improve healthcare for consumers and clinicians alike.

Strategic Goals Reevaluation

Reevaluation of the projects budget and strategic goals is conducted, and realignments are made, as applicable. Review of the gap closure plan for changing priorities also occurs. Solutions are added to the communication plan, and the revisions are submitted to the CSG for approval.

Benefits realization tracking, communication, and continual commit to performance improvements are what will, ultimately, determine the success of an organization's clinical transformation efforts.

Summary

Again, it should be reiterated that the ADOPTS framework, while linked together, is not implemented as a linear set of activities. This entire framework can be used as the core methodology for supporting clinical transformation in a variety of organizations — large or small — ranging from teaching facilities to community hospitals because of its modular design and the resulting flexible workflows. This framework, when viewed in total — regardless of the project or organization culture — is an integrated whole that has been built by clinicians and technical healthcare experts to help healthcare providers meet the needs of their clinical transformation situations and, ultimately, improve healthcare for consumers and clinicians alike.

ADOPTS is currently in use by several large healthcare systems as the support for their overall clinical transformation initiatives and improvement in healthcare operations. The methodology has been shown to be an integral resource for facilitating collaboration across divisional and facility boundaries within complex organizations. The framework supports evidence-based decisions that drive the organization toward better results and the realization of benefits that are measurable. It also assists in maintaining the clinical transformation that has been achieved by providing ongoing focus on the ultimate goal of improved healthcare for consumers and clinicians.

Over the coming years, Dell Services intends to develop a database for evaluating the ongoing effectiveness of the ADOPTS framework. Our initial findings support the contention that a focus on the key elements of the Dell Services Clinical Transformation Point of View, coupled with attention to the four major elements of under-emphasis in clinical information systems deployment initiatives — insufficient discipline, inordinate focus on technology, organizational rather than person-centric focus and inadequate attention to metrics — does, in fact, result in better outcomes for clinical transformation initiatives.
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Visit www.dell.com to access our entire White Paper collection. Dr. Fickenscher wishes to acknowledge the strong support, ideas, perspectives and contributions of the many Dell teammates from throughout the world who have contributed to the overall ADOPTS framework and framework development and, in particular, the Dell Services Clinical Transformation team for its contributions to this white paper.

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