Aligning Digital Health to Services: A Case of Leadership for Transformation

Full papers

Mohan Tanniru
School of Business Administration
Oakland University, Rochester, MI
tanniru@oakland.edu

Jiban Khuntia
Business School
University of Colorado, Denver, CO
jiban.khuntia@ucdenver.edu

Jack Weiner
St. Joseph Mercy Health System
Pontiac, MI
jack.weiner@stjoeshealth.org

Abstract

Health IT investments are often criticized for their size and bias towards broad organizational objectives, not to mention their potential for disruption. This is especially true of the United States healthcare sector, which has seen external mandates dictate several IT investments, mostly focused on electronic medical records. Such IT investments, without appropriate transformation and digitization of patient care services, will not have the desired impact on patient and organizational outcomes. We describe how leadership at St. Joseph Mercy Oakland hospital (SJMO) is transforming patient care through digitization of critical patient service encounters by aligning this effort with core performance measures using architectural and resource agility.

Keywords

Service-IT alignment, Patient services, Healthcare Leadership

Introduction

Service orientation is at the center of business evolution enabled through advances in information technology. The transformative role of IT is changing the direction of human interactions in the delivery and production of services (Sambamurthy and Zmud 2000). Digital (or IT-enabled) services concepts are being used to co-create value with customers, and organizations are looking to adapt their organizational resources in support of evolving business strategy. Agile IT architecture (commonly conceptualized as service oriented architecture) is key if firms want to use “service orientation” to creating value (Service-Dominant Logic of Vargo and Lusch, 2004). Resource-based theory calls for agility in combining heterogeneous organizational resources, both internal and external, and developing business strategies that are economically valuable and difficult to imitate or imperfectly mobile across firms (Barney 1991; Bharadwaj 2000).

Irrespective of the emerging service orientation across the economy and the use of flexible service architecture among many industry sectors, the healthcare sector has been lagging in such service-driven transformation. Most of the IT implementations and associated changes in processes or policies in the health care sector have been in support of hospital performance and medical record management. Health care and IT leadership hence focused on technology implementations (or digitization) in support of these management needs. However, a shift in focus is needed if the digitization of patient care services, as a part of service-oriented (i.e. patient-centric) care, is to influence a hospital’s core performance measures such as costs, quality of care, and patient satisfaction. Such an approach to health care transformation is not seen in many healthcare organizations and is the focus of this study.
The development of digital services in support of patient care using an agile IT architecture and hospital resources is a major challenge, particularly, in today’s evolving regulatory and competitive environment. Active engagement of IT and business leaders is imperative if digital services offered are to remain continually in alignment (i.e. IT-service alignment) for sustained patient value creation. In this study, we will discuss how the leadership team at St Joseph Mercy Oakland (SJMO) in Pontiac, MI has chosen to orchestrate IT-service alignment with agility in both architectural and resource dimensions. After a successful implementation of the performance dashboard (Weiner et al 2015) that linked unit level decision making to organizational actions, SJMO leadership decided to extend this linkage to patient services. Using a healing environment in a new patient tower that is physically attractive, spacious, art-enriched and family-supporting, digitized patient care services were introduced to influence patient and organizational outcomes through an Intelligent Care System: ICS [http://youtu.be/dpnpt65o8Ss].

The rest of the paper is organized as follows. Section 2 provides a research context and methodology used in documenting the service-IT alignment during the development of the ICS. Section 3 discusses both architectural and resources agility that supported the implementation of the ICS. Section 4 discusses the role of IT and health care leaders in sustaining future alignment. The last section provides a conclusion with remarks on future research.

**Research Context: SJMO Case Study and ICS Implementation**

Saint Joseph Mercy Health System (SJMHS) is one of the nation’s top health care services providers, spanning 5 counties in Southeastern Michigan. With more than 2,700 physicians and 14,000 nurses and staff, SJMHS includes 6 Hospitals, 5 Outpatient Health Centers, 8 Urgent Care Facilities and over 25 Specialty Centers. The specific hospital (SJMO) is a 443-bed comprehensive, community teaching hospital, recognized for Cardiology, Critical Care, Women’s Health and Orthopedics, serving for more than 85 years. SJMHS is a member of Trinity Health, a national Catholic health system.

Recognizing that patient rooms are the hub of many patient-health care staff interactions, during and before care delivery, recuperation post care delivery, and prior to discharge, service encounters in the patient room became the starting point for the development of the ICS and other physical amenities to support patient healing. While service encounters are often person-to-person transactions, digitization in service encounters has become an emerging recent phenomenon, often transforming the way service is delivered (Bitner, Brown and Meuter 2000). The chief executive has the following to say about healthcare transformation from the patient room up through the digitization of “service encounters”:

“We are not following the traditional pathway of health IT implementation. We want to understand what is happening in each patient-health care staff encounter and make sure our digitization efforts are in alignment with our service goals as well as our organizational goals as we improve quality of care, reduce costs and improve patient satisfaction. We wanted to always ask the following question: how best can the use of IT serve our patients? We want the technology used in each service encounter to have a positive impact on our health care mission (quality, cost and patient satisfaction) and we want to assess this impact both locally and at the organizational level at every step”. — Jack Weiner, President and CEO.

The President and Chief Executive Officer (CEO) advanced his vision and received approval for the new south tower in 2012. To make the digitization effort not technology-, but service-driven, the CEO has put together a leadership team that included the chief medical informatics officer, the chief information officer, and other nurse administrators, and led this team by actively coordinating this effort from the start. The case study that investigates the process of service and IT alignment at SJMO uses an inductive approach (Eisenhardt 1989). The method involves a combination of participatory research, interviews and observations during the participation. Extensive notes on the observations were taken and synthesized here as the findings from the case.
ICS Implementation at SJMO - A Service-IT Alignment

IT is enabling flexibility in service offerings such as to replace or substitute services in cases of failure, upgrade or change services without affecting an enterprise’s operation, and change suppliers of services to improve cost effectiveness and innovation (Byrd and Turner 2000; Sambamurthy, Bharadwaj and Grover 2003; Saraf, Langdon and Gosain 2007; Tafti, Mithas and Krishnan 2013). In a service offering, the provider-client interaction captures value (Bitner, Booms and Tetreault 1990; Butcher, Sparks and O’Callaghan 2003). With IT enabling the fulfillment of such a service (i.e. digital service), modularized IT services can flexibly be combined and distributed to meet changing health care needs. A digital service in a health context may include doctor-patient interaction via tele-communication (Crawford et al. 2005). While a doctor and patient see this as a diagnostic feature, this encounter provides a touch point for rendering value added services. Within a hospital, there are many such “touch” points or service opportunities, and digitization of these services can be componentized and configured quickly and easily in a service orientation.

As a first step, each service encounter in a patient room was identified for potential digitization. Then, SJMO focused on understanding the technology landscape for digital innovations in support of these service encounters. The project team visited health technology conferences, researched the availability and potential customizability of cutting edge technology (some available in the market and some under development), and interacted with vendor leadership to seek innovative and collaborative opportunities for technology adaptation to meet SJMO's vision of patient centered care. This led to the identification of several technologies (collectively referred to as ICS and shown in Figure 1 for implementation consideration).

![Figure 1. Intelligent Care System to Support Patient Care and Transaction Services](image)

Each service a patient receives in a patient room has to follow several protocol-driven service encounters to meet care quality requirements. For example: a request for pain medication needs the attention of a senior nurse; a request to transport a patient to a lab needs adherence to regulated protocols in consultation with attending staff; a request for food intake by a diabetic patient requires that catering staff interact with nurses on insulin intake, etc. Column 2 of Table 1 identifies several of these service encounters. Each of these service encounters has a direct impact on patient outcomes (hospital acquired infections, falls from the bed, patient satisfaction, care quality, etc.).

In order to ensure service-IT alignment clearly delivers value to the patient and to the organization, the functional requirements of the health IT (digital) artifact are effectively aligned with the organizational outcome. For example, supporting patient movement from the bed (service) calls for a service encounter between a patient and a nurse, and digitization of this service encounter (smart bed with an automatic call to a nurse) is to be aligned with reducing the instances of patients from falling off the bed (reduces costs...
associated with falls) or helping patients visit a bathroom (improves patient satisfaction). Similarly, providing pain management support (service) can lead to two different types of service encounters. A patient can directly call from a nurse call system (digitized via a pain button that sends an alert to the nurse) or an indirect reminder to the nurse (a wall unit reminds nurses every 30 or 60 minutes to administer pain medication). This digitization is to support pain management (often viewed as a critical part of patient satisfaction outcome as well as quality of care). Columns 2-4 of Table 1 provide a mapping of how digitization of each selected service encounter maps to specific performance goals of the organization. As stated by the VP of Patient Care Services:

“This is an opportunity for us to transform nursing workflow, to help nurses provide care in a more efficient and effective way through the use of cutting edge technology. Also, there are more opportunities to educate patients on safety, medications and who is involved on their care team. Ultimately, as we become better at using the technologies and address some of the initial glitches that occur with any new technology implementation, we should be able to continue our path of excellence with patient satisfaction and quality.” - Ann McDonald-Upton, Vice President, Patient Care Services and Chief Nursing Officer.

Architectural and Resource Agility in Service-IT Alignment

Especially in health care sector, not many organizations have all the IT resources needed to address several innovations occurring in the digitization of patient services. External resources were used when appropriate to investigate, develop and implement the ICS, with flexibility built in to support adaptation as patient service needs have changed.

Prior to opening the new building, several technology vendors worked with the project team and corporate IT staff to test the efficacy of ICS on one floor. Based on a successful pilot, noticeable improvements of certain core outcome measures (e.g., reduced hospital acquired infections and number of falls), the project team has developed both education and training material for the broader implementation of ICS. The performance improvements at the patient level and their relationship to hospital core measures have to be clearly understood and made transparent if all stakeholders in the system are to see their role in the effective implementation and use of digitized service encounters.

There is also a tendency for IT leadership to get distracted from the service focus, when IT implementation starts to get bigger and more complex in size and scope. In order to focus the digitization effort of ICS on service encounters, each of the digitalization efforts were addressed independently using select vendors involved in providing the digital services. To provide architectural flexibility, a communication architecture (i-bus) was used to integrate various digital services and connected them flexibly with other hospital systems such as electronic medical records (EMR), computerized patient order entry (CPOE), drug/medication dispensary system, patient/staff identification and nursing station portals that monitor patients. Such a distributed architecture for digitization, with an integrated technology platform, provides flexibility and ensures that the IT leadership's focus remains on the digital service operations - assessing the impact of digitization on services rendered and aligning them to core performance measures of the organization.

While some of the digital services were used to improve productivity in the patient room operations (which have a direct impact on patient satisfaction as well as care quality), others relate to organizational metrics such as mortality, falls, hospital acquired infections, etc. The business leadership has identified several of these core measures, such as cost, quality of care (falls, hospital acquired infection, mortality), support quality measures (rapid response, code blue, ICU transfers), patient satisfaction and length of stay. The focus of IT is to ensure that digital services via ICS are mapped to core performance measures (see Figure 2). In the words of the VP and CIO:

“In a major transformation of health care, it is very important for IT to be actively involved in understanding the vision and the role IT will play in support of the vision. We have been actively engaged in the transformation right from the start and continue to look for ways to support the core performance measures. A good example of this is our development of data warehouse and dashboard
architecture prior to the implementation of the system. This demonstrates how critical it is for us to understand what needs to be captured and analyzed for assessing the alignment of IT with organization.” Robert Jones, Director, Information Technology Systems, and Chief Information Officer.

Figure 2. IT Artifacts/Functions to Performance Measures

The SJMO leadership, after seeing the positive impact of ICS on reduced falls and hospital acquired infections, has taken the step of transitioning the entire hospital (all floors of the new south tower) to the new system. Such a radical transformation will come with associated challenges. The impact of digitizing each service encounter on people and organizational governance has to be clearly understood, if organizational resources are to be adjusted for successful implementation. Such resource agility needs transparency in communication and organizational capacity to evolve strategies and operational direction.

SJMO followed two practice rules to ensure transparency: (1) be sensitive to and proactive in addressing changes needed, including changes needed in human resource capabilities and governing policies, and (2) quantify performance outcomes at each service encounter so changes recommended are outcome driven and transparent. Such a data-driven approach is essential if large investments are to be evaluated for their effectiveness on performance improvement, provide transparency for any recommendations made if ICS is to be scaled up for broader adoption of others in the Saint Joseph Mercy Health System or Trinity Health. Using traditional interview methods, information was gathered from the nursing staff, and feedback was sought post-interviews to ensure the clarity of observations made and the viability of recommended solutions. Several operational/technological challenges that arose during implementation and opportunities for improvements were presented and discussed with SJMO leadership.

Organizational capacity is needed to ensure current as well as futures success in such digitization efforts. In order to build such capacity, leadership cannot always rely on people adapting to technology, but need technology and policies adapting to people who are providing patient care, especially when effective service encounters involve personal relationships built in delivering such care. In some cases, there is a need for changing organizational governance (e.g., nurse scheduling or alert call escalation) and/or changing some features of IT (e.g., alert frequency and when they are escalated).
<table>
<thead>
<tr>
<th>Service Focus</th>
<th>Service Encounter</th>
<th>Focal IT Application</th>
<th>Example of an Involved Patient Health Care</th>
<th>Alignment to IT Functions/Artifacts</th>
<th>Resulting Performance Objective</th>
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<tr>
<td>Staff communication</td>
<td>Food request</td>
<td>Wall Unit System</td>
<td>Support insulin in-take prior to meal as opposed to 30 minute delay</td>
<td>Glycemic Button Alert: Built into the wall unit and allows food caterer to contact nurse when food is delivered, besides offering dietary choices for such patients.</td>
<td>Staff on call, food type management, food request-to-arrival response time reduction, weight/calorie/vitamins monitoring</td>
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<tr>
<td>Patient communication</td>
<td>Pain request</td>
<td>Nurse Call System, Patient-call from bed</td>
<td>Pain request management is critical for reducing length of stay and patient satisfaction, not to mention health complications when not addressed.</td>
<td>Provide a pain button on nurse call system so patient request for pain can be addressed immediately by appropriate nurse, designated to provide pain medication.</td>
<td>Response time reduction, escalation and issue or support resolution</td>
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<tr>
<td>Patient movement monitoring and support</td>
<td>Bath room support</td>
<td>Bath room button call switch</td>
<td>Just-in-time/urgency service flexibility</td>
<td>Bathroom button on the pillow speaker, so specific nurse assistant can address this need before a patient steps out of the bed (potentially leading to falls in some cases).</td>
<td>Alerts for patient-step-off and on to bed/chair, bed positioning, comfort monitoring, urgency alerts</td>
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<tr>
<td>Patient transport</td>
<td>Call button on the wall unit and connectivity to staff</td>
<td>Support patient need to get tests done outside the patient room by following appropriate transport protocol; reduce hospital management process</td>
<td>A call button on the wall unit for the transport person to call the attending nurse to seek specific instructions on isolation protocols and IV support.</td>
<td>Alerts for patient-step-off and on to bed/chair, bed positioning, comfort monitoring, urgency alerts</td>
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<tr>
<td>Help with patient movement on the bed</td>
<td>Smart Bed (HILLROM ) Application</td>
<td>Support patients need to move from bed to chair and from one position to another on the bed, following specific procedures. This is critical as part of care protocol and lack of supervision might contribute to fall risk</td>
<td>Smart bed technology triggers alerts to nursing staff when patients move, so staff can call and come to support patient movement. Lack of movement may also be a trigger for certain patients, contributing to pressure ulcer. The tracking of patient movement and alerts are key to controlling falls and monitoring pressure ulcer risks.</td>
<td>Alerts for patient-step-off and on to bed/chair, bed positioning, comfort monitoring, urgency alerts</td>
<td></td>
</tr>
<tr>
<td>Vital sign monitoring and action</td>
<td>Patient monitoring and treatment</td>
<td>Wrist worn device (SOTERA ) &amp; vital sign monitoring system (VISENSIA )</td>
<td>Constant monitoring of the patient with respect to his health condition and determining when intervention is needed</td>
<td>The monitoring systems check the patient’s conditions either constantly or at pre-defined intervals and send direct/remote messages to the attending nurse/staff about the patient’s condition.</td>
<td>Monitoring of five remote vital signs round the clock, and administering necessary IV or drugs at right time.</td>
</tr>
<tr>
<td>Drug administration at prescribed times</td>
<td>Computer aided medication reminder system</td>
<td>Support patients with critical need with scheduled drug administration either orally or through injection</td>
<td>A 30 or 60 minute reminder alerts to nurse on which patients need to be administered a drug and in what form – pre-established based on patient condition.</td>
<td>Increase nurse efficiency, timely attending to issues, times escalation to doctor/specialist, automated rule based actions, cell phone integration, automated escalation based on response-delays</td>
<td></td>
</tr>
<tr>
<td>Nurse efficiency and effectiveness</td>
<td>Nursing call system</td>
<td>Nurse Response Unit (VOALTE)</td>
<td>Reduces health related stress and anxiety</td>
<td>Nurse call system with escalation and nurse call back via iPhone enhances customer support. Automatic alerts to right personnel (patient care assistant, nurse) and appropriate escalation protocols, so important calls are not missed due to nursing floor demands.</td>
<td>Make the patient an informed consumer and improve his/her engagement in the disease management process</td>
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<tr>
<td>Patient education system</td>
<td>Positive inputs and information about getting well sooner</td>
<td>Getwell Network</td>
<td>Education and awareness about disease</td>
<td>Educational programs on TV, and daily patient activity observation through the system.</td>
<td>Make the patient an informed consumer and improve his/her engagement in the disease management process</td>
</tr>
<tr>
<td>Hand Hygiene</td>
<td>Wash-ins and wash-outs</td>
<td>Sensor based hand-hygiene unit</td>
<td>Creating an environment of cleanliness and reduction of infections</td>
<td>A compliance system tracks staff hand-hygiene and infection-prevention in real time.</td>
<td>Wash-in and wash-out protocol; reduce hospital acquired infections</td>
</tr>
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Table 1. Service and IT Focus in ICS Implementation in SJMO
To build organizational capacity, SJMO Leadership has taken the unusual step of putting the implementation effort to test for some period before making major resource related investments. It has recruited people from within its own staff and those from outside to ensure that technology is evaluated comprehensively. Before making a significant investment in recruiting additional talent to sustain the effort or finalize the education to diffuse the technology, a Trinity Health Fellow and external resources from Oakland University (student and faculty) were used to supplement internal resources in evaluating the impact of ICS implementation on the nursing floor. To implement and sustain the ICS, specific training was developed to enable the care delivery staff team (which includes many staff members besides the attending nursing staff) to support the new system.

Next section will discuss the role leadership played not only in successfully implementing ICS, but creating the capacity to sustain future service innovations.

**Role of Business and IT Leadership in Service-IT Alignment**

Business transformations through advanced digitization is calling on organizations to be digitally ready (Desmet et al, 2015) and one aspect of this is to operate at two speeds (Bossert et al, 2014). The faster speed, as opposed to normal speed used to run day-to-day operations, is to take advantage of innovative opportunities that are being used to create or co-create value with customers. McKinsey (Olanrewaju et al 2014) enumerates seven traits of organizational leadership in a digital world: (1) be aspirational, (2) acquire capabilities, (3) ring fence and cultivate talent, (4) challenge everything, (5) be quick and data driven, (6) follow the money, and (7) be obsessed with the customer. Each of these traits are to help digitization efforts used not just to reduce costs and improve quality, but address future and fast changing customer demands. This is especially critical for a health care industry that is going to see dramatic changes in the way care is regulated and reimbursed, and patient expectations shifting towards personalized and home care. This section uses this framework to see how SJMO administrative and IT leadership dimension helped address service-IT alignment.

**Be Aspirational:** Successful hospitals require a bold (“aspirational”) vision and a willingness to move beyond traditional forms of care delivery, and become service centric. Services a hospital provides to a patient inside the hospital (e.g., in a patient room) provide opportunities for digitization that can lead to improved patient satisfaction and customized quality care, while reducing unnecessary costs. Technologies such as smart beds that detect patient movement, RFID readers that locate nursing staff, hand-held devices that support patient-nurse communication and nursing station consoles that remotely monitor a patients’ wellness are becoming common in many hospitals. ICS captures the vision of both IT and business leaders to leverage advanced digital services to support patient and organizational outcomes.

**Acquire Capabilities:** SJMO needed to acquire the capabilities, both internal and external, to initiate the ICS in the hospital. Further, it needed capabilities to evaluate, adapt and sustain this system over the long run. This called for the acquisition and cultivation of capabilities and human talent that SJMO did not have. Early on, SJMO coordinated and interacted with a number of technology developers, systems implementers, vendors and innovators who could not only be the solution providers, but could provide direction towards next generation developments. Creating a platform such as “Cerner i-bus” that allowed many of these vendor/partner firms to coordinate and share information that can be helpful emerged as a capability built up exercise for SJMO. Technology partner based approach supports both the resource based theory and SD Logic that encourages the use of both internal and external capabilities to build needed talent. This indeed needs the engagement of both IT and business leadership.

**Acquire and Cultivate Talent:** To sustain the efforts beyond implementation, SJMO focused on the specific types of talent that must be developed to allow the team to evaluate technological requirements, patient room services (people skills and workflows), and organizational governance on an ongoing basis. Both internal and external staff were used when appropriate. Student and faculty from nearby universities were used to gain both IT and business perspective, a key external perspective needed to improve digital quotient (Catlin et al, 2015).

**Challenge Everything:** Radical change of the magnitude planned at SJMO, combined with evolving technology and skill needs, poses significant risks. A planned transformation requires an open mind and a willingness on the part of business and IT leadership to challenge all the assumptions made prior to ICS.
implementation. External resources (graduate students and faculty from Oakland University) were used in workflow documentation (pre- and post-implementation) and evaluation. The internal project team was broadened to include several clinical, administrative and nursing staff, and frequent meetings with the team were used to address technology glitches (e.g., dropped calls) and operational glitches (e.g., escalation protocols sent to staff far away from the patient).

**Be Quick and Data Driven:** Without waiting for all the systems to be fully implemented for data integration, IT leadership at SJMO has decided to build a database architecture and plan the development of a data warehouse, so service level information can be captured and mapped to outcomes (productivity improvements at the patient floor level and performance outcomes at the organizational level). A database architecture (shown in Figure 2) is intended to help both business and IT leadership to focus on where money was spent in support of patient services, what digitized services are altering waste (e.g., money spent on falls or hospital acquired infections) and what services can improve quality of care (e.g., by reducing mortality, improving response times to critical illness conditions, etc.).

**Follow the Money:** The early focus of ICS is to address the areas that are impacting the hospital costs (hospital acquired infections, falls, patient length of stay attributed to quality of care, etc.). Continuity of patient care post discharge can have a positive impact not only on patient satisfaction but also on reducing unplanned patient readmissions, a key factor in reducing the overall cost of patient care. Currently, technologies such as wrist monitors and remote communication are being explored for certain critical care patients as a part of post-discharge follow-up.

**Be obsessed with the Customer:** SJMO felt a need to continue to seek feedback from patient to improve patient care. Using data from nurse response to patient calls, SJMO already started developing purposeful rounding to anticipate patient calls and look for alternatives in addressing call response variation across floors with different patient population. As indicated earlier, wrist-worn devices are remotely monitoring patient’s vital signs to detect anomalies on select patients. All of these extended care digital services need active engage of both business and IT leadership.

**Discussion**

Effective service development, delivery and management in today’s organizations are reliant on business-IT leadership that can flexibly allocate internal and external resources in support of evolving digital services. Specifically for the healthcare context, where service orientation is critical and comes with added complexities (Luftman 2000), plausible approaches may involve additional management capabilities, alignment or organizational maturity and rethinking strategies (Ross 2003).

In this study, we used an inductive case study method to discuss the “orchestration’ to IT-service alignment. The IT agility comes from leveraging modular development, distributed architecture and external resource partners to complement internal capabilities. The business agility comes from building greater transparency in decision making and governance, as well as leveraging external partners to build capacity. The services as well as their digitization requirements are demanded by external stakeholders (i.e. customers) whose value expectations change frequently. This puts the onus on both business and IT leaders to develop organizational maturity in the way customer value is created and organizational capacity developed through partnerships to meet today’s competitive environment.

In SJMO, another important leadership player, besides the CEO and CIO, is the Chief Medical Informatics Officer (CMIO), as s/he played an important role in bridging the clinical and business needs through digital services. In the words of the Chief Medical Informatics Office who led the effort:

“While we recognize that each service encounter has its own opportunities for improvement, we wanted these opportunities to be addressed collectively for major gains on various patient outcomes. Digitization of these service encounters provides us with rich data to analyze and support our patients. Such a significant transformation, in spite of all the planning, comes with some initial stress, but we continue to listen to operational challenges and adapt the digitization and associated services when feasible. This is indeed a team effort, and the success of such a transformation in health care has to be measured on a sustained basis, so we can both anticipate and customize our care to current and future..."
patients.” Fabian Frego li, Vice President of Clinical Quality & Patient Safety, SJMO and Chief Medical Informatics Officer, Trinity Health-East Market

Integrating the service orientation process through IT alignment needs an agile service provisioning and management (Weill, Subramani and Broadbent 2002). This study, within the limitations of a single-case approach, provides a contribution to both theory and managerial concepts: 1) Serving as a guide for value provisioning through IT-service alignment in a healthcare delivery organization; 2) Discussing the role of IT in guiding business transformation through value creation, agile architecture, and partnership-driven leadership.

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