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TARGET SYSTEMS: OPPORTUNITIES AND CHALLENGES IN THE ELECTRONIC HEALTH INFORMATION SYSTEM ARENA

Michael J. Fratantuono and David M. Sarcone wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

In the summer of 2010, the business development team of Target Media Mid Atlantic Incorporated, doing business as Target Systems and headquartered in Mechanicsburg, Pennsylvania, gathered to discuss a report recently submitted to them by two consultants. Some months earlier, they asked the consultants to assess the opportunities for Target Systems to expand into the evolving and rapidly growing electronic health information (EHI) systems arena.

Although the business development team was mindful of the need to cultivate growth and perhaps foster a new line of business, its request for such a report from the consultants was not motivated by a sense of crisis. Indeed, Target Systems had been quite successful over a period of sixteen years. Founded in 1994, the company in 2010 employed 130 people and was capable of providing a full range of information technology (IT), project management, logistics, and consulting services (see Exhibit 1). It maintained numerous contracts with the U.S. Department of Defense, was serving state and local government, and was making inroads in the private sector. It had a growing presence in the Washington D.C. area, and also had employees working on government contracts in Philadelphia, as well as others in Virginia, Georgia, and California. In 2009, it generated $18 million[1] in revenue, a dramatic rise from the $4 million in revenue it had generated as recently as 2002. Furthermore, in 2010, Target Systems was on the verge of winning its biggest ever security systems contract.

In their report, the consultants indicated the established strengths of Target Systems in the fields of IT and project management and its success in providing outstanding customer service would certainly be relevant in the EHI arena. They believed there were opportunities for Target Systems and suggested the company initially attempt to enter the arena by providing IT services to physicians' practices rather than by providing services to other stakeholders, such as regional health organizations or hospital systems. However, the consultants also pointed out that in attempting to enter the EHI arena, Target Systems would face challenges: the industry was already populated by numerous companies; national standards for EHI systems had not yet been established, which added to environmental uncertainty; and Target Systems would have to make substantial investments in new skill sets.

[1] *All figures are in U.S. dollars unless otherwise stated.*

In order to help the development team think about ways to overcome those challenges, the consultants posed a range of high-level, important questions. They singled out one question in particular though: If you accept our idea that you should enter the EHI arena by providing services to physicians' practices, then will you build competencies by investing in internal development or by finding a strategic partner?

TARGET SYSTEMS

In 1994, Ginny Kenyon, her husband Tim Kenyon, and a good friend John Cattoni collaborated with a few other people and submitted a proposal to help manage a software maintenance and logistics system under development by the Department of the Navy (DON). Their proposal was selected. At the time, Ms. Kenyon was a former Navy officer. She had kept her hand in various business ventures while raising the couple's children. Mr. Kenyon had served in the Navy and Navy Reserve, earned an MBA in retail distribution, and worked in the private retail sector. In 1989, he took a job with a defense contractor and over the next few years deepened his IT expertise and became an expert in the intricacies of government contracts. Mr. Cattoni had more than 20 years of experience in information technology and business management. The Kenyons and Cattoni financed the start-up of Target Systems, and on May 5, 1994, Target Systems was born. Based on partnership contributions, Ms. Kenyon was designated as the majority owner. From the outset, Target Systems was best characterized as a small, privately held, woman-owned and veteran-owned company.

For the first three years of operation, the eleven members of Target Systems focused their efforts on meeting and exceeding the expectations of their sole customer. In 1997, based on outstanding performance on this first contract, Target Systems was awarded new project work by the DON. As a result, it was able to bring on-board additional logisticians, software developers and programmers.

In 1999, the U.S. Navy Supply System Command (NAVSUP) moved its central facility from Washington D.C. to Mechanicsburg. The relocation was beneficial to Target Systems as the proximity to the facility enhanced the ability of the management team to directly interact with managers and decision makers at NAVSUP, to scan the environment for new opportunities and to flexibly allocate resources. Those developments led to increasing requests for Target Systems to provide services and as a result, the company was correspondingly able to hire additional senior-level people. In the first five years of the 2000s, the revenue of Target Systems more than doubled. The company moved into its own office building, installed its own server networks, brought on more employees and expanded its scope of work.

Looking back, Tim Kenyon observed Target Systems initial reliance on only one client made the possibility of failure a strong motivator. The rapid growth of the early 2000s implied the informal approach to managing the company over the first decade—what Kenyon described as "a group of smart people collectively working to solve problems"—was no longer adequate for managing work flow. In 2003, Target Systems formalized its organizational structure. Ms. Kenyon was designated as Chief Executive Officer, Mr. Kenyon as Chief Financial Officer, and Mr. Cattoni as Chief Information Officer. The new structure included two major business units: business and logistics consulting; and networking/systems engineering and integration. In the ensuing years, that structure continued to evolve in a way that permitted flexibility of resource allocation, knowledge sharing, provision of new services and development of new capabilities.

As of 2010, many of the 85 people who worked in the business and logistics consulting division were deeply experienced in project management work; many had previous careers in the military. They tended to serve as consultants on a range of projects and required only arms-length supervision. They were an

eclectic group, including program managers, financial managers, public affairs officers, historians, business specialists and logisticians.

In contrast, in 2010, many of the 45 employees on the networking/systems engineering and integration side of the company were in their twenties. This group included system engineers, programmers, data base specialists, and certification and security service specialists. They tended to work on more than one project, had more daily pressure for deliverables, and received more frequent direction, monitoring and feedback from their project managers than their fellow employees in the other division. They worked on both commercial and government contracts. They collectively were also capable of helping clients buy, install, and maintain information technology systems; build customized applications; and ensure integrity and security of all data.

As of 2009, a few factors prompted the members of the business development team to wonder about prospects for entering the EHI systems arena and to reach out to the consultants. First, while Target Systems had enjoyed very strong increases in business throughout most of the 2000s, growth in revenues had significantly slowed in 2009. Second, in 2009, more than 90 per cent of company revenues still came from government sector work. Third, the business development team anticipated reductions in defense sector contracting in the coming years.

In doing their evaluation of the company, the consultants came to believe a large part Target Systems' success could be attributed to the fact the company exhibited clear, strong, and balanced links among its organizational culture, its strategy and the external environment in which it chose to operate.[2] In conversations between the consultants and employees of Target Systems, words that regularly surfaced included: quality, equity, credibility, dependability, humility, loyalty, honesty, trust, respect, responsibility, accountability, durability and flexibility. Throughout its history, these organizational values helped Target Systems carry out an integrated competitive strategy: they provided clients with differentiated services at somewhat less than market rates. This approach was still relevant in 2010, as the company worked to build robust relationships with clients and partner organizations and to deliver customized products and services. Meanwhile, it invested in human capital and strove for low levels of employee turnover, sought flexibility and efficiency in the internal allocation of resources, relied on word-of-mouth reputational advertising — and passed on cost savings to clients.

In turn, strong values and an integrated competitive strategy made sense when working in the defense establishment and federal government environments. Many projects were large and complex, and contracts were written in such a way that the government could request new services from a provider on an as-needed basis. For that reason, the management team regarded contracts with the government as a vehicle for work and an opportunity to develop new business; however, they knew that in order to succeed, a company had to be able to manage contracts with precision, provide services and products that conformed to the highest standards, and satisfy extremely demanding clients. The environment could be fluid. From the perspective of any company in the eco-system, one month's collaborator on a particular contract could be next month's competitor for another, and shortly thereafter might once again be a collaborator on a third. In such a dynamic setting, a reputation for professional competency and integrity was an invaluable intangible resource. As part of their work for Target Systems, the consultants created a

[2] *For an elaboration of this idea, see Michael J. Fratantuono and David Mark Sarcone, "Clear, Strong, and Balanced Links among Environment, Culture, and Strategy: The Case of a Successful Nonprofit Community Hospital," Strategic Management Review, Vol. 2, No 1, 2008, pp. 23-43.*

map of the company's high- level strategic themes and supporting activities,[3] one they believed reflected the links among culture, strategy and external environment (see Exhibit 2 and Exhibit 3).

ELECTRONIC HEALTH INFORMATION SYSTEMS IN THE US HEALTHCARE LANDSCAPE

As of 2010, all established health care systems throughout the world incorporated four functional components—finance, insurance, delivery, and payment.[4] Each country's health care system differed from that of others according to the degree of management coordination and resource distribution across those four components. The health care system of the United States was, as measured by many technical standards, the best in the world. Nonetheless, the number of people without insurance was in excess of 45 million and continued to grow, and there was ample evidence that the quality of those services was not uniformly high throughout the country.[5] Furthermore, the system was extremely expensive, comprising 16 per cent of U.S. gross domestic product.[6] The high costs of the U.S. system could be traced in part to the loosely coordinated relationships within and between the four functional components.

That state of affairs existed despite a two decade evolution in health system management. In the 1990s, various public entities and policy experts began to enumerate the shortcomings of paper-based systems, criticisms that persisted into the new decade.[7] Meanwhile, experts touted the benefits of electronic records and systems. In 1991, the Institute of Medicine issued its first report on electronic medical records (EMRs), which consisted of information that was primarily clinical in nature in that it focused on the state of health and prescribed treatments for an individual patient. It then issued a revised and updated report in 1997. Both reports concluded that EMRs were "an essential technology for the future."[8] Starting in the late 1990s, there was progress in the United States toward the adoption of EMRs by health care providers and the development of health information exchanges among stakeholders.[9] Over time, the notion of electronic health records (EHRs) gradually came to dominate the field. Along with a patient's medical history — including treatments provided at physicians' offices, ambulatory surgical centers, hospitals, laboratories and health related information included in the EMR — an EHR also included demographic and financial information.

In the second half of the 2000s, some analysts argued the U.S. healthcare system was governed by a vicious, three-part cycle of self-reinforcing shortcomings that could only be addressed by introducing robust IT systems. First, a lack of data about treatments and outcomes undermined progress toward establishing new payment methods that would reward providers for health care quality and efficiency. Second, the absence of reform in payment methods weakened the economic incentives to providers and

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[3] Michael Porter introduced strategic themes and activity systems illustrated via an Activity System Map, in "What is strategy?" Harvard Business Review, Nov/Dec 1996, Vol. 74 No 6, pp. 61-78.

[4] Leiyu Shi and Douglas A. Singh, Delivering Health Care in America: A Systems Approach, Jones and Bartlett Publishers, Boston, 2004, p. 6.

[5] Robert Woods Johnson Foundation, "Comparing Federal Government Surveys that Count Uninsured People in America," www.shadac.org/files/RWJF_CompareSurveysIB_Aug2008.pdf, accessed June 2, 2009.

[6] Christopher J. Truffer, Sean Keehan, Sheila Smith, Jonathan Cylus, Andrea Sisko, John A. Poisol, Joseph Lizonitz, and M. Kent Clemens, "Health Spending Projections Through 2019: The Recession's Impact Continues," Health Affairs, Vol. 29, No. 3, pp. 522-529.

[7] The New York City Department of Health and Mental Hygiene, "What do Electronic Health Records Mean for Our Practice?" www.nyc.gov/html/doh/downloads/pdf/csi/ehrkit-brochure.pdf, accessed June 2, 2009.

[8] Michael J. Barrett, with Bradford J. Holmes and Sara E. McAulay, Forester Research, for the California HealthCare Foundation, "Electronic Medical Records: A Buyer's Guide for Small Physician Practices," ihealthreports, October 2003, www.chcf.org/publications/2003/10/electronic-medical-records-a-buyers-guide-for-small-physician-practices, accessed June 2, 2009.

[9] William Bernstein, Melinda Dutton, Lori Evans, and Anthony Ford, "Health Information Exchange Projects: What Hospitals and Health Systems Need to Know—An Executive Brief," Manatt Health Solutions, 2006, www.aha.org/content/00-10/AHARHIOfinal.pdf, accessed June 2, 2009.

administrators for improving the quality and efficiency of health care services. Third, weak economic incentives reduced demand among clinical providers for the health-related IT systems that would generate much needed data.[10] In light of those concerns, many familiar with the industry asserted the widespread adoption of EHI systems was ultimately inevitable.[11]

On February 17, 2009, President Barack Obama signed into law the American Recovery & Reinvestment Act. The EHI component of the Bill was the HITECH Act. Via the Act, the government hoped to prod physicians who had been slow to adopt EHRs to do so (see Exhibit 4). It hoped to encourage change in the system, so that instead of sitting in silos within individual provider organizations, patient data would be actively and securely exchanged between healthcare professionals via EHI networks.

MOVEMENT TOWARD EHI SYSTEMS BY VARIOUS STAKEHOLDERS

If the management team of Target Systems did choose to enter the EHI arena, they would have to decide which among three possible set of clients in the Central Pennsylvania region — which consisted of all or parts of Adams, Cumberland, Dauphin, Lancaster, and Perry Counties — offered the best opportunities: health information exchanges; hospitals and health care systems; or physicians' practices.

Regional Health Information Organizations — Regional health information organizations (RHIOs) were complex organizations that facilitated "electronic health information exchange . . . between independent entities in a defined geographic region to improve health and care"[12] (see Exhibit 5). By 2005, RHIOs had been launched in 150 communities across the United States. They were diverse in nature, with broad variation in terms of participating stakeholders, in the scope of geographic coverage, governance structures and information technology initiatives.[13] Generally speaking, many RHIOs experienced a range of operational and financial challenges.

To facilitate information exchange in a RHIO, management and information technology systems and associated software applications had to demonstrate "interoperability"[14], the capacity "to communicate, to exchange data accurately, effectively, and consistently, and to use the information that has been exchanged in order to improve the quality of healthcare and reduce the cost of its delivery."[15] With interoperability, all physicians would have access to a patient's longitudinal health-care records, and records would not be lost. Individuals would have a better understanding of their own health care status. Payers would benefit from more efficiency, fewer errors and reduced duplication of effort.

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[10] Todd Parker and Peter Basch, "A Historic Opportunity: Wedding Health Information Technology to Care Delivery Innovation and Provider Payment Reform," Center for American Progress, May 2009, p. 7, www.americanprogress.org/issues/healthcare/report/2009/05/18/6025/a-historic-opportunity/, accessed June 2, 2009.

[11] Margret K. Amatayakul, "Electronic Health Records: A Practical Guide for Professionals and Organizations," American Health Information Management Association, 2004, http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_015872.pdf, accessed June 2, 2009.

[12] Julia Adler-Milstein, David Bates, and Ashish K. Jha, "U.S. Regional Health Information Organizations: Progress and Challenges," Health Affairs, March/April 2009, http://content.healthaffairs.org/content/28/2/483.abstract, accessed June 2, 2009.

[13] William Bernstein, Melinda Dutton, Lori Evans, and Anthony Ford, "Health Information Exchange Projects: What Hospitals and Health Systems Need to Know—An Executive Brief," Manatt Health Solutions, www.aha.org/content/00-10/AHARHIOfinal.pdf, accessed June 2, 2009.

[14] David J. Brailer, "Interoperability: The Key To The Future Health Care System," Health Affairs—Web Exclusive, January 19, 2005, http://content.healthaffairs.org/content/suppl/2005/01/18/hlthaff.w5.19.DC1, accessed June 2, 2009.

[15] This definition was provided by Frank Richards in a power point presentation "Regional Symposium: Strategies of Information Sharing—May 11, 2005." He attributed the definition to the National Alliance for Health Information Technology.

Without interoperability, electronic medical records would tend to remain the proprietary information of the health care provider — essentially the information would sit in separate "silos." Individuals would be confronted with higher switching and transaction costs as they migrated from provider to provider for services. If interoperability were to become pervasive, it would dramatically alter the healthcare marketplace.[16]

Most analysts acknowledged that in the United States, a national health information organization (NHIO) would most likely emerge from the bottom-up, as local and regional organizations were gradually integrated into a "network of networks."[17] In order to achieve such a goal, national standards would have to be articulated. Although different participants would realize different returns on investment, health care providers as a whole would have to make sizable investments. Those factors suggested that achieving the highest level of interoperability would require strong policy incentives, federal leadership, and possibly state and federal legislative mandates.

In 2010, the Keystone Health Information Exchange (KeyHIE) was the sole operational, sophisticated, and extensive RHIO in Central Pennsylvania. As of that time, "more than 300,000 patients had signed up to allow providers to access their information and it served a potential population of 2.6 million people."[18] In addition, a second RHIO for the region, the Harrisburg Health Information Exchange (HHIE) was in the very first stages of consensus building and organizational planning, under the guidance of TECHQuest, a not-for-profit organization dedicated to promoting business development in Pennsylvania. The broad goals of the proposed exchange were to improve access, optimize medical expenditures, improve patient safety and enhance medical care quality. Several challenges faced this initiative, including the lack of adequate funding, limited management and technical leadership resources, and a lack of infrastructure, broadband capacity and qualified IT personnel in the region. From an operational perspective, the leaders of this initiative believed the proposed RHIO would yield direct benefits to participants and would also give participants leverage in dealing with other stakeholders such as vendors of IT services, providers of broadband capacity and educators of the IT workforce.

Community Hospitals/Regional Health Systems — A survey of 250 hospitals conducted by the Medical Records Institute in winter 2002 indicated that only four facilities had their "entire medical record computerized." In contrast, about half of the small hospitals surveyed indicated that they were "using a computerized record but only a quarter of the computerization in [those] records was online."[19] As the decade unfolded, the percentage of hospitals with comprehensive systems did not dramatically change. A survey conducted in 2008[20] suggested that only 1.5 per cent of U.S. hospitals had a comprehensive electronic-records system (i.e., present in all clinical units) and an additional 7.6 per cent had a basic system (i.e., present in at least one clinical unit). Computerized provider-order entry for medications had been implemented in only 17 per cent of hospitals. Generally speaking, hospitals that were large, or located in urban areas, or had a teaching mission were more likely to have electronic-records systems. Respondents cited capital requirements, high maintenance costs, unclear return on

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[16] David J. Brailer, "Interoperability: The Key To The Future Health Care System," Health Affairs—Web Exclusive, January 19, 2005, http://content.healthaffairs.org/content/suppl/2005/01/18/hlthaff.w5.19.DC1, accessed June 2, 2009.

[17] Julia Adler-Milstein, David Bates, and Ashish K. Jha, "U.S. Regional Health Information Organizations: Progress and Challenges," Health Affairs, March/April, 2009, http://content.healthaffairs.org/content/28/2/483.abstract, accessed June 2, 2009.

[18] "Pa. Health Info Exchange Hits Critical Mass," Government Health IT, May 21, 2009, http://govhealthit.com/news/pa-health-info-exchange-hits-critical-mass, accessed June 2, 2009.

[19] Margret K. Amatayakul, "Electronic Health Records: A Practical Guide for Professionals and Organizations," American Health Information Management Association, 2004, p. 13, http://library.ahima.org/xpedio/groups/public/documents/ahima/bok1_015872.pdf, accessed June 2, 2009.

[20] Ja Ashish, DesRoches CM, Campbell EG, Donelan K, Rao SR, Ferris TG, Shields A, Rosenbaum S, and Blumenthal D. (2009), "Use of Electronic Health Records in U.S. Hospitals," The New England Journal of Medicine V360, N16, 1628-38.

investment and inadequate IT staffs as the primary barriers to implementation. Despite the relatively low rate of penetration, as of 2009, several strong players dominated the industry: nine companies had provided the EHR systems in place at more than 90 per cent of 4454 hospitals that had responded to a national survey.[21]

In contrast to patterns at the national level, by 2009 many of the hospitals and health systems in the Central Pennsylvania region had EHR capabilities, were expanding applications within their respective organizations, or were opening communication links with independent care providers and community residents. However, they individually tended to choose EHR systems provided by different vendors.

Physicians' practices — Survey data gathered from across the United States at two points in time indicated that the number of physicians in office-based practices that reported full or partial use of EHRs had increased from 18 per cent in 2003 to 24 per cent by 2005[22]. For the latter survey, higher than average adoption rates were reported by physicians under the age of 35 (44 per cent); physicians in medical specialty practices rather than in primary care or surgical practices (28 per cent); practices with 11 or more physicians (46 per cent); and by physicians participating in health maintenance organizations (67 Per cent)[23]. The majority had refrained from adopting the technology due to some combination of the high initial capital cost of system conversion, inadequate technical and management capacity within practices, concerns over short term loss of practice productivity, and the absence of either government mandates or financial incentives to stimulate adoption rates.

In 2010, health care providers had three options when choosing an EHI system. They could purchase a client-based system; subscribe to a network-based system; or import an open-source software application. While the first two options were most prevalent, the third had the potential to become quite popular. Target Systems had the in-house expertise to work with all three technologies.

Client-based EHR systems were the first to gain a foothold. By 2006, several vendors were providing systems. Such systems were self-contained, in the sense that all hardware and software was installed and thereafter resided in physicians' offices. One reason for the early leadership of client-based systems was that in 2001, only 10 to 15 per cent of physicians had access to high-speed and reliable internet connections. Internet connections tended to be expensive. Privacy concerns also reached a peak early in the decade with uncertainty surrounding pending regulations under the Health Insurance Portability and Accountability Act of 1996.

Meanwhile, vendors also began to offer network-based systems. In that capacity, a so-called application service provider (ASP) would house and maintain all hardware and software needed by practices to manage patients' records, but the practices would still own the records. Physicians would remotely access the system over a network connection for a monthly fee. The service provided by the ASP included training and help-desk support, and handling software system upgrades and hardware maintenance.[24] In retrospect, while vendors had been providing network-based solutions from the mid-1990s, those systems were mostly focused on helping with billings and claims. In the late 1990s, a range of companies began

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[21] HIMSS Analytics Database, Feb 2, 2009, p. 33.

[22] Burt CW, Sisk JE. "Which physicians and practices are using electronic medical records?" Health Affairs 2005; 24:1334-1343

[23] Robert Wood Johnson Foundation, "Health information technology in the United States: The information base for progress," 2006, www.policyarchive.org/handle/10207/bitstreams/21618.pdf, accessed June 2, 2009.

[24] Jason Fortin and Keith MacDonald, "Physician Practices: Are Application Service Providers Right for You?" The First Consulting Group; for the California HealthCare, www.chcf.org/publications/2006/10/physician-practices-are-application-service-providers-right-for-you, accessed June 2, 2009.

offering EHRs on a network basis. Particularly noteworthy, however, is that by 2005, nearly 70 per cent of physician practice had broadband connections, which increased market opportunities for ASPs.

By mid-decade, established software vendors typically offered both client-based and network-based options to clients; the industry was crowded with rivals.[25] Physicians' practices also began to compare the financial implications of each type of system. Under the client-based model, when a physician's practice bought hardware and software, those outlays were regarded as a capital expense: outlays were either made out of cash as a one-time expenditure, or they were financed. Under the network-based model, a practice signed a licensing agreement and made monthly payments for the right to use the system: those payments were regarded as operating expenses. One mid-decade analysis suggested that under the first model, the first-year expenditures for a five-physician practice would be $64,000 if paid as a lump sum, and $8,500 annually thereafter; or would be $25,000 per year for five years (if financed at 18 per cent interest), and then $8,500 thereafter. In contrast, under the network model, up-front costs would be $32,500 and $15,000 annually thereafter.[26]

The third and less prevalent option was open source code, which was free of charge and was available to the general public. Open source software was usually developed, tested and improved through the collaborative efforts of programmers and software users. Through this process, the software quickly became more refined and user-friendly. In mid-decade, there were a number of open source EHR applications. The most notable was the VistA system that had been originated by the U.S. Department of Veteran Affairs and linked veteran administration health facilities at the national level.

In general, the cost of moving to open source software was less than that associated with the other two platforms for three reasons. First, practices did not have to pay the type of ownership or licensing fees associated with most proprietary commercial software. Second, capital costs beyond those needed to access the internet were limited. Third, for open source systems, numerous companies were capable of providing support services and competition among them implied that clients could arrange contracted support on good terms. Alternatively, in many instances, "free" support was available from the software community, in the form of how-to documents posted on web sites or venues where questions and answers could be exchanged; but to pursue that latter option, a practice would need some in-house IT expertise. Both those options stood in contrast to proprietary software, where vendors typically had a monopoly and charged premium prices for support services.

By mid-decade four factors pointed to increasing adoption of EHI systems. First, acquisition and installation costs of an EHI system were falling, generally due to advances in hardware and software engineering. Second, most consultants began to forecast that physicians who moved to EHR systems would realize positive returns on investment: they could expect reductions in filing time associated with paper charts; avoid rejected claims; reduce time playing phone tag with pharmacies, and so forth. Third, there was growing pressure to avoid adverse drug events in ambulatory settings. Fourth, some payers were pressing physicians to document quality — for example in controlling the cholesterol levels of diabetic patients — and were offering incentives to do so.[27] These underlying forces for adoption were reinforced by the 2009 HITECH Act.

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[25] Mark R. Anderson, "Extensive Evaluation Ranks Top Practice Management, Document Imaging and Electronic Medical/Health Record Applications," AC Group, www.acgroup.org/images/2006_PMS-EHR_Study__Summary_Results.pdf, accessed June 2, 2009,

[26] Jason Fortin and Keith MacDonald, "Physician Practices: Are Application Service Providers Right for You?" The First Consulting Group; for the California HealthCare, www.chcf.org/publications/2006/10/physician-practices-are-application-service-providers-right-for-you, accessed June 2, 2009.

[27] Michael J. Barrett, with Bradford J. Holmes and Sara E. McAulay, Forester Research, for the California HealthCare Foundation, "Electronic Medical Records: A Buyer's Guide for Small Physician Practices," ihealthreports,

Generally speaking, the transition to an EHI system would entail many steps for a physicians' practice. Once the system was in place, a practice would experience the most economic gain if it could first optimize the capabilities of the EHI system and then leverage the system to distinguish the practice from those of rivals (see Exhibit 6).

TARGET SYSTEMS AND THE EHI SYSTEM ARENA

In summer of 2010, the Target Systems' business development team was carefully considering the possibility of entering the EHI system arena and a report recently submitted by a pair of consultants. The consultants had highlighted the challenges facing Target Systems if it were to make such a move. The industry was already crowded with several established EHI system vendors. Furthermore, by 2010, political storm clouds had gathered over both the Patient Protection and Affordable Care Act (informally known as "Obamacare") and the American Recovery & Reinvestment Act, which included the HITECH Act and provided a framework and incentive structure to health care service providers for converting to EHI systems. Those developments, coupled with an absence of national standards for EHI systems, elevated the risk levels associated with investments Target Systems would have to make in order to master new technologies and deliver new services. Perhaps most important, no one within the company at that time had either extensive knowledge about the health care industry or expertise concerning IT applications used to support clinical procedures or to manage health care organizations.

Nonetheless, in light of their assessment of Target Systems, the consultants encouraged the team to think positively about entering the arena. The company had both breadth and depth in providing logistics, project management, and IT services to clients in both the public and private sectors; a demonstrated ability to develop stakeholder relationships based on trust and mutual respect; and a proven record of collaborating with other professional partners to address complex problems. Finally through its thoughtful management of relationships and technical capabilities, the company consistently provided customized, high-quality and high-value products and services to its clients at moderate prices.

To help with their decision, the consultants asked the business development team to think about five high-level, important questions. Where would they be active? How would they get there? How would they win? What would be the speed and sequence of their moves? How would they obtain returns?[28] The consultants suggested that all five questions were relevant and that the answers to all five questions were interrelated. However, they did qualify that characterization in two ways.

First, they stated if the business development team was able to offer answers to questions one and two, then answers to questions three through five would fall into place. In addition, they offered to the business development team a partial answer to the first question. While they initially left open the choice about possible IT platforms (client-based systems; network-based systems; or open-source systems), when it came to possible client categories (RHIOs; hospitals and health systems; or physicians' practices), the consultants had recommended Target Systems first concentrate on small to medium sized physicians' practices.

With respect to RHIOs, the consultants did not believe serving as technical advisor to various parties associated with the two central Pennsylvania initiatives represented the natural entry point for Target

www.chcf.org/publications/2003/10/electronic-medical-records-a-buyers-guide-for-small-physician-practices, accessed June 2, 2009.

[28] *These five questions are those asked by Donald C. Hambrick and James W. Frederickson, "Are You Sure You Have a Strategy?" Academy of Management Executive, Vol.15, No 4, 2001.*

Systems. In order to get a foothold with that client category, members of the company would have to become familiar with the range of systems being used by various stakeholders in the region before they could provide their insights about security of data sets and interoperability among systems. Furthermore, at the national level, a large proportion of RHIOs had run into operational and financial difficulties.

With respect to hospitals or health care organizations in the region that already had EHI systems in place, it might be possible for Target Systems to provide services. If a hospital was struggling with the IT function, Target Systems could potentially provide support to the hospital's IT and management staff. Alternatively, even if a hospital was not struggling, Target Systems might be able to write application programs compatible with the existing EHI systems to improve the interface between patients and the hospital. In either case, members of Target would have to master a broad range of new systems in rather complex circumstances. The consultants did not believe this represented the best point of entry into the EHI arena.

If Target Systems concentrated on physicians' practices that did not yet have an EHI system in place, they could potentially help those practices choose and install systems. If they also included practices that had already taken this step, they could also help those practices operate, manage and leverage systems in a creative way. In either case, Target Systems would have a strong incentive to become quite familiar with existing client-based and ASP systems from the "bottom up." While Target Systems was not in a position to develop its own EHR products from scratch and directly challenge established vendors, they could begin to investigate open-source systems, and eventually offer such systems to practices.

In response to the second overarching question posed by the consultants (How will we get there?) there seemed to be two basic paths: investing in internal development or finding a strategic partner. The consultants believed answering the second question in tandem with the first would help the business development team gain some strategic clarity: it would help the team decide whether Target Systems would initially attempt to develop the expertise to help physicians' practices with all tasks associated with the seven steps needed to make the transition to an EHI system and then effectively use such a system; or instead would only attempt to develop the expertise to help practices with a subset of tasks (see Exhibit 7).

If Target Systems were to opt for internal development, they still had some decisions to make. Should they try to start small by winning a support contract with an established organization? This approach would enable the company to take on a new contract within the existing organizational structure of Target Systems; would give existing members of the company the opportunity to develop skills, gain expertise, and win new business in a deliberate fashion; and would generally be consistent with the company's established approach to growth. Alternatively, should they bring in a new high-level manager to start-up and oversee a new division within the company, who in conjunction with the other members of the business development team would be responsible for all aspects of developing the new business line? That would involve some serious investment and readjustment within the company.

The second path would entail finding a strategic partner, an organization that already had an established presence in the health care industry and a set of resources, capabilities and competences that would complement those of Target System. If it pursued this path, the team had three possible options: engaging in a strategic alliance; signing a long-term contract; or forming a joint venture. Those options each entailed different amounts of risk and commitment of resources by Target Systems and implied the company would directly take on a smaller set of tasks associated with the steps physicians' practices would need to take to make the transition to EHI systems (see Exhibit 8).

A strategic alliance with a company already providing either broad-ranging or function-specific consulting services might make good sense. For example, as of 2010, the Pennsylvania Medical Society was attempting to provide general advice to practices considering the transition to EHI systems. Members of Target Systems could meet with those of the Society, exchange ideas, improve information available to practices, and in the process position the company to serve as a follow-on provider of EHI system related services to practices.

Under the second option, Target could take the steps needed to enter a contractual relationship as a so-called "value added reseller" of a currently existing EHI systems vendor, such as NextGen. That would require Target Systems to earn certification with the vendor, buy systems and take market leads from the vendor, and then sell and install those systems to practices and provide after sales services. Given industry dynamics, it might be possible for Target to sign such contracts with more than one vendor.

The third option was based on the fact that other firms in central Pennsylvania already handling the billing and accounts receivable functions for physicians' practices. While they certainly had deep expertise about the business-side of a practice, they could not come close to matching the technical expertise of Target Systems. Target Systems and such a firm could both dedicate the equity and other resources needed to form a joint venture, a separate, legally recognized entity. Such an entity would be capable of providing a full-range of consulting services.

Despite the encouragement of the consultants, the lack of expertise in the healthcare field by then-current employees suggested a move by Target Systems into the EHI systems arena would call for the company to simultaneously develop new products and services for a new set of clients — that is, to engage in *growth by related diversification.* This strategy would stand in contrast to the *growth by concentration* strategy the business development team had employed throughout its history, in which the company had either developed new products and services for existing clients, or had provided existing products and services to new types of clients, but avoided doing both at the same time. Ultimately, the way the business development team weighed the opportunities versus the challenges of adopting a new growth strategy in the context of a still uncertain external environment would strongly influence its decision as to whether or not the company should enter this new arena.

Exhibit 1

SELECTED INFORMATION TECHNOLOGY SERVICES PROVIDED BY TARGET SYSTEMS IN 2010

Target Systems provides a wide range of IT services ranging from maintaining existing legacy systems to developing cutting-edge capabilities.

Information System Development Services: Target Systems does work that involves designing, modeling, prototyping, testing documenting and optimizing software systems, web sites and databases. It uses a commercially accepted approach to system development that is scalable to a client's organizational needs. Each project is supervised by an experienced project manager and is handled by a team of architects, analysts, quality assurance inspectors, configuration control specialists, and programmers. Target Systems' employees have developed or installed applications for firms in the financial, logistics, scientific, chemical, and auto industries, and for state, local and federal governments. They have done so for the PC, multi-tier client server, main frame, mid-range, internet, and intranet environments, utilizing a range of languages and types of operating systems.

Internet Development and Support: Target Systems provides customized capabilities for clients.

Information Assurance and Security: Target Systems provides security analysis, certification, and support. It employs an "end-to-end" security model that protects data and infrastructure from malicious attacks or theft. Since 2000, Target Systems has provided security assessment documentation for more than 40 systems according to the standards associated with the Department of Defense Information Assurance Certification and Accreditation Process (DIACAP) and the Department of Defense Information Technology Security Certification Accreditation Program (DITSCAP).

Integrated Web Site/Web Application Development: Target Systems integrates new web sites with existing databases that include sales, inventory, procurement, financial, and other types of information; and provides support for the client's dynamic web pages.

Networking Solutions: Target Systems designs, installs, and supports information technology networks.

Hosting: Target Systems provides maintenance and support for a number of systems, including those hosted at Target Systems' headquarters, at the client's facilities, or at remote sites.

Logistics: Target Systems provides program supervision and administration, financial management, project management, marketing and outreach programs, and technical writing for large-scale logistics systems.

Consulting Services: Target Systems provides services in areas that include but are not limited to strategy formulation and implementation; organizational change; business process analysis and re-engineering; e-business; procurement and logistics management; financial management; marketing; cost-benefit analysis; feasibility assessment; risk assessment; knowledge management; and security analysis and assessment.

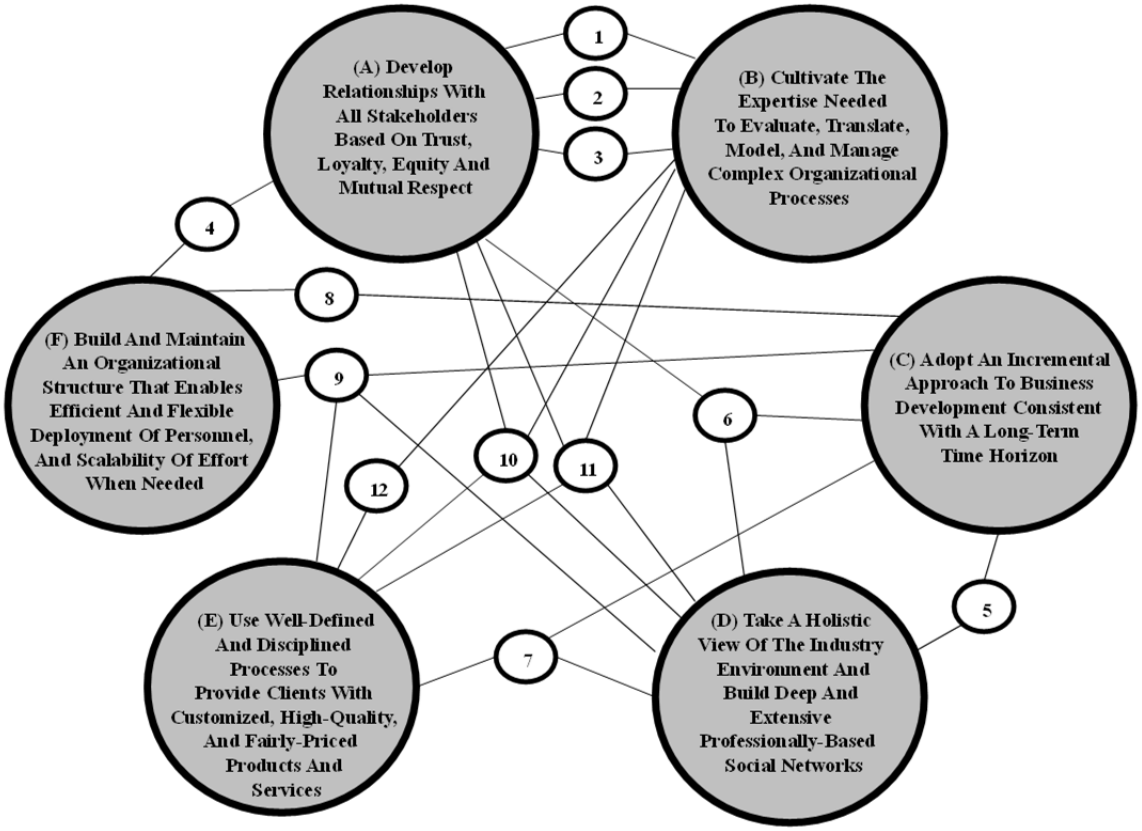
Program Management: Target Systems has an experienced and certified cadre of program management professionals to handle any size project over its complete lifespan, or to assist other managers on an as needed basis. Target Systems consistently follows standard program management practices.

Help Desk Services: Target Systems provides Help Desk services to several clients, including customized support for worldwide users of sophisticated applications. Target Systems provides users with assistance ranging from user-ID and password resets to software troubleshooting and issue resolution. These services are available for in-house developed software or for unique applications. Target Systems' support includes complete tracking of all help requests and problem resolution.

Source: Company documents.

Exhibit 2

TARGET SYSTEMS—HIGH LEVEL STRATEGIC THEMES



Source: Created by the case authors, based on company interviews and company documents and motivated by the activity system model described by Michael E. Porter, "What is Strategy?" Harvard Business Review, November-December 1996, pp. 61-78.

Exhibit 3

TARGET SYSTEMS' ACTIVITIES IN SUPPORT OF ITS STRATEGIC THEMES

Activity 1: Company owners and senior managers purposefully cultivate a family atmosphere and an open-door environment. Potential new employees are interviewed by a team of managers and are handpicked for their technical skills, professionalism, ability to communicate and willingness to work as part of a team.

Activity 2: Target Systems has good internal training programs. It also provides incentives for employees to further their education, which is critical in an environment where professional certifications are essential to winning contracts. Furthermore, all full-time company programmers and software engineers are encouraged to spend company time exploring the newly emerging developments in the field of information technology.

Exhibit 3 (continued)

Activity 3: Each employee is expected to work 80 hours over a two-week period, has some flexibility with respect to arranging their personal work schedule, and is fairly compensated for all hours worked in a fashion consistent with federal contracting guidelines.

Activity 4: Company leaders formally meet once each week for a business development meeting to review the status of all contracts and talk about possible new endeavors. Nonetheless, the organizational structure is flat and the lines of communication are open, so the management team can often make an important decision within one hour.

Activity 5: Target Systems charges rates for work that are less than the industry average. Employees are instructed to *not* bill clients for spontaneous, five-minute phone calls to discuss technical issues—those interactions are regarded as a cost of doing business and maintaining good relationships.

Activity 6: Target Systems' managers take a deliberate and conservative approach to managing short-term and long-term financial matters. They recognize the importance of cash flow and ensure all bills are paid to counterparties within 30 days. They are willing to assume risk, but look to achieving good return on investment.

Activity 7: The management team recognizes the company's strengths and limitations and will *not* over-commit company resources. They take a more conservative approach, confident that in their established arenas of expertise, they will win repeat and referral business that is primarily generated by word-of-mouth, reputational advertising.

Activity 8: Target Systems has a matrix form of organization. Senior management allocates overall company resources and reviews budgets. When needed, an employee will work on more than one contract, under the guidance of one Project Manager. In some instances, an employee might temporarily report to more than one Project Manager. If necessary, senior managers pitch in and become directly engaged in task completion.

Activity 9: Each Project Manager is granted a significant level of autonomy. He or she is responsible for ensuring that Target Systems' employees use a disciplined approach to providing services, that the customer is satisfied with product and service quality, and that the project remains within the "triple constraint" of budget, resource, and scope-of-effort boundaries.

Activity 10: Target Systems strives to be transparent with the customer and makes it a point to *not* hide behind bad news. If an unanticipated problem surfaces on a project, Target Systems engages in a process of "skillful escalation" and proposes solutions to customers and partners in a forthright fashion. Senior officers will *not* tolerate non-disclosure of information by project managers or project partners.

Activity 11: Target Systems is willing to work with counterpart companies of any size to satisfy client demand. Some Target Systems' managers mentor small business owners involved in the government and information technology sectors. When contemplating business partners, Target Systems' managers base their decisions on the technical competency and the degree of trust they can place in individuals with whom they will be interacting.

Activity 12: Target Systems has broad and deep expertise in designing and maintaining information technology systems. A lead system architect oversees the technical aspects of all software development projects. Target Systems employs Independent Verification and Validation framework for all projects, an approach that ensures consistency in methodology, enables a "repeatable process of discovery," and enhances knowledge acquisition and management. Target Systems has extensive experience in handling and safeguarding personally identifiable information.

Source: Created by the case authors, based on company interviews and company documents and motivated by the activity system model described by Michael E. Porter, "What is Strategy?" Harvard Business Review, November-December 1996, pp. 61-78.

Exhibit 4

INCENTIVES IN THE HI-TECH ACT OF 2009

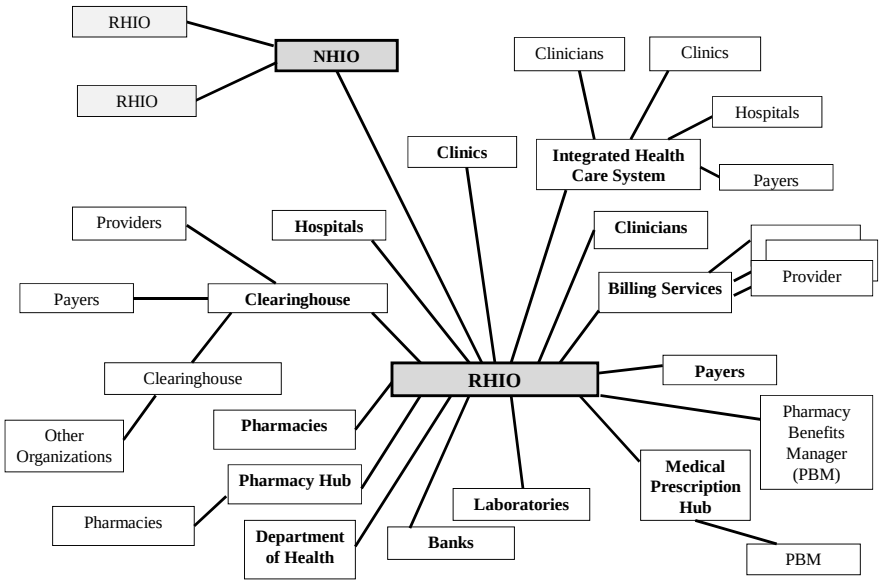
First Payment Year	First Payment Year Amount and Subsequent Payment Amounts in Following Years	Reduction in Fee Schedule for Non-Adoption/Use
2011	$18k, $12k, $8K, $4k, and $2k	$0
2012	$18k, $12k, $8K, $4k, and $2k	$0
2013	$15k, $12k, $8K, and $4k	$0
2014	$12k, $8K, and $4k	$0
2015	$0	-1% of Medicare fee schedule
2016	$0	-2% of Medicare fee schedule
2017 and thereafter	$0	-3% of Medicare fee schedule

There were two portions of the HITECH Act. The first immediately provided $2 billion to the Department of Health & Human Services (HHS) and its sub-agency, the Office of the National Coordinator for Health IT (ONC), for the purpose of creating standards and policy committees. As reflected in the table above, the second set aside $36 billion for disbursement to those healthcare providers who could, starting in 2011, demonstrate meaningful use of EHRs, with the largest payments coming early in the program. In order to qualify for the incentive payments, both physicians and hospitals had to demonstrate three things: meaningful use of a certified EHR product with e-Prescribing capability; connectivity among providers so that each could access a patient's full health history; and the ability of providers to report to HHS their use of the technology. The timetable also included penalties, in the form of reduced Medicare reimbursements, for those providers who could not demonstrate meaningful use of an EHR by 2015. Despite the initial $36 billion set aside, the net cost to the Federal government was anticipated to be $19.5 billion after savings were achieved through increased efficiency, enhanced tax revenue, and reductions in Medicare fees paid to non-adopters.

Source: Robert Hudock and Patricia Wagner, "Analysis of the HITECH Act's Incentives to Facilitate Adoption of Health Information Technology," Epstein, Becker, Green: Healthcare & Life Sciences Client Alert, www.ebglaw.com/files/28043_ClientAlertHITECH.pdf, accessed June 2, 2009.

Exhibit 5

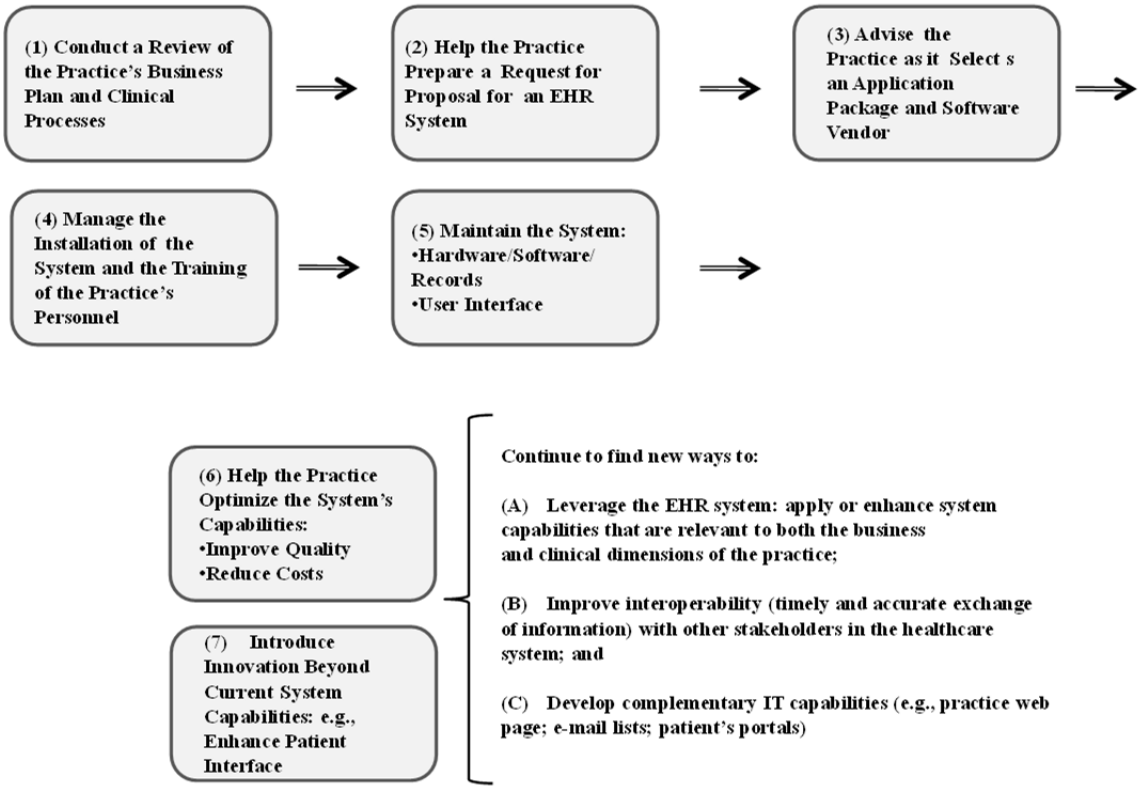
ORGANIZATION OF A REPRESENTATIVE REGIONAL HEALTH INFORMATION EXCHANGE



Source: Jan Root, "Utah Health Information Network," presented at the June 2005 Annual Meeting of the Agency for Healthcare Research and Quality (AHRQ), slide number 18, modified by case authors.

Exhibit 6

SEVEN MAJOR STEPS ASSOCIATED WITH HELPING A PHYSICIANS' PRACTICE TO MAKE THE TRANSITION TO ANEHI SYSTEM AND TO OPTIMIZE CAPABILITIES AND INTRODUCE INNOVATIONS



Source: Created by case authors.

Exhibit 7

POSSIBLE LEVELS OF ENGAGEMENT FOR TARGET SYSTEMS WHEN HELPING A PHYSICIANS' PRACTICE MAKE THE TRANSITION TO AN EHI SYSTEM, OPTIMIZE CAPABILITIES, AND INTRODUCE INNOVATIONS

Note 1: The *italicized* items represented the activities that the consultants believed were consistent with the existing capabilities of Target Systems.

Note 2: As indicated by the "X" notation, if Target Systems were to have a **full** engagement with the client, then Target Systems would provide all the tasks associated with each step. In contrast, if Target Systems were to have a **limited** engagement with the client, then it would only provide a subset of tasks.

Step/Task	Description	Full	Limited
Step 1	**Business and Clinical Process Review** A detailed understanding of clinical and related financial information is required to complete an informed process of system selection and implementation. In this phase, the EHI consultant *assists in mapping out these functions and processes*.		
Task	Map and document business processes	**X**	
Task	Map and document clinical processes	**X**	
Step 2	**Preparation of Request for Proposal** The EHI consultant relies on the review completed in Step 1 *to help design an RFP* that addresses the practices current requirements and anticipated needs.		
Task	Document software application requirements	**X**	
Task	Document computer hardware requirements	**X**	**X**
Step 3	**Selection of Vendor and Applications** The EHI consultant helps identify vendors and related products (application modules: EMR, billing, scheduling, etc.); arranges demonstrations, *completes information and security audits; recommends type and configuration of computer hardware* (in the case of the client based service option); facilitates team decision-making; and *advises on the terms of the purchase agreement.*		
Task	Identify vendors and applications	**X**	
Task	Schedule demonstrations	**X**	
Task	Complete information and security audits	**X**	**X**
Task	Select and configure hardware	**X**	**X**
Task	Facilitate vendor selection decision making	**X**	
Task	Assist with execution of purchase agreement	**X**	

Exhibit 7 (continued)

Step/Task	Description	Full	Limited
Step 4	**Management of System Installation** The EHI consultant helps develop a system implementation plan (*project management*); *assists in the hardware installation* (in the case of a client based service option); helps customize the software to conform to the practice's business and clinical functions and processes; *trains the business and clinical staff.*		
Task	Develops project management plan	**X**	**X**
Task	Assists with installation of hardware	**X**	**X**
Task	Helps customize software applications	**X**	
Task	Trains business and support staff	**X**	
Task	Trains clinical staff	**X**	
Step 5	**Maintain Hardware and Software System** The EHI consultant helps maintain the entire system. Activities include but are not limited to *hosting the hardware system* (on site or remotely); *providing help-desk services*; *providing on-site training to newly hired employees*; *providing training to all staff members about newly activated software functions.*		
Task	Support hardware system	**X**	**X**
Task	Provide help desk services	**X**	
Task	Provide training to newly hired staff	**X**	
Task	Provide training on new applications to staff	**X**	
Step 6	**Optimize the EHI System** The EHI consultant helps enhance existing system capabilities; i*mproves system interoperability*; and *helps develop complementary IT capabilities as requested.*		
Task	Fully implement existing system capabilities	**X**	
Task	Improve system interoperability	**X**	**X**
Task	Develop complementary IT applications	**X**	**X**
Step 7	**Innovate the EHI System** The EHI consultant works collaboratively with the practice to d*evelop new software applications* that extend beyond the current capabilities of the EHI System.		
Task	Develop new directly linked applications	**X**	

Source: Created by case authors.

Exhibit 8

LEVEL OF ENGAGEMENT BY TARGET SYSTEMS WHEN USING DIFFERENT IT-PLATFORMS TO HELP A PHYSICIANS' PRACTICE MAKE THE TRANSITION TO AN EHI SYSTEM—

Scenario 1: Target Systems Builds Internal Capacity

Scenario 2: Target Systems Forms Either a Strategic Alliance or a Joint Venture with a Physicians' Practice Management Consultant

Scenario 3: Target Systems Enters a Contractual Agreement with One or More Established Vendors to Serve as a Value-Added Reseller of Existing EHI Systems

	Review Business and Clinical Procedures	Prepare Request for Proposal	Evaluate and Select Vendor Or Software	Install System	Maintain System	Optimize System Performance	Enhance System Capacity; Innovate
Client Based Service	(1) Full (2) NE (3) NE	(1) Full (2) Limited (3) NE	(1) Full (2) Limited (3) NE	(1) Limited (2) Limited (3) Full	(1) Limited (2) Limited (3) Full	(1) Limited (2) NE/Limited (3) Full	(1) Limited (2) NE/Limited (3) Full
Application Service Provider (Network-based EHR)	(1) Full (2) NE (3) NE	(1) Full (2) Limited (3) NE	(1) Full (2) Limited (3) NE	(1) Limited (2) Limited (3) Limited	(1) Limited (2) Limited (3) Limited	(1) Limited (2) NE/Limited (3) Full	(1) Limited (2) NE/Limited (3) Full
Open Source Software	(1) Full (2) NE (3) NE	(1) NE (2) NE (3) NE	(1) Full (2) Limited (3) NE	(1) Full (2) Full (3) NE	(1) Full (2) Full (3) NE	(1) Full (2) Full (3) NE	(1) Full (2) Full (3) NE

Full Engagement (Full): Performs all tasks associated with a particular step in the transition process.
Limited Engagement (Limited): Performs only a subset of the tasks associated with a particular step in the transition process.
No Engagement (NE): Does not perform any of the tasks associated with a particular step in the transition process.

Source: Created by case authors.