

Sixth Edition



Essentials of the U.S. Hospital IT Market

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Introduction



Objectives of the Report

HIMSS Analytics™ is a respected and trusted source of information and knowledge for the healthcare information technology (IT) industry. The HIMSS Analytics™ database captures information on over 5,200 hospitals and 32,000 medical facilities in the United States, including 24,000 ambulatory facilities. With this data, HIMSS Analytics can analyze and assess industry trends related to legacy IT systems, emerging IT systems, current technologies and emerging technologies. Our analysis of this data will accomplish the following objectives:

- Present a forecast of market spending for key application environments, as well as the overall market.
- Present the market status for major financial and clinical applications with relevant market drivers.
- Present vendor market share positions relative to major financial and clinical applications.
- Present predicted growth rates for key healthcare applications.

Research Methodologies

HIMSS Analytics collects data on a continuous basis to create its database of hospitals and associated organizational entities. Data gathered by HIMSS Analytics is first captured with structured frameworks. The data is then “scrubbed” in a quality assurance procedure to ensure the data is accurate and reliable. Data used for research and analysis is subjected to analysis for emerging market shifts as well as changing market drivers and technology adoption. The resulting research is then peer-reviewed by HIMSS Analytics’ researchers, with a final review provided by HIMSS Analytics’ executives.

HIMSS Analytics Database

The HIMSS Analytics database includes current status or future purchase plan information on more than 100 applications, networked medical devices, servers, desktops, wireless, network, security and specific departmental technologies in use by these facilities. The database also includes demographic information regarding hospital ownership positions in integrated delivery

networks (IDNs), the key management contacts for the integrated delivery system (IDS) and hospitals, and the relationship with owned or affiliated ambulatory or sub-acute facilities. Hospitals that participate in the annual study receive 48 free benchmark reports that compare hospitals to 10 peers relative to staffing, budgeting and operating support metrics that include the EMR Adoption ModelSM (EMRAM) comparisons. The EMRAM provides insights into IT sophistication and intensity. HIMSS Analytics also provides 28 IDS benchmark reports to support the more complex task of creating peer evaluations for multi-hospital systems.

Executive Overview

The Healthcare Information Technology for Economic and Clinical Health Act (HITECH) provisions of the 2009 American Recovery and Reinvestment Act (ARRA), which promoted “meaningful use” criteria, continued to be a key influencer in 2010. The meaningful use criteria in Stages 1, 2 and 3 will be used to determine the funding that hospitals and clinics will derive from implementing electronic medical records (EMRs), if they meet the meaningful use criteria to reach those stages. In hindsight, 2010 proved to be the year organizations ramped up their approach to meet the first stage of the criteria.

The government’s activities around testing the market relative to the meaningful use put a “bubble in the pipeline” for the majority of organizations in terms of moving forward with funding EMR projects.

Several issues have arisen around meaningful use. One was that payment would be made for each Medicare provider number. The problem is that some organizations have multiple hospitals under the same number. The second issue relates to compliance. Does a hospital have to comply for all meaningful use criteria in 2011, 2013 and 2015 to get funding for each year? Or will funding be provided for partial compliance?

Federal funding is especially important to the U.S. healthcare IT industry, which has been hit hard by time and recession.

The healthcare IT industry’s success in using the ARRA/HITECH funding effectively will be driven by the industry’s ability to cooperate and communicate during the next five years. Hospitals increased their EMR Adoption Model metrics in Stage 4 by more than 3 percent from 2009 to 2010 (see the EMRAM chapter in *Essentials of the U.S. Hospital IT Market*). It is clear that several hospitals moved forward with their EMR projects in 2010 in preparation for the ARRA/HITECH funding. In conjunction with the positive movement in the EMRAM, significant adoption levels of key EMR-related applications increased from 2009 to 2010, such as a doubling of the number of hospitals earning Stage 6.

The ARRA/HITECH funding is especially important to the U.S. healthcare IT industry. The economic recession has significantly affected a normally recession-resistant medical industry. HIMSS Analytics’ data shows that the proportion of the market that said its IT budget is

increasing took a significant dip from the typical 50 percent range into the low 40 percent range for most of 2010, only to return to the 50 percent range in the first quarter of 2011. We believe that the prospect of receiving ARRA funding re-stimulated IT budgets to overcome the recession's lag effects on hospital cash availability.

However, the bond market still remains a challenge to hospitals with weak balance sheets and precarious cash flows. Several senior healthcare IT executives have informed HIMSS Analytics that bond analysts are now asking questions about achieving meaningful use, and about hospitals' HIMSS Analytics EMRAM scores, during the due diligence phase of bond ratings and placements. Hospitals that have not been investing, and thus have low EMRAM scores, may have a more costly debt service. Hospital investments related to their endowment funds still have a way to go to recover their previous asset value. This has resulted in hospitals having weaker financial metrics, which in turn resulted in banks increasing the cost or reducing the total debt allowance for hospitals' ARRA/HITECH projects.

Senior IT executives indicate that bond analysts are asking questions about achieving meaningful use.

While 2009 was a tough year economically, 2010 has proven to be a period of economic recovery. Many hospitals are making capital investments to position themselves to qualify for meaningful use incentives. As such, hospitals' capital spending for IT application solutions in 2011 is projected to constitute 46.5 percent to 48.3 percent of their total IT capital budgets; this is up approximately 2 percent from 2009.

It is obvious to us that, with its meaningful use requirements, the government is driving the industry towards the accountable care organization (ACO) model. With the move to these types of risk-sharing arrangements, IDNs in large enough markets will re-engage in an acquisition and merger spree, as we saw in the late 1990s. IT capital projects in those environments will continue to compete for capital with acquisitions. However, all the acquisitions in the market will not enable success without the appropriate cost finding and clinical data warehousing, to complete the care analytics for quality-driven contracts and efficiency for cost-driven contracts.

Hospitals still have unfunded mandates to address. The conversion to version 5010 Health Insurance Portability and Accountability Act (HIPAA) standardized claims formats (deadline: January 1, 2012), and the upgrade from International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) encoding to 10th Revision (ICD-10-CM) encoding (deadline: October 1, 2013) for classifying medical services will place another level of IT and management burden on hospitals.

Spending on revenue cycle management (RCM) applications for either upgrades or replacements to address evolving market requirements (e.g., recovery audit contractors, bundled payments for episodes of care) will continue to intensify over the next five years. The good

news is that with ARRA/HITECH funding to cover a portion of EMR environment spending, hospitals that have achieved at least an EMRAM Stage 4 rating by 2011 should have more capital available to help with the transformation of their RCM environments.

Key healthcare IT vendors and consulting companies will continue to consolidate the market over the next five years. Key acquisitions in 2011 are shown in Table A1 (listed alphabetically by acquiring company).

Acquired Company	Acquiring Company
TRANSOLUTIONS INC.	ACCENTUS INC.
ZYLOMED CORPORATION	ACCENTUS INC.
PRACTICEONE, LLC	ADVANCEDMD SOFTWARE, INC.
ECLIPSYS CORPORATION	ALLSCRIPTS
NORTEL	AVAYA, INC.
IGCN	CARETECH SOLUTIONS, INC.
RES-Q HEALTHCARE SYSTEMS	CONCERRO, INC.
PEROT SYSTEMS CORPORATION	DELL, INC.
DICTATION SERVICES GROUP, INC.	DSG TECHNOLOGY, INC.
CAREFACTS INFORMATION SYSTEMS, INC.	HEALTHCAREFIRST
AXOLOTL CORP.	INGENIX
MEDFUSION, INC.	INTUIT, INC.
HEALTHVISION, INC.	LAWSON
DATASCOPE PATIENT MONITORING	MAQUET, INC.
TERAHEALTH	MEDICAL PRESENT VALUE
MX LOGIC, INC.	MCAFEE, INC.
MEDEFINANCE	MEDEANALYTICS
AMICAS	MERGE HEALTHCARE
OPUS HEALTHCARE SOLUTIONS, INC.	NEXTGEN HEALTHCARE
VIGNETTE CORPORATION	OPEN TEXT CORPORATION
IMAGENOW BY PERCEPTIVE SOFTWARE, INC.	PERCEPTIVE SOFTWARE, INC.
IKON OFFICE SOLUTIONS	RICOH CORPORATION
COGON SYSTEMS, LLC	SMARTRONIX INC.
SPECTRUM LABORATORY NETWORK	SOLSTAS LAB PARTNERS
MOBILE ARMOR, INC.	TREND MICRO INCORPORATED
BORDERWARE TECHNOLOGIES	WATCHGUARD
CKM HEALTHCARE	WESCOM SOLUTIONS
POINT CLICK CARE	WESCOM SOLUTIONS

Table A1

The healthcare IT market will continue to consolidate, and the acquisition pace will be fastest in the larger geographic markets (e.g., in organizations that are preparing to become ACOs) and the ambulatory markets over the next five years.

Thirty-seven healthcare IT applications tracked by HIMSS Analytics will have a projected compounded annual growth rate of 5 percent or greater in the 2011–2016 time frame. ARRA funding will focus hospitals on key clinical applications, and unfunded mandates and payment reductions will force hospitals to invest in improved RCM applications.

An evaluation of EMRAM scores over 2009 to 2010 shows that hospitals are continuing to advance the care delivery capabilities of their EMR environments (see Figure A1), particularly in hospitals that are progressing in Stage 4 and Stage 6. In fact, the percentage of Stage 6 hospitals has doubled since 2009. This advance will continue, driven by ARRA funding incentives.

EMR Adoption Model Trends SM (2009–2010)			
Stage	Cumulative Capabilities	2009 Final	2010 Final
Stage 7	Complete EMR*; CCD* transactions to share data; data warehousing; data continuity with ED*, ambulatory, OP*	0.7%	1.0%
Stage 6	Physician documentation (structured templates), full CDSS* (variance & compliance), full RPACS*	1.6%	3.2%
Stage 5	Closed loop medication administration	3.8%	4.5%
Stage 4	CPOE*, CDSS (clinical protocols)	7.4%	10.5%
Stage 3	Nursing/clinical documentation (flow sheets), CDSS (error checking), PACS* available outside radiology	50.9%	49.0%
Stage 2	Clinical data repository, controlled medical vocabulary, CDSS, may have document imaging, HIE* capable	16.9%	14.6%
Stage 1	Ancillaries—laboratory, radiology, pharmacy—all installed	7.2%	7.1%
Stage 0	All three ancillaries not installed	11.5%	10.1%

Data from HIMSS Analytics™ Database © 2011

N = 5,235

N = 5,281

* CCD = continuity of care document; CDSS = clinical decision support system; CPOE = computerized practitioner order entry; ED = emergency department; EMR = electronic medical record; HIE = health information exchange; OP = outpatient; PACS = picture archiving and communications system; RPACS = radiology picture archiving and communications system

Figure A1

The biggest market concern is for the small community hospitals and their ability to achieve meaningful use criteria for 2011, 2013 and/or 2015. The market is offering three scenarios that may forge a feasible pathway for these hospitals to achieve meaningful use:

- The first is large IDS organizations that are extending their applications via data centers to small community hospitals in their vicinity. This could be an effective model, because the larger IDS organizations can help facilitate the implementation and adoption of EMR applications for smaller organizations that do not have the human resources or skill sets to effectively implement and continuously support EMR environments. However, it is incumbent upon the larger facilities to keep their software up to date and to offer good customer service to smaller facilities. This is true “vendor-like” business behavior, which may be a learning curve for organizations that are not very nimble.
- The second is the application service provider (ASP) model with a “vanilla EMR package” complete with rules in clinical decision support systems, which are offered by some vendors. This model is making it possible for vendors to serve very small hospitals that do not have the technical skills nor the clinical resources to buy or build clinical rules to support their IT-borne quality assurance programs.
- The third is the collaboration of several small hospitals to create a common data center that serves all of their facilities. This combined effort provides the capital, human resources and skill sets necessary to economically provide and support EMR applications to all members.

We will continue to monitor the market for these emerging trends to see what impact they have in 2011 and beyond. We truly feel the next five years will be a significant growth opportunity in the U.S. healthcare IT market. We would not be surprised at further consolidation and the possible entrance of several foreign-based clinical systems into the U.S. market.

Market Overview



Key Vendors

The key vendors in the hospital IT market are multinational companies with large portfolios of IT solutions that cover most business and clinical environments for healthcare delivery systems. These vendors are referred to as “enterprise vendors.” Their portfolios of solutions range from financial solutions to applications that are used in ancillary departments to enterprise-wide EMR environments.

An emerging strategy for large enterprise vendors that also provide medical devices used in healthcare delivery is to tightly couple their IT applications with their medical devices.

Representative examples of where vendors are deploying this strategy include:

- GE Healthcare (GE): The company integrates its cardiology applications with its cardiology devices, its operating room (OR) management applications with medical devices used in the operating room environment, and its picture archiving and communications systems (PACS) environment with its radiology information systems solution.
- McKesson: The company integrates its robotic and medication-dispensing cabinets with its patient safety software—computerized practitioner order entry (CPOE), pharmacy and electronic medication administration record (eMAR); integrates its radiology PACS (RPACS) environment with its radiology information system; and integrates its cardiology PACS (CPACS) environment with its cardiology information system.
- Siemens Healthcare (Siemens): The company integrates its RPACS environment with its radiology information systems solution and its CPACS with its cardiology information systems solution.

Overall, the top enterprise healthcare IT vendors for the U.S. hospital market are (in alphabetical order):

- Cerner Corporation (CERN: Nasdaq); <http://www.cerner.com/public/>
- CPSI (CPSI: Nasdaq); http://www.cpsinet.com/default_IE.php
- Eclipsys Corporation (ECLP: Nasdaq); <http://www.eclipsys.com/> (the company was acquired by AllScripts in mid-2010)
- Epic Systems Corporation (private); <http://www.epic.com/>
- GE Healthcare (GE: NYSE); <http://www.gehealthcare.com/worldwide.html>
- Healthcare Management Systems, Inc. (HMS—private); <http://www.hmstn.com/>
- Healthland (private; acquired by Francisco Partners); <http://www.healthland.com/>
- Keane Healthcare Services (KEA: NYSE); <http://www.keane.com/industries/healthcare-and-life-sciences.aspx>
- McKesson (MCK: NYSE); <http://www.mckesson.com>

- Medical Information Technology, Inc. (MEDITECH) (private); <http://www.MEDITECH.com/>
- QuadraMed Corporation (private; recently purchased by Francisco Partners); <http://www.quadramed.com/>
- Siemens Healthcare (SI: NYSE); <http://www.medical.siemens.com>

Niche vendors that specialize in applications for ancillary departments or departmental systems continue to play major roles in some application segments. Representative niche vendors within specialty environments include:

- ADP: payroll services (ADP: Nasdaq); <http://www.adp.com/>
- Kronos, Inc.: time and attendance systems (private); <http://www.kronos.com/>
- Lawson Software: enterprise resource planning (LWSN: Nasdaq); <http://www.lawson.com/>
- Mediware: pharmacy, blood bank (MEDW: Nasdaq); <http://www.mediware.com/>
- Oracle Corp./PeopleSoft: enterprise resource planning (ORCL: Nasdaq); <http://www.oracle.com/index.html>
- Philips Healthcare: intensive care systems, cardiology information systems, PACS for both radiology and cardiology, and obstetrical systems (AEX: NYSE); <http://www.medical.philips.com/us/>
- Picis/MSM: OR management, emergency department (ED) and intensive care unit (ICU) applications (private); <http://www.picis.com/>
- SCC Soft Computer: laboratory, radiology, pharmacy (private); <http://www.softcomputer.com/>
- Sunquest Information Systems: laboratory and radiology (private); <http://www.sunquestinfo.com/Pages/index.html>
- Surgical Information Systems: operating room management (private); <http://www.sisfirst.com/>

- 3M Health Information Systems (3M): encoding, dictation, transcription and health information management applications (HIM) (MMM: NYSE); http://solutions.3m.com/wps/portal/3M/en_US/3M_Health_Information_Systems/HIS/
- Unibased Systems Architecture: enterprise scheduling, enterprise master person index (EMPI) (private); <http://www.unibased.com/>

Healthcare Consulting Companies

The IT consulting market to U.S. hospitals continues to consolidate, as manifested in the acquisitions of Perot Systems by Dell and ACS by Xerox in 2010. These acquisitions will redefine market dynamics for standard consulting engagements (e.g., strategic planning, vendor selection, implementation and optimization) or outsourcing services.

Obviously, market consolidation is taking place through the acquisition of smaller consulting firms that are focused solely on healthcare by larger consulting entities. Consolidation will result in broader and more integrated healthcare service offerings by the acquiring companies.

The challenge for companies making these acquisitions is to keep intact the talent and cultures in the acquired organizations—and some are struggling in this effort. These acquisitions will drive the emergence of new consulting companies formed by people who depart the acquired companies (i.e., Encore Health Resources) or who depart the consulting companies being downsized to optimize key accounting ratios prior to being offered for sale. Other consultants will create boutique firms that specialize in niche consulting models or staff augmentation and, if successful, they will be acquired again in the continuous cycle of healthcare consulting.

Healthcare consulting services will be at center stage, because ARRA/HITECH will drive aggressive acquisitions of EMR applications for both hospitals and ambulatory clinics. The ability of the U.S. healthcare market to achieve the levels of EMR functionality defined by the ARRA/HITECH meaningful use criteria will be directly related to the breadth and depth of consulting skills and staff augmentation that will be available from the entire healthcare IT consulting market.

The potential demand for consultants to assist the industry with implementing more advanced EMR environments should provide an opportunity for many college graduates over the next five years to begin careers in healthcare, especially those with clinical training. However, the question

Healthcare consulting services will be at center stage, because ARRA/HITECH will drive aggressive EMR acquisitions.

is whether we will have enough experienced and skilled consulting personnel to train and mentor these people. We also believe a shortage of experienced and skilled consultants may drive a shortage of clinicians in hospitals as consulting companies provide enticing opportunities for these healthcare delivery professionals to experience new uses for their skills and at generally higher salaries.

Top firms providing standard consulting service engagements to hospital are:

- Accenture
- ACS
- Allscripts
- Caretech Solutions
- Cerner Corporation
- CPSI
- Computer Science Corporation (CSC)
- Dell
- IBM
- McKesson
- Navin, Haffty & Associates
- Siemens Healthcare
- Sunguard Data Systems

Top firms providing outsourcing services to hospitals are:

- ARAMARK Healthcare—Clinical Technology Services
- Computer Science Corporation (CSC)
- Crest Services

- Cyrus
- Dell
- EHC.com
- FastHealth Corporation
- Hospital Corporation of America (HCA)
- IBM
- MedQuist
- Nuance Communications
- Probitry Medical Transcription
- Transcend Services

Siemens Healthcare, McKesson Provider Technologies, Eclipsys Corporation (acquired by Allscripts) and Cerner Corporation represent enterprise vendors that expanded the scope of their service offerings to include consulting and outsourcing solutions. These services units have become significant revenue streams for these companies. Cerner's extension into the very small community hospital market has been enabled by its ASP model, hosted and managed by its Kansas City resources.

There is a trend here for payers to make key acquisitions of firms that acquire data through their transactions.

Siemens has long offered its systems, including Soarian, through its data center in Malvern, Pennsylvania. McKesson continues to offer staff outsourcing and data center management services. Eclipsys, like Cerner and Siemens, offers a complete software hosting service from its data center in New Jersey.

In a similar vein to United Healthcare acquiring Ingenix in 2009, we saw Aetna acquire Medicity in 2010. There is a trend here for payers to make key acquisitions of firms that acquire data through their transactions. The value of de-identified clinical outcomes data will rise as more integrated delivery systems move toward becoming accountable care organizations. Clearly, clinical and business intelligence services and content will be needed for ACOs to win contracts and survive in a Medicare Shared Savings program. We expect this trend to grow in the near term.

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