The Business Case for the eHospital Census Country Profiles

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Introduction

In today's customer-centric and market-driven business environment, healthcare executives seek an in-depth understanding of the critical dynamics within their target markets in order to match their product portfolio closely to customer requirements. In addition to knowing the market mix of the installed base of hospital electronic records and systems, they need laser focus on countries and market segments where there is market opportunity. They must predict confidently where market growth will occur and where competitor mindshare is not a barrier to market entry. As data-driven enterprises, healthcare solution providers require metrics on which they can base their market predictions with confidence.

These organizations evolve their market strategies through analysis of market segment size, growth, and competitive market share. Resources for such decisions must be comprehensive, statistically valid, and continually updated when the market changes and responds to internal and external stimuli. Typically, organizations seek to answer questions such as these:

Customer Demography and Infrastructure: What are the main characteristics of the customer universe? Is my portfolio geared towards a sufficient share of the universe? Is the clinical IT availability and support level sufficient for my portfolio?

Installed Base: How far is IT deployment advanced by application/software functionality? Which segments offer the highest potential for rapid growth? What is the competitive structure of the market?

Market Development: What market buying shifts are observable over the past three to five years? What applications are on the rise? How will the market evolve in terms of first time installations, replacements and upgrades? What is the revenue potential? What is the economic effect of the crisis/slowdown?

The market for healthcare IT solutions in Europe is a well-established market, yet both current market players and other major US healthcare vendors have announced intentions to expand their operations in the European healthcare market in recent quarterly earnings media conferences.

Data Information Intelligence GmbH (dii) has documented the progress of the European healthcare IT market over a number of years through their eHospital Census™. The design of the country profiles of this census facilitates tailoring for market changes. Using both a "top down" and "bottom up" approach to calculate cost of systems and services, the census is a valued resource to answer the questions posed above.

In early 2010, dii released new profiles of eleven European countries, providing a detailed analysis of market progress. Following here is a brief history of the census, an assessment of strengths of the new profiles, and examples of business cases which the data impacts.

History of the eHospital Census

The first eHospital Census was developed and executed by dii in 2002 for Health Information Network Europe (HINE). The HINE eHospital Census reports provided a comprehensive overview of the installed base of healthcare IT systems in hospitals, by major segments and by country. Goals of HINE were to support strategic and operational marketing decisions concerning the Europe healthcare portfolio, to reveal Europe's healthcare competitor environment and to illuminate Healthcare IT trends. In 2009 the HINE project was migrated to the Hospital-IT.net platform with enhanced capabilities. In early 2010, profiles backed by new survey data were made available for the following countries: Austria, Denmark, France, Germany, Italy, Netherlands, Norway, Poland, Spain, Sweden, and Switzerland.

Strengths of the Profiles: Statistics and Breadth

The eHospital Census profiles are a comprehensive historical record of healthcare information technology (IT) installations at the functional level. Descriptions of the installed base include availability, scope, market share, age profile, and life span of installations. In addition client-side demography, IT infrastructure and IT budgets are presented in detail.

Dii has been tracking the hospital acquisition landscape for more than 20 years, adjusting the size and composition of the hospital universe over time as a result of primary and secondary research. In the Fig. 1 example below, the hospital universe described in one of the new profiles is broken out by public/private and small/medium and large hospitals.

Note: in this example, the term "Universe" refers to the hospital universe in a single country.

Universe and Sample Composition by Target Segment						
	Small	**Medium**	**Large**	**Public**	**Private**	**Total**
Universe	972	595	242	614	1,195	1,809
Sample	118	178	66	178	184	362
% of Universe	12.1%	29.9%	27.3%	29.0%	15.4%	20.0%

Universe
The universe includes all acute hospitals - general and specialised - in the country under review split by size and

Segmentation by Size:	Small	1 to 199 beds
	Medium	200 to 499 beds
	Large	500+ beds
Segmentation by Ownership	Public	excl. Military & police hospitals
	Private	incl. for-profit and non-profit hospitals

Fig. 1. Profile example: size and composition of the organizations within a single country. Source: eHospital Census, 2010.

Statistical Relevance

Dii's attention to statistics is a principal strength of these profiles. The survey sample for the eHospital Census is robust. Minimal reflection per annum was never less than 10%, and up to 25% in countries with small universes (i.e. less than 100 hospitals in the country). Through a unique new meta-analysis approach, samples reflect at least 25% of the universe in any country.

Dii's evaluation method depends on the sample size and complexity of the market research questionnaire. For large samples (>100), dii uses custom-programmed statistical software and automated evaluation/tabulation which results in:

- programmed export to Excel or Access files, showing all quantitative questions at segment level, including all volume projection scenarios and their basis
- generation of tabulations and charts

Secondary market research is used to verify and complement findings, e.g. regarding products, manufacturers, market participants, and new developments.

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Depth/Breadth of the Data

Dii is headquartered in Europe and is well-connected to the hospital and vendor landscape through custom projects over a number of years. In addition to the HINE project, dii has alliances with COCIR the (European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry), and with public and private companies in the following market segments: diagnostics, medical devices, medical imaging, financing & reimbursement, and healthcare IT. Dii's partnerships enable them to obtain data in a healthcare environment where surveys are more difficult to conduct than in the US healthcare market.

The profiles are delivered as detailed spreadsheets allowing customization. This delivery model is unusual in its depth and breadth. Dii's stable corporate environment is a strong plus and fosters continuity of process. Dii also offers conferencing services to its members with access to internal statisticians and analysts who clarify and educate. The detail of the data and level of dii's transparency are unique in the healthcare field.

Data History

The market development of the census is forecast forward five years and also shows five years of history. History of more than 20 years is documented in the installed base data, segmented by hospital size and ownership. The value of this data is significant; the survey budget amounts to over €700K (more than $1M) across multiple projects over the past 5 years.

New Addition to the 2010 Profiles

Application Inter-relationships: Modeling with the 3LGM2 tool

The **Institute for Medical Informatics, Statistics and Epidemiology (IMISE)** at the University of Leipzig, Germany, has developed a tool (3LGM) demonstrating the relationships and shared functionalities of information technology systems. The project group Management of Information Systems in Healthcare is concerned with the planning, management and monitoring of the complex information systems within healthcare (e.g. hospital information systems or regional health care information systems).

Research subjects cover the development of concepts for the description of the information systems, their management and the development of tools and reference models for the management of these systems. Dii has incorporated the 3LGM tool into their new profiles; this tool demonstrates the relationships of HCIT applications to each other. The interconnected applications illustrate the following:

- which applications relate closely with one another
- how the applications are shared across the domains
- which applications are the keystones of the system

The inclusion of the 3LGM2 tool graphic in the new profile is very helpful. Earlier versions of the census did not single out the most interconnected applications, nor did they readily reveal which applications were foundational vs. others that were more likely to be added after an initial installation. One could infer interrelated applications from the earlier profile, but there is great advantage in seeing the interrelationships in a graph. In common parlance, "...a picture is worth a thousand words..." A principal advantage gained by the 3LGM2 tool is the ability to calculate pricing of each foundational application.

Pricing Data in the 2010 Profiles

Since a number of installed applications share common modules in hospital and clinic installations, pricing is difficult to determine at the functional application level. The 3LGM2 tool enables dii to provide price ranges for component applications. This eliminates a typical pricing challenge: when software is bundled, several applications share foundational elements, and the bundled price is less than the sum of the parts.

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The tool can be mapped to show shared components, and calculations parsing the total sales price into individual applications may then be made. In the 2010 profiles, dii publishes a realistic range of prices for individual applications. Pricing data is invaluable for calculating size of market.

Profile Format and Presentation

Application definitions are front and center

It is helpful to have the definitions and integration level for each functional application spelled out clearly in an initial spreadsheet. The accessibility of the definitions is a time-saver, particularly for US users unfamiliar with the European application nomenclature.

Demography & Infrastructure.

The Key Notes and Business Implications are a new a valuable addition for business planning. As an example, the German profile includes the following notes:

> ► small and private hospitals are more restricted in capital availability
> --> higher cost pressure
> ► clinical service levels and clinical IT availability do not vary greatly between segments
> --> similar IT needs, except for dedicated clinical department solutions (expressed by a larger mean number of functionalities in large hospitals)
> ► internal clinical IT support levels are significantly higher in large and public hospitals
> --> private and small hospitals may offer more opportunities for external IT services

With the wealth of metrics available within the tables, summaries such as these serve as a reality check on assumptions.

Installed Base Data

The 2010 format gives a simpler view of the installed base, and saves time with a more holist view across all applications. In the new format, dii includes contextual clusters building off the 3LGM2 tool concept, which clarify functional relationships. This portion of the profile illustrates an important "piece of the puzzle". Previously it was possible to extract a typical install sequence from the profile through a comparison process of the market development data, but additional clarity on normal sequence of installations, as well as commentary on whether this is a country-wide pattern is an important enhancement.

Presentation

The 2010 profiles are a sizable step forward from previous profiles. The new spreadsheet output is easy to read with notes and explanations that add a great deal of value for business planning.

Business Cases Supported by eHospital Census Profiles

Following are a number of business and marketing uses for the eHospital Census:

1. Business development, partnership and acquisition planning
2. Allocation of sales and marketing resources. Where is the market need and receptivity?
3. Market buying shifts over time
4. Changes in the overall hospital universe
5. Market progress and alerts to market saturation
6. Opportunity to plan new releases or enhancements to impact the market for maximum uplift
7. Visibility into economic effect of the recession
8. Historical market share and competitive picture. Where is the "sweet spot?"

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Business Planning

Installation Plans

In volatile economic and political environments, the eHospital Census profiles provide the counterbalance of a long view. The European healthcare funding landscape reveals government as a large financial stakeholder for many countries. Competing data sources on healthcare in Europe discuss government participation in healthcare IT projects; however, a singular strength of the eHospital Census is the quantification of HCIT installation plans by country and by year and delineated as public or private.

Factor Analysis

Through factor analysis dii characterizes a functional application as "high deployment level; stagnating" or "low deployment level; fast emerging". Installation progress and the accompanying specialty notes allow organizations to target sales efforts at the application level in specific countries, encouraging site-specific mapping over time.

Business Case Example A: CEO Media Interview

The Business Problem

A well-known US healthcare vendor CEO is launching new programs and announcing to the media an expansion of sales in Europe. Anticipating questions about the market size and growth, the CMO requests data from his internal analyst team. Accurate data cannot be found from the sources available.

- Many analyst sources which estimate healthcare IT spending for the European market conduct interviews with vendors, estimate each vendor's market share, and then calculate overall market size from published quarterly earnings statements.

- Other leading analyst firms have documented overall hospital spend over a number of years, but the data includes ALL software spending, the bulk of which is not healthcare-specific.

- Estimates of healthcare market value vary widely among sources and include no application-level spending data.

By contrast, the eHospital Census profiles provide market growth over time (+20 years) of applications at the functional level. Dii collects data from hospital budget managers, providing targeted market spending data broken out by

- Country: Austria, Denmark, France, Germany, Italy, Netherlands, Norway, Poland, Spain, Sweden, and Switzerland

- Clinical and administrative solutions

- Hardware, software, and services

- Variations in segment spending between public/private and small, medium, and large hospitals

The Solution: Metrics are Available by Segment and Geography

The tables below provide examples of market spending projections from the eHospital Census profiles that assist C-suite leadership in projecting earnings within specific segments and geographic markets.

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Projected Market Value: Annual External Spend by IT Products/Services, EUR `000s (sample country)

	Small	Medium	Large	Public	Private	Total
Total Annual IT Budget (€), of which…	425,453	382,953	438,803	597,867	969,903	1,247,209
Annual Internal Spend	212,605	170,809	232,895	284,633	478,738	606,405
Annual External Spend, of which…	212,848	212,144	205,908	313,234	491,165	640,804
Hardware	66,308	70,419	63,832	100,734	157,512	203,799
Software, of which…	81,035	86,344	92,084	124,541	206,991	255,206
Clinical	43,863	45,272	47,706	65,153	110,566	135,794
Administrative/Financial	37,172	41,072	44,378	59,387	96,424	119,412
Services	65,506	55,381	49,993	87,959	126,663	181,800

Fig. 2. Projected total annual healthcare IT budget for a single sample country with segment breakout. Source: eHospital Census, 2010.

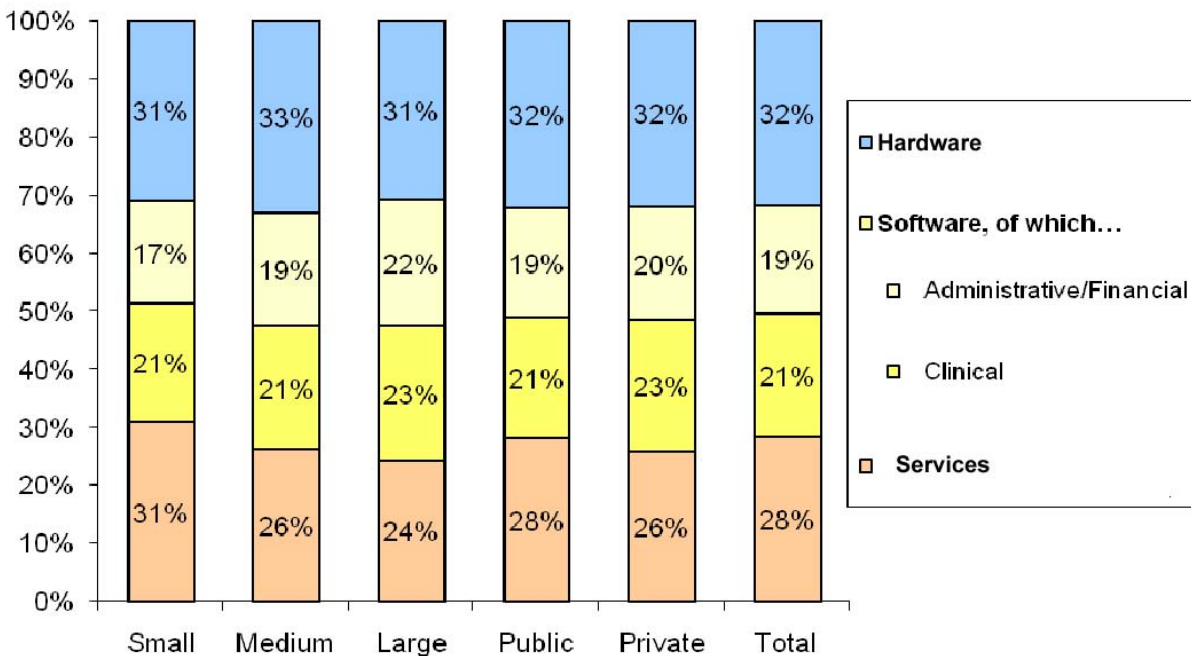**Annual External Spend by IT Products and Services, Mean % per Segment**

Fig. 3. Projected budget distribution for a single sample country, breakout by product and services. Source: eHospital Census, 2010.

Business Case Example B: Determining Sales Targets

The Business Problem

A well-known specialty vendor has a Digital Dictation & Transcription (DDT) module. Sales leadership is building a business strategy prioritizing sales targets by geography. The DDT module may be installed as a free-standing application at clinics and also interfaces smoothly to Agfa, GE, McKesson, Philips, and Siemens Medical Document Application (MDM) systems.

1. In the Market Development spreadsheet of the 2010 profile for Germany, we note that DDT is characterized as "medium deployment level, fast growth" with the note, "strongest increase due to need for advanced Medical Document Application (MDM) and workflow optimization; especially relevant for key service departments (Radiology, Laboratory)".

2. The Installed Base sheet shows DDT as a strong investment target for hospitals, labs and pharmacies, with a mix of replacement and new installations targeted by institutions in 2008. 25% of installations are expected to be stand-alone solutions.

3. The Demography and Infrastructure sheet lists average numbers of fixed and mobile workstations, extent of wireless connectivity, and number of IT staff for the small, medium and large segments, assisting the vendor to tailor the proposal to the market segment.

4. The Market Shares sheet reveals that for the Medical Document Application, Agfa has a 31% market share and Siemens 17%. In DDT, Nuance currently has 41% market share.

5. The Market Size sheet reveals replacement price point is between €5-25K; new system pricing is between €26-37K

The Solution: Assessment of the Data for Sales Targets Business Case

The vendor solution interfaces with legacy applications and market opportunity exists with acceptable growth projections. Technical capability to support DDT is likely. Competition is largely from a single vendor. Pricing is in alignment; in fact, there is significant pricing advantage. Germany will be considered a priority sales target.

Summary and Scope of the eHospital Census

- Dii's 2010 eHospital Census tracks installation data for **23 applications** currently installed in Europe's hospitals. Segmentation is by public and private hospitals and by small, medium and large institutions.

- Profiles are published for 11 countries with detailed notes on hospital spending patterns.

- Dii data encompasses more than 20 years of installed base demographics

- Installations are tracked at the functional application level.

- Market Development is shown in detail from 2004 through 2013 (projected)

- Pricing data is broken out into **hardware, software, and services**.

The 360° view of Europe's healthcare IT market described by the 2010 eHospital Census profiles supports a variety of business planning strategies from sales to acquisition. The profiles provide a comprehensive view of the European healthcare market that is particularly valuable to healthcare solution consultants, strategists, analysts, and vendors seeking to understand the dynamics of the landscape over time.

Appendix

The eHospital Census includes installation data for **23 applications** currently installed in European hospitals. Segmentation is by public and private hospitals and by small, medium and large institutions.

Patient Administration Systems (PAS)				Enterprise Resource Planning (ERP)			Knowledge Support	Business Support
ADT	Scheduling	PRM	Coding	HRM	SC&MM	FEM	eLearning	CDW
Electronic Patient Records (EPR)				Clinical Order Communication				
MDM		EPR		DDT		CPOE		ePrescribing
Medico Technical Service Department and Clinical Information systems (CIS)								
RIS	PACS	CVIS	C-PACS	LIS	PHIS	Onc	Orth	OT/ICU IS

Fig. 4. The eHospital Census tracks twenty-three applications. See footnote for key to acronyms.[1]

About the Author

Healthcare strategist Jean S. Twombly is President of SMARTvt, a consultancy providing businesses with access to the diverse skills of member consultants to solve structural, technical and strategic business challenges. A specialist in building collaborative communities, Ms. Twombly was selected as president after a national search. In past leadership positions, she has provided strategic direction for two non-profit organizations. While part of the Global Business Analysis group at GE Healthcare IT (Americas), she provided leadership for global initiatives. Prior to work at GE, she specialized in market analysis at IDX Systems Corporation. Together with consultant colleagues at SMARTvt, Ms. Twombly assists companies to seize new market niches, capture strategies, and turn data into revenue through market analysis and competitive intelligence. She is a member of the American College of Healthcare Executives and AcademyHealth.

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[1] Key:

	ADT: Admissions, Discharges, Transfers	PRM: Patient Relationship Management
HRM: Human Resource Management	SC&MM: Supply Chain Management/Materials Management	
FEM: Facility and Equipment Management	CDW: Clinical Data Warehousing	MDM: Medical Document Management
EPR: Electronic Patient Record	DDT: Digital Dictation and Transcription	CPOE: Computerized Physician Order Entry
CVIS: Cardiovascular Information System	RIS: Radiology Information System	PACS: Picture Archive Communication System
C-PACS: Cardiology PACS	LIS: Laboratory Information System	PHIS: Pharmacy Information System
Onc: Oncology Information System	Orth: Orthopedic Information System	OT/ICU IS: Operating Theatre/Intensive Care

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