

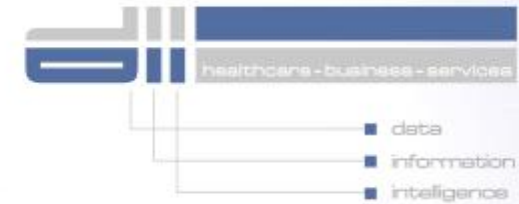
# **The eHospital Census**

## **A Continuous Assessment of Current Hospital IT Installations in Europe**

### **2004 - 2009**

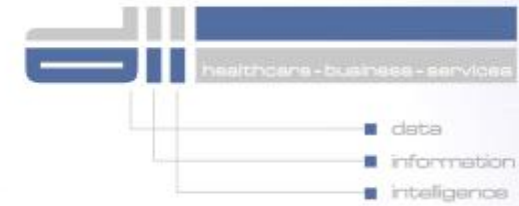
Presented at the Workshop  
Monitoring and Benchmarking e-Health in Europe and the World  
**18th February 2009, 13:00 – 16:00 h, Prague/CZ**

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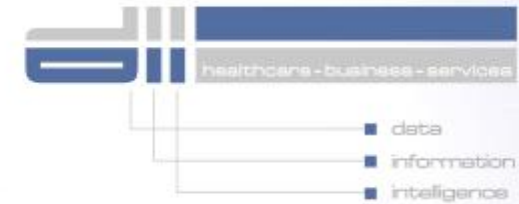
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# Project Background



- Objectives
- Approach / Methodology
- Scope
- Execution & Financing

# Project Objectives



## 1. Detailed quantification of current hospital IT system installations

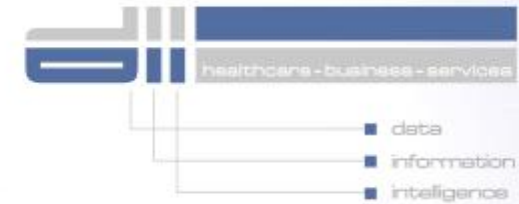
- # of current installations per functionality
- Year of installation (Age Profile)
- Supplier (Market Shares)

## 2. Detailed assessment of the future development of healthcare IT in hospitals within the next 3 Years

- Investment plans
- Issues surrounding and influencing ICT development

⇒ Enable **strategic planning** for Marketing and Sales functions of leading **suppliers of healthcare IT** systems and related services

# Approach / Methodology



## 1. Survey of **acute hospitals by customer segment at country level**

- Target respondents: CIOs and IT Manager
- Statistically relevant / representative stratified samples

## 2. Standardized questionnaire and **CATI**

- Questionnaire development in cooperation with the industry
- Use of same questionnaire over years – with minor adaptations
- Computer-Assisted-Telephone-Interviews of between 25 and 90 minutes

## 3. Thorough **preparation** & stringent **quality control**

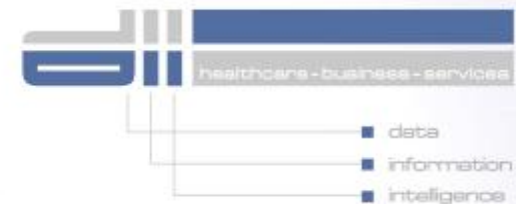
- Definition of terms & team briefing in cooperation with the industry
- Very limited employment of external agencies for interviewing
- Individual checking of completeness and plausibility of **100% of interviews**

## 4. Statistical evaluation (**Stata**)

## 5. Different presentation formats for different user needs

⇒ **Enable continuation and comparability of results**

# Geographic Scope



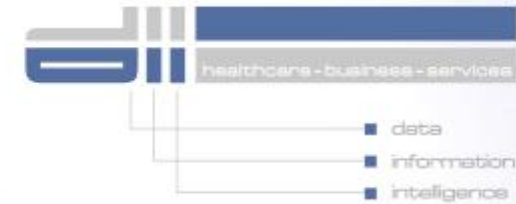
	EU 27:																				Total
Countries	AT	BE	BG	CZ	DK	EE	FI	FR	DE	HU	IT	LV	LT	NL	PL	PT	RO	ES	SE	GB/IE	19
Interviews	91	49	20	40	40	7	20	268	380	31	245	16	20	90	120	36	24	200	55	72	1,824
2004	45	49			20		20	134	190		124			45				100	25	72	824
2005				40						31					60						131
2006	46							134	190		121			45		36		100	30		702
2007			20		20	7						16	20				24				107
2008														60							60
Metaanalysis	x				x			x	x		x			x	x			x	x		9

## Additional geographic coverage:

- 4 European Non-EU-Members: CH, NO, Iceland, European part of RU (with focus on 5 metropolitan centers) and TR as an official candidate (with focus on urban & metropolitan centers)
- 12 countries outside Europe: Middle East (Iran, Israel, Qatar, Saudi Arabia, Syria, UAE), Africa (Algeria, South Africa), and 4 Latin American countries (on proprietary basis)

⇒ **Clear focus on Europe / EU member states, but globally applicable**

# Project Scope: Actors & Indicators



## By Size of Institution

Large Acute Hospitals  
(750+ beds)

Medium Acute Hospitals  
(250 to 749 beds)

Small Acute Hospitals  
(<250 beds; incl./excl. <100)

## By Ownership of Institution

Public

Private Non-Profit

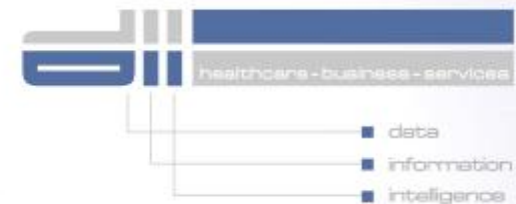
Private For-Profit

## By Topic and Indicator

- **Demography:** 11 indicators for type, size, ownership, annual revenue, IT staff, workstations
- **Current IT System Usage:** 7 indicators per functionality for 15 to 25 functionalities (from ADT to Workflow Management) plus 10 for selected functionalities
- **Investment Plans:** 5 indicators per functionality and 15 to 25 functionalities plus 2 for strategy
- **Integration Issues:** up to 6 indicators related to current and future level and practice
- **BPR:** up to 8 indicators related to current and future activities
- **Drivers of ICT Development:** 20 indicators – assessed for present and future
- **Technology Standards:** 9 indicators (from Connectivity to Workstation) for present and future
- **Financial Issues:** 6 indicators related to current and future IT budget and external spend
- **Purchasing:** 3 indicators related to decision-making process and vendor selection

⇒ **Comprehensive for Acute Hospitals: 375 indicators and 6 segments**

# Execution & Financing

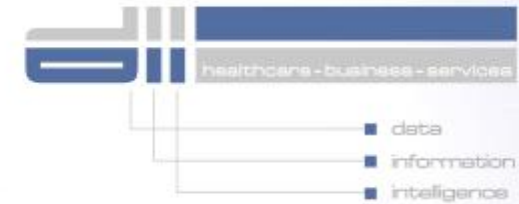


1. 2003: Initial concept development as “Multi-Client Service Project”
  - Initiated by the **industry**
2. Commissioned by **HINE** Health Information Network Europe between 2004 and 2007
  - Conducted as part of the fulfillment of the **eEurope initiative** targets set by the European Commission DG Information Society
  - Financed by HINE from EU funding and member subscription fees
  - HINE objective: ‘World Class’ market information service for healthcare IT
3. 2008: Data-Mining and Metaanalysis
  - Initiated by **dii**
  - Partly funded by **COCIR** and partly self-funded by **dii**
  - Objective: development of a market forecasting model
4. Continuation of eHospital Census & Metaanalysis in 2009

⇒ **One project - various funding options and partners**

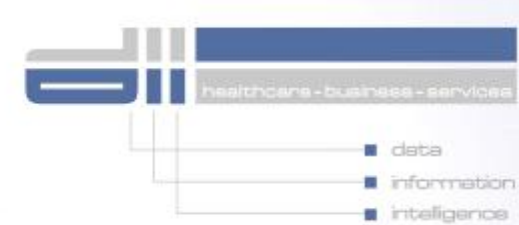


# Project Results



- Output Examples eHospital Census 2004 to 2007
- Output Examples Metaanalysis 2008

# Output Summary: eHospital Census



## Excel files containing all data

- One analysis file per country plus a European comparison
- 35 sheets per country file
- >400 tables per country file
- >100 charts per country file

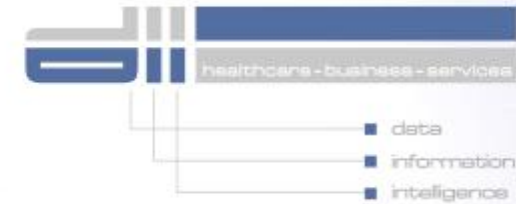
## Word reports presenting key data and interpretative information

- One report per country
- >200 pages per report
- >400 tables and charts per report

⇒ **A wealth of data** for further analysis and interpretation

# Output Examples: eHospital Census (1)

Source: HINE 2006



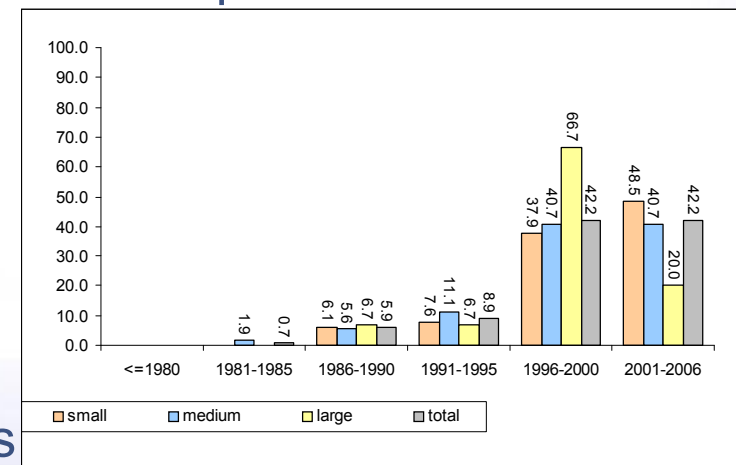
## Current IT System Usage per country, segment and system

### ➤ Share and projected number of current installations

	small	medium	large	public	private non profit	private for profit	total
Number existing	71	56	15	70	63	9	142
Percent of Basis Population	80.7	75.7	83.3	81.4	84.0	47.4	78.6
Projected Number	504	474	84				1,063

### ➤ Age profile derived from year of installation responses

	small	medium	large	total
<=1980	0.0	0.0	0.0	0.0
1981-1985	0.0	1.9	0.0	0.7
1986-1990	6.1	5.6	6.7	5.9
1991-1995	7.6	11.1	6.7	8.9
1996-2000	37.9	40.7	66.7	42.2
2001-2006	48.5	40.7	20.0	42.2
	(N=66)	(N=54)	(N=15)	(N=135)

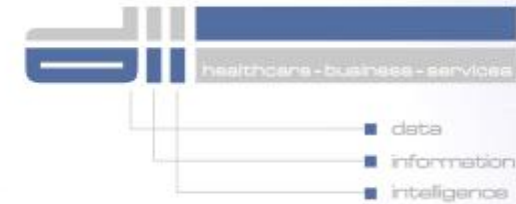


### ➤ Supplier profile of current installations

### ➤ Additional information: database standard used; Patient Identifier and MPI; medical records library, archiving strategy; details of RIS, PACS, LIS; characteristics of knowledge support system

# Output Examples: eHospital Census (2)

Source: HINE 2006



## Investment Plans per country, segment and system

➤ Share and projected number of hospitals planning investment

➤ Details of investment plans:

in %	small	small - #	medium	medium - #	large	large - #	public	ivate non private for pro	total - %	total - #	
planned to review	8.0	50	21.6	136	38.9	39	19.8	16.0	5.3	16.6	225
...of which already have the system	71.4	36	75.0	102	100.0	39	21.7	75.0	0.0	78.6	176

### Timing

in %	small	small - #	medium	medium - #	large	large - #	public	ivate non private for pro	total - %	total - #	
planned within next 12 months	57.1	28	87.5	119	85.7	34	82.4	75.0	100.0	80.5	181
planned within next 3 years	42.9	21	12.5	17	14.3	6	17.6	25.0	0.0	19.5	44
later planned	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0

### Main Reason

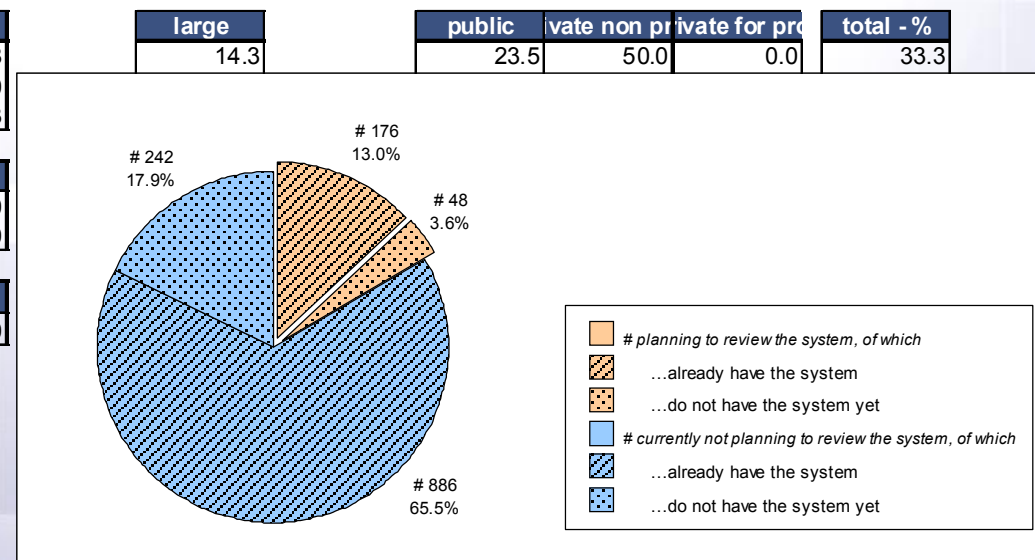
in %	small	medium	large	public	ivate non private for pro	total - %	
replacement	28.6	43.8	14.3	23.5	50.0	0.0	33.3
major upgrade	57.1	50.0					
first time installation	14.3	6.3					

### Planned Scope

in %	small	medium
planned as standalone system	0.0	0.0
planned as enterprise wide solution	100.0	100.0

### Preferred Supplier

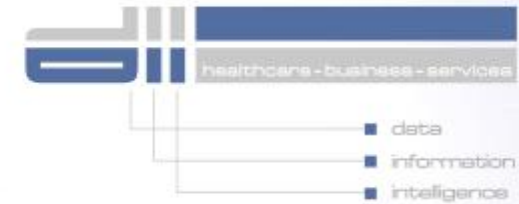
in %	small	medium
having already a preferred supplier	85.7	75.0



➤ Market Potential Charts:

# Output Examples: eHospital Census (3)

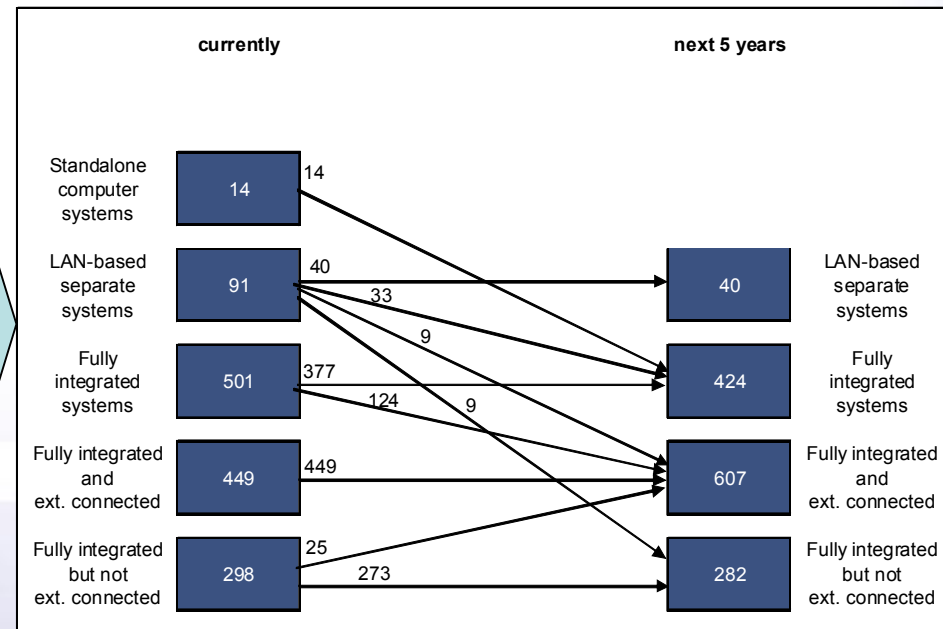
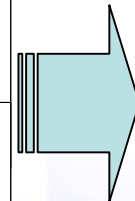
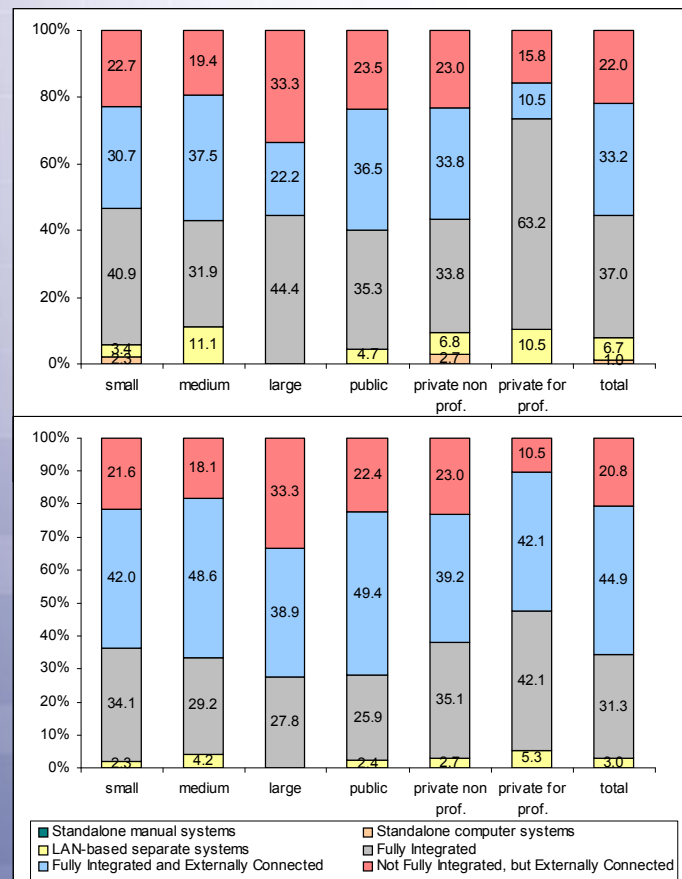
Source: HINE 2006



## Integration Issues

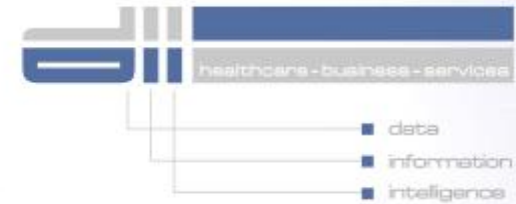
➤ Integration level at present and in 5 years per country and segment

⇒ Migration pattern per country



➤ Additional information: use of interface engine / integration service provider; details on external connection (organizations and applications)

# Output Summary: Metaanalysis 2008



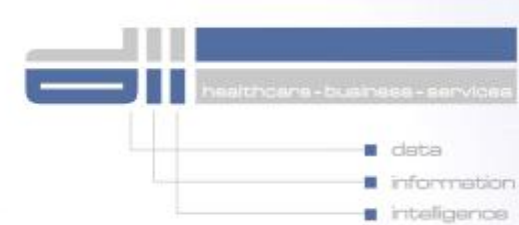
## Excel files only

- User friendly format
- One file per country and one file per functionality plus 10 functionality cluster analysis files and additional topic files (e.g. integration; technology; etc.) per country
- 3 sheets with 9 tables and 5 charts per functionality:
  - Installed Base
  - Market Development
  - Market Size

⇒ **Ready-to-Use** data and format, e.g. for revenue calculations

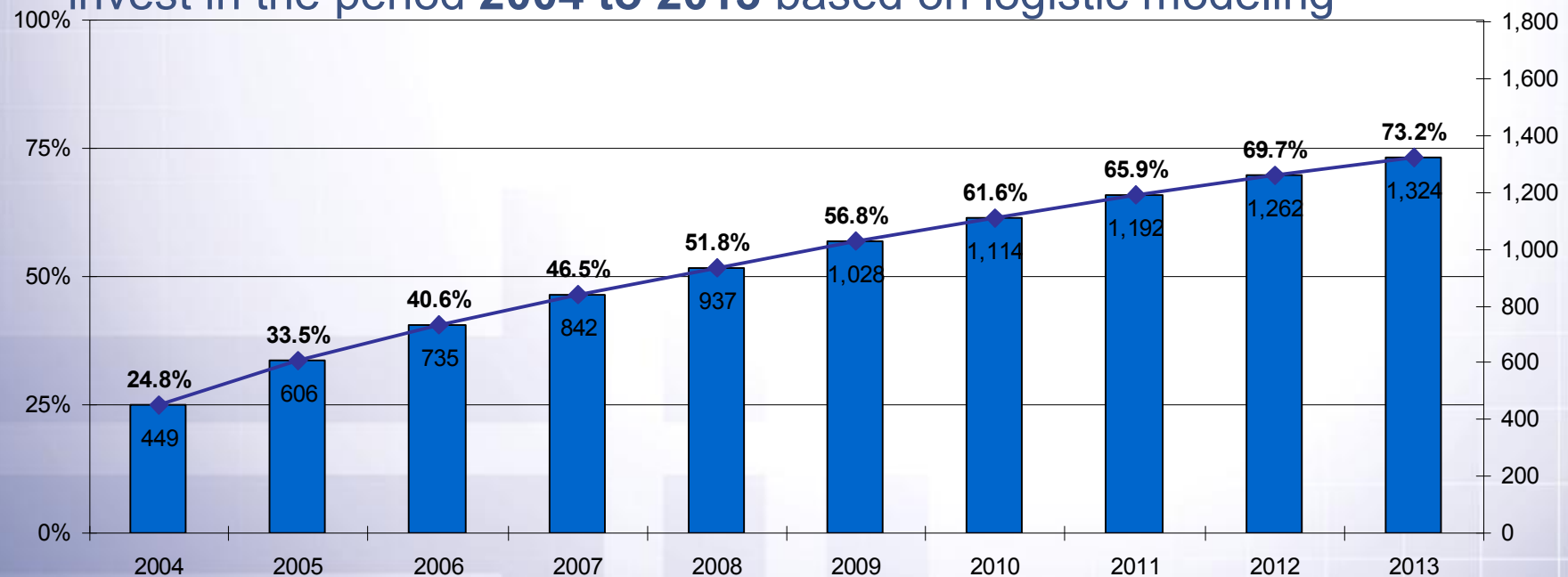
# Output Summary: Metaanalysis 2008 (1)

Source: dii



## Market Development per country and system

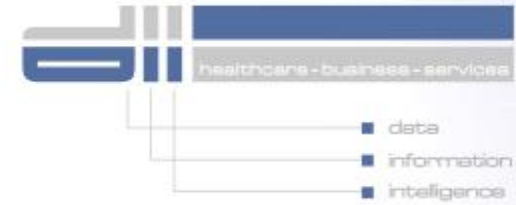
- Share and projected number of institutions that have invested and will invest in the period **2004 to 2013** based on logistic modeling



- Share and projected number of **first time vs. replacement installations** based on projected increase in installed base and calculated replacement rate based on year of installation and life span

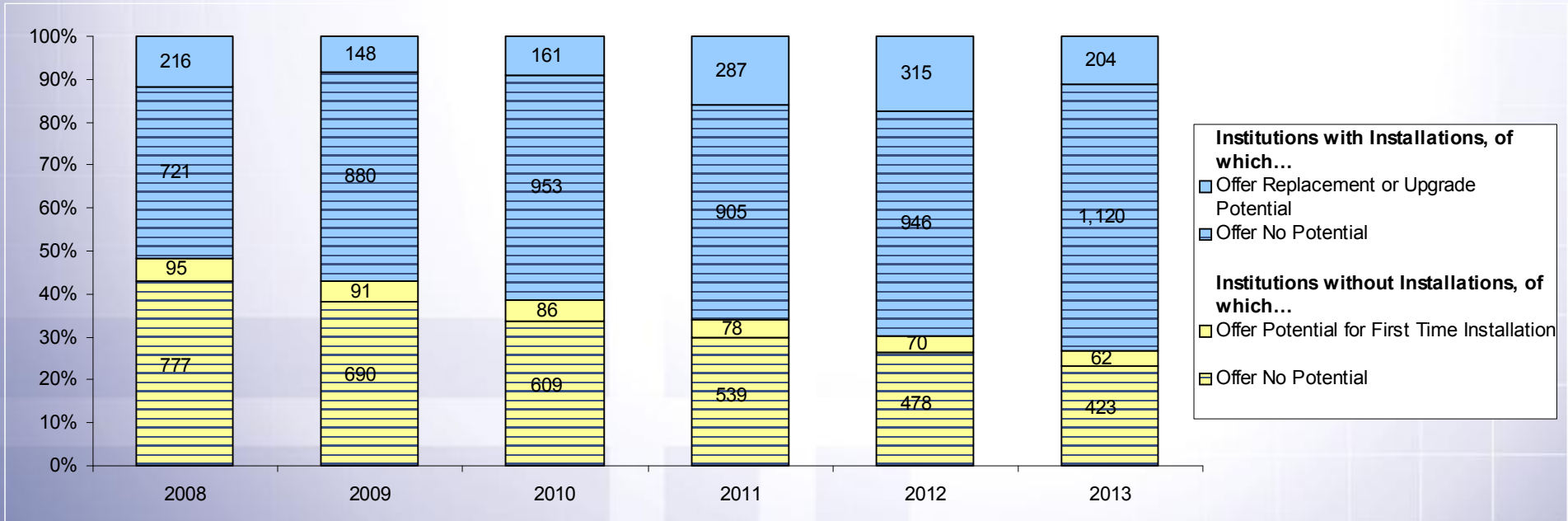
# Output Summary: Metaanalysis 2008 (2)

Source: dii



## Market Size per country and system

### ➤ 5-Year Market Potential – share and number of acute hospitals

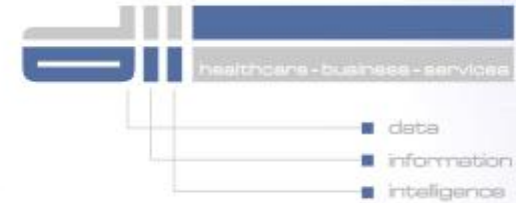


### ➤ Revenue forecast function - at market or company level



# Output Summary: Metaanalysis 2008 (3)

Source: dii



## IT Budget per country and segment

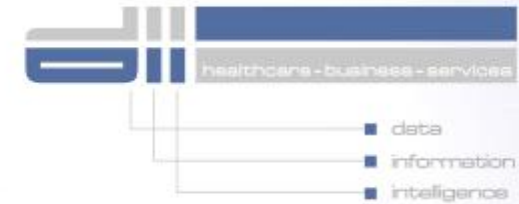
- Total annual IT budget - share of hospital budget and Euros
- Annual external spend on IT products and services - share of IT budget and Euros; shares of hardware, software and services

## Macroeconomic Benchmarking per country:

Macroeconomic Parameters:	Value	Unit	Reference Year
Population	82,500,000	Inhabitants	2008
GDP per Capita	28.714	EUR `000s	2006
GDP	2,370,122,342	EUR `000s	2006
Health Spend per Capita	2.753	EUR `000s	2006
Total Healthcare Spend	227,211,938	EUR `000s	2006
TH/CS / GDP	9.6%	% of GDP	2006
Total Hospital Budget	61,369,602	EUR `000s	2004 / 2006
THB / TH/CS	27.0%		
Total IT Spend	1,247,209	EUR `000s	2004 / 2006
% of Hospital Budget	2.0%		
Total External IT Spend	328,634	EUR `000s	2004 / 2006
% of Hospital Budget	0.5%		

Source: Espicom Business Intelligence - March 2007; World Health Organizations - Database 2007

# Conclusions



## Continuation is the driver for value

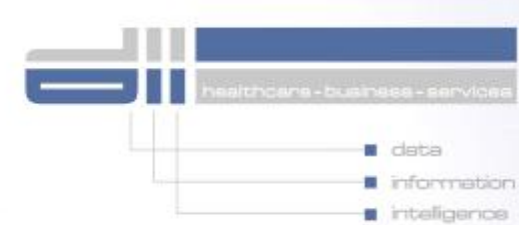
- One-off measurements deliver short-lived results
- Changes in IT user perceptions are clearly apparent over time
- Time series, metaanalyses and logistic modeling increase value
- 2009 - switch to continuous assessment and annual updates

## Solid funding model to avoid disruption and ensure expansion

- Self-funding vs. industry funding vs. public funding – or combined
- Influence on value for users – from industry to policy-making
- Expansion of scope to other actors in eHealth – possible and desired

# Questions & Answers

## Contact for More Information



Thank you very much for your  
attention!

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