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Business Insights:

Installed x-Ray Units
The Future of Computer Radiography (CR) and Direct Radiography (DR)
European Market for RIS and PACS Solutions

Author: Uwe Buddrus – Senior Consultant

This extensive report by HBS Consulting examines the **reality** of about **850 hospitals** and practices in **8 European countries** and provides you with following information:

Subjects Installed x-Ray bases

- Number of installed x-ray units per manufacturer, age and medical speciality
- Future investment plans for x-ray units per medical division (number, approximately time of installation, budget, planned RIS/PACS integration)
- Number of the accomplished radio-graphic procedures and trends, by medical speciality
- Factors that affect the decision to invest into x-ray units by end-users
- Factors that affect the choice of manufacturers
- How are investments into x-ray units financed?
- Need of "Direct Radiography"

Subjects: Installed RIS/PACS solutions

- Number of installed PACS solutions (manufacturer, age, by medical speciality)
- Number of integrated RIS system (manufacturer, age by medical speciality)
- Future investment plans for RIS/PACS solutions per medical division (yes or No)
- Preferences on supplier
- Preferences regarding RIS/PACS (independent RIS and PACS, integrating RIS/PACS, why which possibility preferred?)

Project Segmentation

By Country
- Germany
- Italy
- UK
- France
- Spain
- BeNeLux
- Czech Republic/Slovenia
- Poland

By Centre of Installation
- Large hospitals (400+ beds)
- Small hospitals (<400 beds)

By type of Equipment
- Stationary systems / X-ray examination tables / Ceiling stands / Chest stands / Skull units
- Mobile systems (e.g. for the Operating Room)
- C-arms
- Mammography systems

By Type of Imaging System
- Conventional Radiography
- Computed Radiography (CR)
- Direct Radiography (DR)

Methodology

For the purpose of this report, HBS Consulting has conducted secondary research on following topics:

- Number of hospitals,
- Number of radiography departments,
- Number of radiography procedures,
- Number of radiographic installations,
- Number of partial radiologists
- Regional healthcare legislation influencing the market

The secondary data forms the basis for the quantification of the business opportunities. The main source of information for both, quantitative as well as qualitative statements is primary research in the form of telephone interviews conducted with a sample of centres of installation.

The primary research supplied data on following topics:

- Number of current installations by application and type of imaging system
- Manufacturer, age, perceived life-span and time-to-replacement of existing equipment
- Utilisation of equipment (i.e. number of examinations and procedures performed by medical application)
- Planned timing of investments in new radiography equipment
- Planned type of equipment and imaging system under consideration of trends in radiographic procedures
- by speciality and preferences of CR compared to DR
- Factors influencing investment decisions
- Purchasing aspects (e.g. tender, rent/lease purchase, used equipment, etc.)

Sample Composition, All Countries

	Germ.	UK	France	Italy	Spain	Be/NL	Poland	CZ/SL
Total # of Interviews	201	99	100	100	100	50	90	60
Large hospitals (400+ beds)	32	40	12	16	16	25	24	11
Small hospitals (<400 beds)	98	59	77	84	84*	15	49	49
Private radiologists / imaging centres	20	0	11	0	0	10	17	0
‘Partial’ radiologists	51	0	0	0	0	0	0	0

**including „medical centres“*

The number of hospital interviews satisfies the criteria of statistical relevance in Germany, the UK, Italy, and Spain, and to a limited extent in France and Poland.

The samples in Belgium and the Netherlands, the Czech and Slovak Republic and those for partial radiologists and imaging centres are not statistically relevant, but are a sufficient number to draw indicative and relevant conclusions.
In order to maximise the available quantitative input, potential respondents were evaluated for the availability of RX equipment.

HBS Consulting has analysed the obtained data by means of statistical software (SPSS) and Excel spreadsheets.

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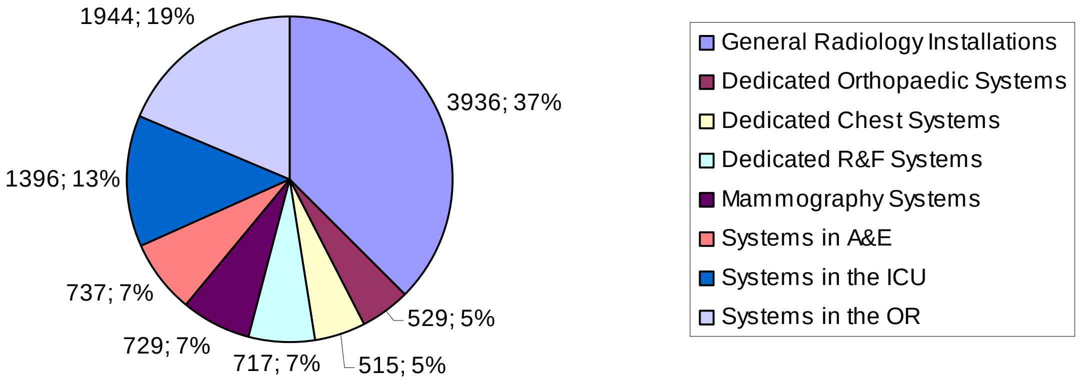
Sample Information from this Report (Germany)

Executive Summary

Infrastructure of General Hospitals with RX Equipment

	Small Hospitals	Large Hospitals
# of Hospitals	1,425	355
Average # of Departments with RX-equipment	3.2	5.3
Average # of Acquisition Units per Hospital	4.7	11.7
Projected # of Acquisition Units	6,702	3,802
Estimated # of IOS	5,222	2,664

Acquisition Unit Installations by Dedication, % and # of Installations

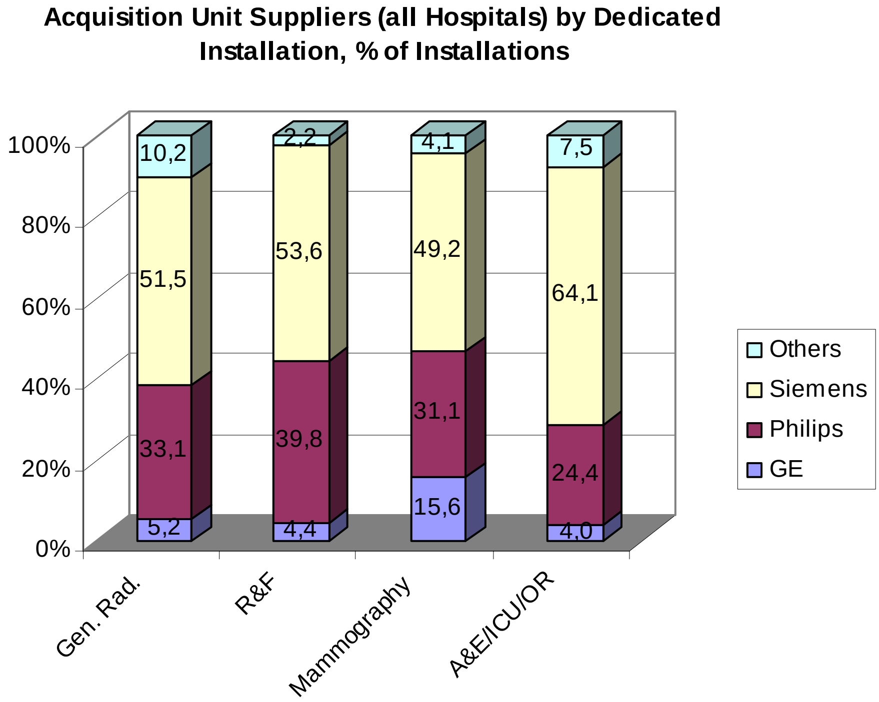


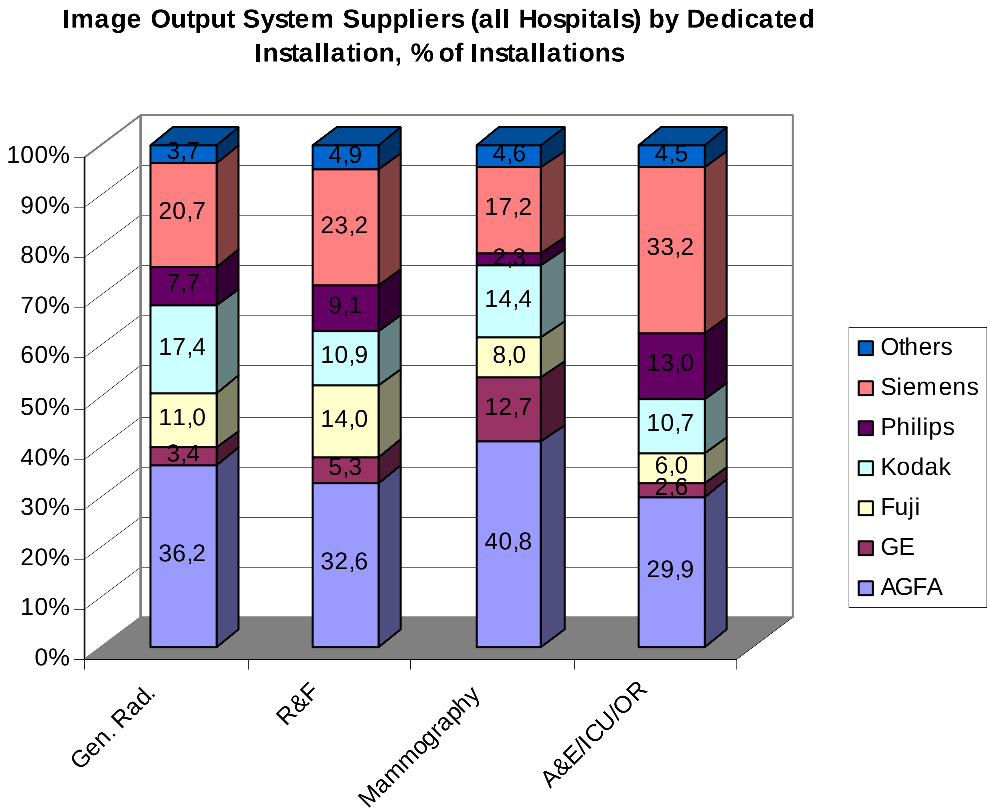
Presented figures for R&F exclude C-arm based systems; mammography figures may be considered conservative.

Imaging Activities of Hospitals

	Small Hospitals		Large Hospitals	
	Average	Median	Average	Median
# of X-ray Images per month	4,560	3,120	9,665	7,540
# of X-ray Images per day	228	156	483	377
# of X-ray Examinations per month	1,754	1,200	3,717	2,900
# of X-ray Examinations per day	88	60	186	145

General radiography chest and bone examinations account for around two thirds of all examinations, followed by R&F examinations and urographies, which account for up to 15%, and examinations in the A&E/ICU and OR with around 10%, while mammographies represent less than 10%.





Small hospitals prefer a complete solution from one supplier, while large hospitals more often opt for a combination of renowned suppliers. Siemens acquisition units are preferably installed with image output systems from international suppliers such as AGFA and Kodak. Both, Siemens and Philips achieve synergies in sales through their one-stop-supplier position.

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Sample Information (UK)

Acute Hospitals with X-ray Equipment by Size and Ownership, % and Number of Hospitals

	Small Hospitals		Large Hospitals		Total	
	%	#	%	#	%	#
Total, of which	100.0	504	100.0	203	100.0	707
Public	45.1	227	100.0	203	60.8	430
Private	54.9	277	0.0	0	39.2	277

Source: HBS Consulting based on EHR

For further projections, it will be assumed that 504 small and 203 large hospitals possess radiographic equipment. The table also shows that private hospitals are all part of the 'small hospital' segment.
In this report it will be investigated what type of x-ray equipment exists in acute hospitals. In this context is also assessed in how many locations or departments x-ray equipment is used. Some indication may be derived from the hospital activity statistics published by the DoH, which also include the number of departments undertaking imaging or radiodiagnostics for England. 2003 figures for England are projected based on historical growth rates. From the proportion of NHS hospitals in England (81.5%) of all UK NHS hospitals (in England, Wales, Scotland and Northern Ireland), conclusions were drawn on the total number of departments undertaking imaging or radiodiagnostics in NHS hospitals in the UK. This data is shown in below table.

Number of Departments Undertaking Imaging or Radiodiagnostics

Department	1998-1999	1999-2000	2000-2001	2003 (projected)	UK Total 2003 (projected)
Radiology	692	680	679	679	833
Nuclear Medicine	141	143	141	141	173
Medical Physics	70	69	71	72	88
Other	195	206	212	223	273

Source: Department of Health Hospital Activity Statistics Forms KH03 and KH12 & projections by HBS Consulting

Hospitals with Dedicated Installations, % and Number by Dedication

	Small Hospitals (N=59)		Acquisition Units	
	%	#	%	#
Total in Small Hospitals, of which	100.0	504	100.0	3,023
General Radiology Installations	100.0	504	48.4	1,462
Dedicated Orthopaedic Systems	6.8	34	2.8	86
Dedicated Chest Systems	10.2	51	1.7	51
Dedicated R&F Systems	54.2	273	11.8	358
Mammography Systems	59.3	299	11.6	350
Systems in A & E	11.9	60	3.2	96
Systems in the ICU	20.3	102	5.1	153
Systems in the OR	54.2	273	15.5	467

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Other countries same structure

Sample Information (Spain)

The following table and charts provide an overview over the period of installation for dedicated system installations. It was considered advantageous to group years in clusters of 5 years backwards from now.

Period of Installation, % and Number of Acquisition Unit Installations

	Small Hospitals		Large Hospitals		Total	
	%	#	%	#	%	#
General Radiology Installations	N=	148	N=	65	N=	213
Total	100.0	1,330	100.0	770	100.0	2,100
pre 1983	7.4	99	7.7	59	7.5	158
1983-1987	8.8	117	23.1	178	14.0	295
1988-1992	21.6	288	20.0	154	21.0	442
1993-1997	13.5	180	9.2	71	11.9	251
1998-2002/03	48.6	647	40.0	308	45.5	955
Dedicated R&F Systems	N=	29	N=	18	N=	47
Total	100.0	263	100.0	164	100.0	427
pre 1983	0.0	0	5.6	9	2.1	9
1983-1987	6.9	18	5.6	9	6.4	27
1988-1992	20.7	54	5.6	9	14.9	63
1993-1997	17.2	45	33.3	55	23.4	100
1998-2002/03	55.2	145	50.0	82	53.2	227
Mammography Systems	N=	40	N=	9	N=	49
Total	100.0	433	100.0	108	100.0	541
pre 1983	0.0	0	0.0	0	0.0	0
1983-1987	5.0	22	0.0	0	4.0	22
1988-1992	15.0	65	22.2	24	16.4	89
1993-1997	22.5	97	33.3	36	24.7	133
1998-2002/03	57.5	249	44.4	48	54.9	297
Systems in A&E/ICU/OR	N=	39	N=	6	N=	45
Total	100.0	897	100.0	426	100.0	1,322
pre 1983	0.0	0	2.6	11	0.8	11
1983-1987	6.5	58	15.4	65	9.4	124
1988-1992	20.7	185	15.4	65	19.0	251
1993-1997	28.3	253	28.2	120	28.2	373
1998-2002/03	44.6	400	38.5	164	42.6	563

Note: dedicated orthopaedic and chest systems are included in general radiography and systems in A&E, ICU and OR are also summarised.

Source: HBS Consulting

Other Countries same

Product Value Proposition

The study will allow the owner of the information to:

- **Assess current market realities** in terms of current installations at an unparalleled level of segmentation
- **Get detailed knowledge on suppliers**, age of equipment, main areas of investment (by segmentation criteria) in the past
- Reflect the current situation not only at a specific point in time, but **monitor trends** over a period of time (both in terms of market participants as well as system types)
- **Model market and own sales forecasts** on system types **based on investment plans of customers**
- **Reflect the expected behaviour of buyers**, not just the expectations of sellers; but by the motivations of buyers.
- **Model market forecasts on associated product lines** (e.g. films, cassettes) based on procedure data
- Make decisions regarding the **market entry/marketing strategy** for emerging Eastern European markets

The report (which includes Excel spreadsheets for easier use) can be disseminated to anyone in the organisation who is responsible for sales budget planning and will assist in more accurate planning, which is decisive for other budget allocation.

Prices and Order Information

Report Modules	Content	Price in €	Price in US$
x-Ray & RIS/PACS	1 Country: Italy, UK, Spain, Czech Republic/Slovenia, Poland, per country	2.000 €	2,400
	1 Country: France, Benelux, per country	4.000 €	4,800
	1 Country: Germany	5.000 €	6,000
	Big 5 (Germany, France, Spain, Italy, UK)	9.500 €	11,400
	8 countries (Germany, France, Spain, Italy, UK, Czech/Slovakia, BeNeLux, Poland)	13.000 €	15,600
	12 countries (Germany, France, Spain, Italy, UK, Czech/Slovakia, BeNeLux, Poland & Scandinavia)	15.000 €	18,000

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