

X-ray Systems Market to 2019

Enhanced Imaging Capability, Better Procedural Efficiency and Portability to Drive Future Growth of Digital X-ray Systems



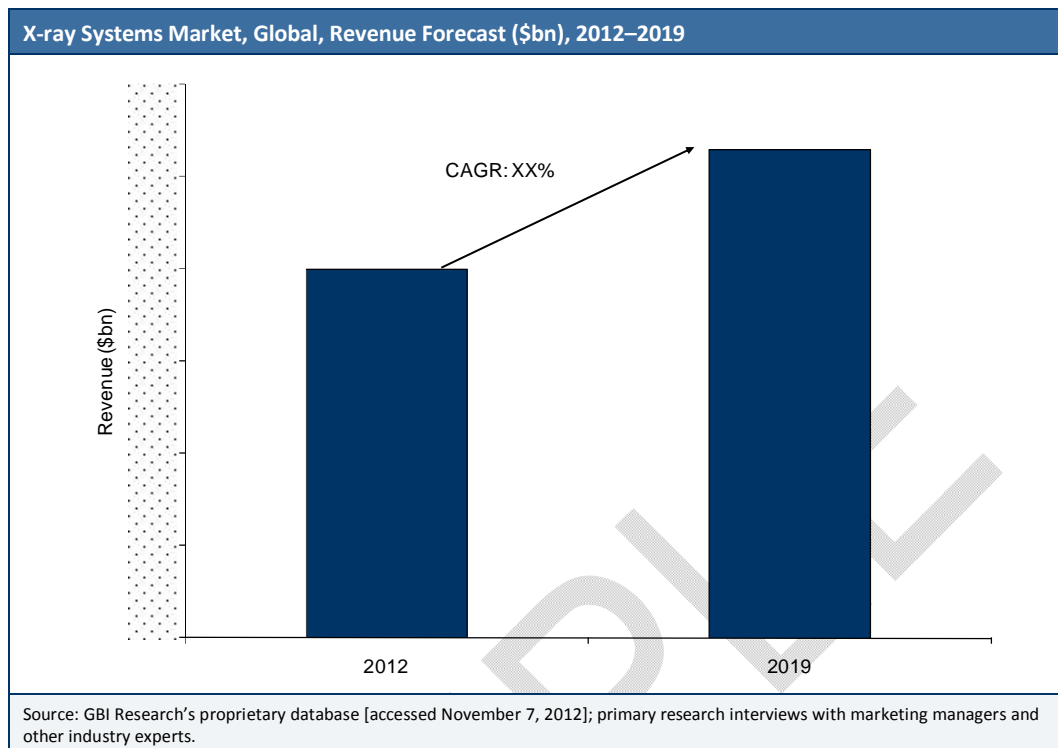
GBI Research Report Guidance

- The chapter begins with an executive summary capturing the key points that determine the dynamics of the X-ray systems market. Competition in the industry and key segments and geographical regions are also outlined.
- Chapter three provides information on market size for the 2005–2012 historic period and the 2012–2019 forecast period, and covers market trends, dynamics, drivers and restraints, and the competitive landscape.
- Chapter four discusses analog X-ray systems, digital X-ray systems and retrofit X-ray systems, with information on market size for the 2005–2012 historic period and the 2012–2019 forecast period for each segment. Company shares for the segments are not covered.
- Chapter five gives information on market size for the US, Canada, the UK, France, Germany, Italy, Spain, Japan, China, India, Australia and Brazil for the 2005–2012 historic period and the 2012–2019 forecast period, with cross-country analysis.
- Chapter six profiles the leading X-ray systems companies, looking at products, features and benefits.
- Chapter seven focuses on the pipeline products in the X-ray systems market. Key pipeline products are listed and discussed in detail and product approval and expected launch dates are also provided where available.
- Chapter eight discusses the consolidation landscape in the X-ray systems industry and looks at the deals that took place between 2007 and 2011.

Executive Summary

The Global X-ray Systems Market is Forecast to Reach \$XX Billion by 2019 at a CAGR of XX%

The global market for X-ray systems is forecast to reach \$XX billion by 2019 at a Compound Annual Growth Rate (CAGR) of XX% from 2012



The global market for X-ray systems is forecast to reach \$XX billion by 2019 at a Compound Annual Growth Rate (CAGR) of XX% from 2012. Future growth will be driven by increasing preference for digital X-ray systems due to benefits such as enhanced imaging quality, the ability to handle higher volume of imaging procedures, and reduced exposure to radiation-related risks. The growing preference for ultrasound over X-ray due to its lower cost and better imaging quality is however a major restraint for future growth. Companies' focus on improving X-ray systems to reduce radiation-related risk, improve portability and maintain cost-effectiveness will sustain growth during the forecast period.

The US is the Largest Market for X-ray Systems

The US is the largest market for X-ray systems, accounting for XX% of the global market in 2012. It was valued at \$XXm in 2012 and is forecast to reach \$XX billion by 2019 at a CAGR of XX%. Growth will be driven primarily by the continuous replacement of analog X-ray systems with digital X-ray systems. Increasing preference for digital X-ray systems is driven by benefits such as enhanced imaging quality, ability to handle higher imaging volumes, and greater portability. However, 2012 healthcare reforms have led to reimbursement cuts, and, combined with increasing preference for other modalities such as ultrasound, are expected to curb demand in the future.

1 Table of Contents

1	Table of Contents.....	6
1.1	List of Tables.....	8
1.2	List of Figures.....	10
2	Introduction.....	11
3	X-ray Systems: Overview	12
3.1	Analog X-ray Systems.....	12
3.2	Digital X-ray Systems.....	12
3.2.1	Computed Radiography Systems.....	12
3.2.2	Digital Radiography Systems.....	12
3.3	Retrofit X-ray Systems.....	12
4	X-ray Systems: Market Characterization	13
4.1	Global X-ray Systems Market, Revenue (\$bn), 2005–2012.....	13
4.2	Global X-ray Systems Market, Revenue (\$bn), 2012–2019.....	14
4.3	Global X-ray Systems Market, Key Company Share (%), 2011	15
4.4	Global X-ray Systems: Key Trends.....	17
4.4.1	Asia-Pacific's Contribution to the Global X-ray Systems Market will Continue to Rise.....	17
4.4.2	X-ray Systems Customized to Accommodate Obese Patients will Drive Future Growth.....	18
4.5	Global X-ray Systems: Market Dynamics.....	19
4.5.1	Market Drivers.....	19
4.5.2	Market Restraints	21
5	Global X-ray Systems Market: Segment Analysis and Forecasts	22
5.1	Global Analog X-ray Systems Market, Revenue (\$m), 2005–2012	22
5.2	Global Analog X-ray Systems Market, Revenue Forecast (\$m), 2012–2019	23
5.3	Global Digital X-ray Systems Market, Revenue (\$bn), 2005–2012	24
5.4	Global Digital X-ray Systems Market, Revenue Forecast (\$bn), 2012–2019	25
5.5	Global Retrofit X-ray Systems Market, Revenue (\$m), 2005–2012	26
5.6	Global Retrofit X-ray Systems Market, Revenue Forecast (\$m), 2012–2019	27
6	Global X-ray Systems Market: Country Analysis and Forecasts.....	28
6.1	Global X-ray Systems Market: Cross-Country Analysis.....	28
6.2	Historic and Forecast Revenue, By Country.....	30
6.2.1	X-ray Systems Market, US, Revenue (\$m), 2005–2012.....	30
6.2.2	X-ray Systems Market, US, Revenue Forecast (\$m), 2012–2019.....	31
6.2.3	X-ray Systems Market, Canada, Revenue (\$m), 2005–2012.....	33
6.2.4	X-ray Systems Market, Canada, Revenue Forecast (\$m), 2012–2019.....	34
6.2.5	X-ray Systems Market, Germany, Revenue (\$m), 2005–2012.....	35
6.2.6	X-ray Systems Market, Germany, Revenue Forecast (\$m), 2012–2019.....	36
6.2.7	X-ray Systems Market, Italy, Revenue (\$m), 2005–2012.....	37
6.2.8	X-ray Systems Market, Italy, Revenue Forecast (\$m), 2012–2019.....	38
6.2.9	X-ray Systems Market, France, Revenue (\$m), 2005–2012.....	39
6.2.10	X-ray Systems Market, France, Revenue Forecast (\$m), 2012–2019.....	40
6.2.11	X-ray Systems Market, Spain, Revenue (\$m), 2005–2012.....	41
6.2.12	X-ray Systems Market, Spain, Revenue Forecast (\$m), 2012–2019.....	42
6.2.13	X-ray Systems Market, UK, Revenue (\$m), 2005–2012.....	43
6.2.14	X-ray Systems Market, UK, Revenue Forecast (\$m), 2012–2019.....	44
6.2.15	X-ray Systems Market, Japan, Revenue (\$m), 2005–2012.....	45
6.2.16	X-ray Systems Market, Japan, Revenue Forecast (\$m), 2012–2019.....	46
6.2.17	X-ray Systems Market, Brazil, Revenue (\$m), 2005–2012.....	47
6.2.18	X-ray Systems Market, Brazil, Revenue Forecast (\$m), 2012–2019.....	48
6.2.19	X-ray Systems Market, China, Revenue (\$m), 2005–2012.....	49
6.2.20	X-ray Systems Market, China, Revenue Forecast (\$m), 2012–2019.....	50

6.2.21	X-ray Systems Market, Australia, Revenue (\$m), 2005–2012	51
6.2.22	X-ray Systems Market, Australia, Revenue Forecast (\$m), 2012–2019.....	52
6.2.23	X-ray Systems Market, India, Revenue (\$m), 2005–2012.....	53
6.2.24	X-ray Systems Market, India, Revenue Forecast (\$m), 2012–2019.....	54
7	Global X-ray Systems Market: Competitive Assessment	55
7.1	Siemens Healthcare	55
7.1.1	Business Overview.....	55
7.1.2	Marketed Products.....	56
7.2	GE Healthcare.....	56
7.2.1	Business Overview.....	56
7.2.2	Marketed Products.....	56
7.3	Philips Healthcare	56
7.3.1	Business Overview.....	56
7.3.2	Marketed Products.....	57
7.4	Hitachi Medical Corporation.....	57
7.4.1	Business Overview.....	57
7.4.2	Marketed Products.....	57
7.5	Shimadzu Corporation	57
7.5.1	Business Overview.....	57
7.5.2	Marketed Products.....	58
7.6	Carestream Health, Inc. (Subsidiary of Onex Corporation).....	58
7.6.1	Business Overview.....	58
7.6.2	Marketed Products.....	58
7.7	Fujifilm Holdings Corporation.....	58
7.7.1	Business Overview.....	58
7.7.2	Marketed Products.....	58
7.8	Toshiba Medical Systems Corporation	59
7.8.1	Business Overview.....	59
7.8.2	Marketed Products.....	59
8	Global X-ray Systems Market: Product Pipeline Analysis.....	60
8.1	Global, X-ray Systems Market, Pipeline Products	60
8.2	X-ray Systems Market, Profiles of Key Pipeline Products	61
8.2.1	Breast Tomosynthesis Detector.....	61
8.2.2	Brivo DR-F Digital X-ray.....	61
8.2.3	Carestream DRX 2530C Detector	62
8.2.4	Compact XRay Device.....	62
8.2.5	CR 30x	63
8.2.6	Digital X-ray System	63
8.2.7	DR FLFS.....	63
8.2.8	DRF A 4343 Flat Panel X-ray Detector	64
8.2.9	FlashPad Wireless Digital XRay Detector.....	64
8.2.10	High Frequency X-ray System.....	65
8.2.11	Integrated Digital Radiography System.....	65
8.2.12	Integrated FDR Go.....	65
8.2.13	Luminos dRF	66
8.2.14	Multix Select DR.....	66
8.2.15	NeuVision DR	67
8.2.16	Optima XR200 amx	67
8.2.17	Optima XR200 amx	67
8.2.18	Optima XR220 amx	68
8.2.19	Photon-Counting X-ray Detector.....	68
8.2.20	Pixium Portable 3543 EZ.....	68

8.2.21	<i>RADspeed V4</i>	69
8.2.22	<i>TB_View 1000</i>	69
8.2.23	<i>X-ray Light Valve System</i>	69
8.2.24	<i>XRay System</i>	70
8.2.25	<i>XGEO GU60</i>	70
8.2.26	<i>DR Retrofit Solution</i>	70
8.2.27	<i>DXD 10C Retrofit Detector</i>	71
8.2.28	<i>NextRay Diffraction Enhanced Imaging Machine</i>	71
9	Global X-ray Systems Market: Consolidation Landscape (2008–2012)	72
9.1	Claymount North America's Acquisition of Advanced Instrument Development	72
9.1.1	<i>Deal Rationale</i>	72
9.2	GE Healthcare's Acquisition of XPRO, Medical Equipment Manufacturer	72
9.2.1	<i>Deal Rationale</i>	72
9.3	Philips Medical Systems' Acquisition of Meditronics	72
9.3.1	<i>Deal Rationale</i>	72
9.4	Philips Medical Systems' Acquisition of VMI-Sistemas Medicos (VMI)	72
9.4.1	<i>Deal Rationale</i>	72
9.5	Philips Medical Systems' Acquisition of Alpha X-ray Technologies	73
9.5.1	<i>Deal Rationale</i>	73
9.6	Philips Healthcare's Acquisition of AllParts Medical	73
9.6.1	<i>Deal Rationale</i>	73
9.7	Carestream Health's Acquisition of Quantum Medical Imaging	73
9.7.1	<i>Deal Rationale</i>	73
9.8	Trivitron Healthcare's Acquisition of Vision Engineering	73
9.8.1	<i>Deal Rationale</i>	73
10	Appendix	74
10.1	Definitions	74
10.1.1	<i>X-ray Systems</i>	74
10.2	Acronyms	74
10.3	Sources	75
10.4	Research Methodology	75
10.4.1	<i>Secondary Research</i>	75
10.4.2	<i>Primary Research</i>	76
10.4.3	<i>Models</i>	76
10.4.4	<i>Forecasts</i>	76
10.4.5	<i>Expert Panels</i>	77
10.5	Contact Us	77
10.6	Disclaimer	77

1.1 List of Tables

Table 1:	X-ray Systems Market, Global Revenue (\$bn), 2005–2012	13
Table 2:	X-ray Systems Market, Global, Revenue Forecast (\$bn), 2012–2019	14
Table 3:	X-ray Systems Market, Global, Key Company Revenue (\$m), 2011	15
Table 4:	X-ray Systems, Global, Revenue by Geography (%), 2004–2018	17
Table 5:	X-ray Systems Market, India, Key Hospital Groups Planning Expansion, 2012	19
Table 6:	X-ray Systems Market, US, Average Selling Price by Segment (\$'000), 2012	21
Table 7:	Analog X-ray Systems Market, Global, Revenue (\$m), 2005–2012	22
Table 8:	Analog X-ray Systems Market, Global, Revenue Forecast (\$m), 2012–2019	23
Table 9:	Digital X-ray Systems Market, Global, Revenue (\$bn), 2005–2012	24
Table 10:	Digital X-ray Systems Market, Global, Revenue Forecast (\$bn), 2012–2019	25
Table 11:	Retrofit X-ray Systems Market, Global, Revenue (\$m), 2005–2012	26
Table 12:	Retrofit X-ray Systems Market, Global, Revenue Forecast (\$m), 2012–2019	27
Table 13:	X-ray Systems Market, Global, Cross-Country Analysis, CAGR (%), 2005–2019	28
Table 14:	X-ray Systems Market, US, Revenue (\$m), 2005–2012	30
Table 15:	X-ray Systems Market, US, Revenue Forecast (\$m), 2012–2019	31
Table 16:	X-ray Systems Market, Canada, Revenue (\$m), 2005–2012	33
Table 17:	X-ray Systems Market, Canada, Revenue Forecast (\$m), 2012–2019	34
Table 18:	X-ray Systems Market, Germany, Revenue (\$m), 2005–2012	35
Table 19:	X-ray Systems Market, Germany, Revenue Forecast (\$m), 2012–2019	36
Table 20:	X-ray Systems Market, Italy, Revenue (\$m), 2005–2012	37
Table 21:	X-ray Systems Market, Italy, Revenue Forecast (\$m), 2012–2019	38
Table 22:	X-ray Systems Market, France, Revenue (\$m), 2005–2012	39
Table 23:	X-ray Systems Market, France, Revenue Forecast (\$m), 2012–2019	40
Table 24:	X-ray Systems Market, Spain, Revenue (\$m), 2005–2012	41
Table 25:	X-ray Systems Market, Spain, Revenue Forecast (\$m), 2012–2019	42
Table 26:	X-ray Systems Market, UK, Revenue (\$m), 2005–2012	43
Table 27:	X-ray Systems Market, UK, Revenue Forecast (\$m), 2012–2019	44
Table 28:	X-ray Systems Market, Japan, Revenue (\$m), 2005–2012	45
Table 29:	X-ray Systems Market, Japan, Revenue Forecast (\$m), 2012–2019	46
Table 30:	X-ray Systems Market, Brazil, Revenue (\$m), 2005–2012	47
Table 31:	X-ray Systems Market, Brazil, Revenue Forecast (\$m), 2012–2019	48
Table 32:	X-ray Systems Market, China, Revenue (\$m), 2005–2012	49
Table 33:	X-ray Systems Market, China, Revenue Forecast (\$m), 2012–2019	50
Table 34:	X-ray Systems Market, Australia, Revenue (\$m), 2005–2012	51
Table 35:	X-ray Systems Market, Australia, Revenue Forecast (\$m), 2012–2019	52
Table 36:	X-ray Systems Market, India, Revenue (\$m), 2005–2012	53
Table 37:	X-ray Systems Market, India, Revenue Forecast (\$m), 2012–2019	54
Table 38:	X-ray Systems Market, Global, Pipeline Products, 2012	60
Table 39:	Breast Tomosynthesis Detector, Product Status, 2012	61
Table 40:	Brivo DR-F Digital X-ray, Product Status, 2012	61
Table 41:	Carestream DRX 2530C Detector, Product Status, 2012	62
Table 42:	Compact XRay Device, Product Status, 2012	62
Table 43:	CR 30x, Product Status, 2012	63
Table 44:	Digital X-ray System, Product Status, 2012	63
Table 45:	DR FLFS, Product Status, 2012	63
Table 46:	DRF A 4343 Flat Panel X-ray Detector, Product Status, 2012	64
Table 47:	FlashPad Wireless Digital XRay Detector, Product Status, 2012	64
Table 48:	High Frequency X-ray System, Product Status, 2012	65
Table 49:	Integrated Digital Radiography System, Product Status, 2012	65
Table 50:	Integrated FDR Go, Product Status, 2012	65
Table 51:	Luminos dRF, Product Status, 2012	66
Table 52:	Multix Select DR, Product Status, 2012	66
Table 53:	NeuVision DR, Product Status, 2012	67
Table 54:	Optima XR200 amx, Product Status, 2012	67
Table 55:	Optima XR200 amx, Product Status, 2012	67
Table 56:	Optima XR220 amx, Product Status, 2012	68
Table 57:	Photon-Counting X-ray Detector, Product Status, 2012	68

Table 58:	Pixium Portable 3543 EZ, Product Status, 2012	68
Table 59:	RADspeed V4, Product Status, 2012	69
Table 60:	TB_View 1000, Product Status, 2012	69
Table 61:	X-ray Light Valve System, Product Status, 2012	69
Table 62:	XRay System, Product Status, 2012	70
Table 63:	XGEO GU60, Product Status, 2012	70
Table 64:	DR Retrofit Solution, Product Status, 2012	70
Table 65:	DXD 10C Retrofit Detector, Product Status, 2012	71
Table 66:	NextRay Diffraction Enhanced Imaging Machine, Product Status, 2012	71

1.2 List of Figures

Figure 1:	X-ray Systems Market, Global, Revenue (\$bn), 2005–2012	13
Figure 2:	X-ray Systems Market, Global, Revenue Forecast (\$bn), 2012–2019	14
Figure 3:	X-ray Systems Market, Global, Key Company Share (%), 2011	15
Figure 4:	X-ray Systems Market, Global, Revenue Forecast by Geography (%), 2004–2018	17
Figure 5:	Analog X-ray Systems Market, Global, Revenue (\$m), 2005–2012	22
Figure 6:	Analog X-ray Systems Market, Global, Revenue Forecast (\$m), 2012–2019	23
Figure 7:	Digital X-ray Systems Market, Global, Revenue (\$bn), 2005–2012	24
Figure 8:	Digital X-ray Systems Market, Global, Revenue Forecast (\$bn), 2012–2019	25
Figure 9:	Retrofit X-ray Systems Market, Global, Revenue (\$m), 2005–2012	26
Figure 10:	Retrofit X-ray Systems Market, Global, Revenue Forecast (\$m), 2012–2019	27
Figure 11:	X-ray Systems Market, Global, Cross-Country Analysis, CAGR (%), 2005–2019	28
Figure 12:	X-ray Systems Market, US, Revenue (\$m), 2005–2012	30
Figure 13:	X-ray Systems Market, US, Revenue Forecast (\$m), 2012–2019	31
Figure 14:	X-ray Systems Market, Canada, Revenue (\$m), 2005–2012	33
Figure 15:	X-ray Systems Market, Canada, Revenue Forecast (\$m), 2012–2019	34
Figure 16:	X-ray Systems Market, Germany, Revenue (\$m), 2005–2012	35
Figure 17:	X-ray Systems Market, Germany, Revenue Forecast (\$m), 2012–2019	36
Figure 18:	X-ray Systems Market, Italy, Revenue (\$m), 2005–2012	37
Figure 19:	X-ray Systems Market, Italy, Revenue Forecast (\$m), 2012–2019	38
Figure 20:	X-ray Systems Market, France, Revenue (\$m), 2005–2012	39
Figure 21:	X-ray Systems Market, France, Revenue Forecast (\$m), 2012–2019	40
Figure 22:	X-ray Systems Market, Spain, Revenue (\$m), 2005–2012	41
Figure 23:	X-ray Systems Market, Spain, Revenue Forecast (\$m), 2012–2019	42
Figure 24:	X-ray Systems Market, UK, Revenue (\$m), 2005–2012	43
Figure 25:	X-ray Systems Market, UK, Revenue Forecast (\$m), 2012–2019	44
Figure 26:	X-ray Systems Market, Japan, Revenue (\$m), 2005–2012	45
Figure 27:	X-ray Systems Market, Japan, Revenue Forecast (\$m), 2012–2019	46
Figure 28:	X-ray Systems Market, Brazil, Revenue (\$m), 2005–2012	47
Figure 29:	X-ray Systems Market, Brazil, Revenue Forecast (\$m), 2012–2019	48
Figure 30:	X-ray Systems Market, China, Revenue (\$m), 2005–2012	49
Figure 31:	X-ray Systems Market, China, Revenue Forecast (\$m), 2012–2019	50
Figure 32:	X-ray Systems Market, Australia, Revenue (\$m), 2005–2012	51
Figure 33:	X-ray Systems Market, Australia, Revenue Forecast (\$m), 2012–2019	52
Figure 34:	X-ray Systems Market, India, Revenue (\$m), 2005–2012	53
Figure 35:	X-ray Systems Market, India, Revenue Forecast (\$m), 2012–2019	54
Figure 36:	X-ray Systems Market, Global, Competitive Assessment, 2011	55

2 Introduction

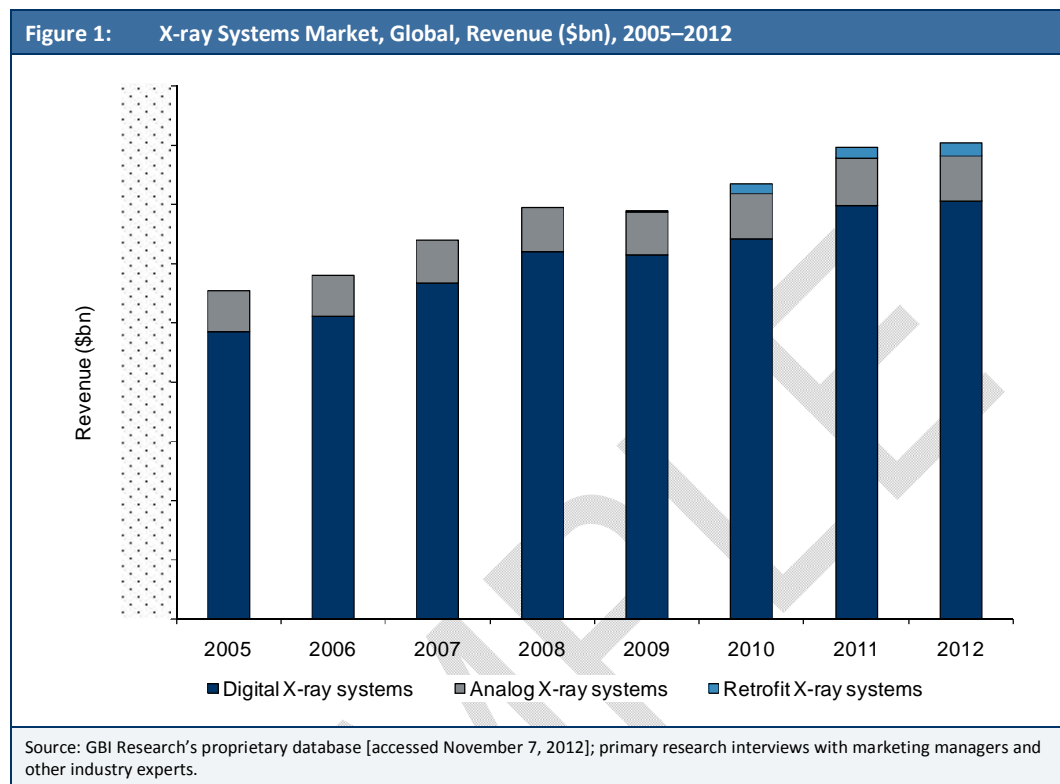
X-ray systems are the most commonly used form of medical imaging system, and are widely used in chest imaging, orthopedics, general surgeries and post-surgical applications because they allow the examination of internal organs and abnormalities. An X-ray system comprises a source which emits X-rays of a specified frequency. These X-rays pass through the patient's body and their spatial distribution is captured by a detector which displays the image. They are classified into film-based X-ray systems and digital X-ray systems.

SAMPLE

4 X-ray Systems: Market Characterization

4.1 Global X-ray Systems Market, Revenue (\$bn), 2005–2012

The following figure shows the revenue generated by the three segments of the global X-ray systems market from 2005 to 2012.



The following table shows the revenue generated by the three segments of the global X-ray systems market from 2005 to 2012.

Table 1: X-ray Systems Market, Global Revenue (\$bn), 2005–2012

	2005	2006	2007	2008	2009	2010	2011	2012	CAGR (%)
Digital X-ray systems									
Analog X-ray systems									
Retrofit X-ray systems									
Total									

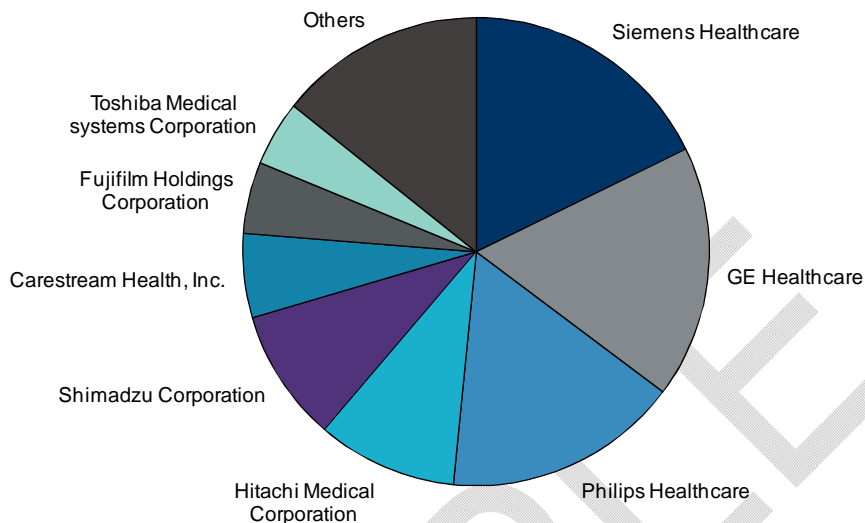
Source: GBI Research's proprietary database [accessed November 7, 2012]; primary research interviews with marketing managers and other industry experts

The overall global X-ray systems market was valued at \$XX billion in 2005 and grew to \$XX billion in 2012 at a Compound Annual Growth Rate (CAGR) of XX%. The digital X-ray systems market was valued at \$XX billion in 2005 and grew to \$XX billion in 2012 at a CAGR of XX%. The analog X-ray systems market was valued at \$XX billion in 2005 and grew to \$XX billion in 2012 at a CAGR of XX%. Market growth was driven by global demand from hospitals switching from analog to digital X-ray systems as a move towards a more integrated healthcare IT-based system for diagnostic procedures.

4.3 Global X-ray Systems Market, Key Company Share (%), 2011

The following figure shows the market shares in the global X-ray systems market in 2011.

Figure 3: X-ray Systems Market, Global, Key Company Share (%), 2011



Source: GBI Research's proprietary database [accessed November 7, 2012]; primary research interviews with marketing managers and other industry experts

Table 3: X-ray Systems Market, Global, Key Company Revenue (\$m), 2011

Company Name	Revenue (\$m)
Siemens Healthcare	
GE Healthcare	
Philips Healthcare	
Hitachi Medical Corporation	
Shimadzu Corporation	
Carestream Health, Inc.	
Fujifilm Holdings Corporation	
Toshiba Medical Systems Corporation	
Others	

Source: GBI Research's proprietary database [accessed on November 7, 2012]; Primary research interviews with marketing managers and other industry experts

10 Appendix

10.1 Definitions

10.1.1 X-ray Systems

X-ray systems use high-energy radiation to diagnose diseases by taking images of the internal structure of body. Analog X-ray systems, digital X-ray systems and retrofit X-ray systems and associated equipment are included under this category, but accessories and/or additional costs associated with X-ray system installation are excluded.

10.1.1.1 Analog X-ray Systems

Analog X-ray systems are used to obtain diagnostic images of the internal structures of the body in the form of thin films. Revenue generated through sales of standalone X-ray films has not been tracked. One unit is defined as one system.

10.1.1.2 Digital X-ray Systems

Digital X-ray systems incorporate DR and obtain images on a screen rather than a film. They include CR and DR systems. Dental X-ray systems have been tracked under a separate dental devices market and are not considered here.

Computed Radiography Systems

CR involves an indirect diagnostic imaging system. The receptor used within a CR cassette absorbs the radiation exiting the patient. The absorbed energy is then extracted by processing the exposed plate in a CR reader. Before viewing the images, the stored information in the CR imaging plate is processed. A digital image is generated by converting the analog signal from the resultant latent image data to a digital signal. A CR system includes X-ray tube, CR reader, CR cassette and operating console. One unit is defined as one system.

Digital Radiography Systems

Direct or DR is a form of X-ray imaging which involves the use of digital X-ray sensors instead of traditional photographic film. The image brightness and contrast can be modified by digitally processing the acquired image data. Digital imaging systems can generate sufficient image contrast over a broader range of exposure levels than film-screen imaging systems. A DR system comprises an X-ray tube, upright stand/patient table, detector plate, and operating console. One unit is defined as one system.

10.1.1.3 Retrofit X-ray Systems

Retrofit X-ray systems are digital panel detectors that enable analog X-ray systems to be upgraded to digital X-ray systems. One unit consists of one retrofit X-ray system.

10.2 Acronyms

CAGR: Compound Annual Growth Rate

CR: Computed Radiography

CT: Computed Tomography

DR: Digital Radiography

FPD: Flat-Panel Detector

MRI: Magnetic Resonance Imaging

PET: Positron Emission Technology

PSP: Photostimulable Phosphor

10.3 Sources

- Business Standard (2012). Apollo Hospitals plans Rs 2k-cr expansion, Available from: <http://www.business-standard.com/india/news/apollo-hospitals-plans-rs-2k-cr-expansion/492641/>. [Accessed November 16, 2012].
- Centers for Disease Control and Prevention (2012), via Los Angeles Times. "Obesity in U.S. projected to grow, though pace slows: CDC study", Los Angeles Times, May 7, 2012. Available from: <http://articles.latimes.com/2012/may/07/news/la-heb-obesity-projection-20120507>. [Accessed November 16, 2012].
- Center for Health Market Innovations (2012). Vatsaalya Hospitals. Available from: <http://healthmarketinnovations.org/program/vaatsalya-hospitals>. [Accessed November 16, 2012].
- China Internet Information Center (2012). China's healthcare reform tasks completed: report. China.org.cn. Available from: http://www.china.org.cn/china/2012-06/26/content_25735562.htm [Accessed on November 16, 2012].
- Hindu Business Line (2012). Fortis to open six new hospitals. Available from: <http://www.thehindubusinessline.com/companies/article2313752.ece>. [Accessed November 16, 2012].
- Hindu Business Line (2012). Narayana Hrudayalaya plans Rs 2,000 cr expansion. Available from: <http://www.thehindubusinessline.com/companies/narayana-hrudayalaya-plans-rs-2000-cr-expansion/article4245267.ece>. [Accessed November 16, 2012].
- The Economic Times (2012). Max Healthcare to add 600 operational beds in FY 2013, Available from: http://articles.economictimes.indiatimes.com/2012-04-12/news/31331197_1_bed-strength-speciality-max-healthcare-institute. [Accessed November 16, 2012].
- US Census Bureau (2009). Census Bureau Reports World's Older Population Projected to Triple by 2050. Available from: http://www.census.gov/newsroom/releases/archives/international_population/cb09-97.html. [Accessed November 16, 2012].

10.4 Research Methodology

GBI Research's dedicated research and analysis teams consist of experienced professionals in marketing and market research with consulting backgrounds in the medical devices industry and advanced statistical expertise.

GBI Research adheres to the codes of practice of the Market Research Society (www.mrs.org.uk) and the Society of Competitive Intelligence Professionals (www.scip.org).

All GBI Research databases are continuously updated and revised. The following research methodology is followed for all databases and reports.

10.4.1 Secondary Research

The research process begins with exhaustive secondary research on internal and external sources being carried out to source qualitative and quantitative information relating to each market.

The secondary research sources that are typically referred to include, but are not limited to:

- Company websites, annual reports, financial reports, broker reports, investor presentations and SEC filings.
- Industry trade journals, scientific journals and other technical literature.
- Internal and external proprietary databases.
- Relevant patent and regulatory databases.
- National government documents, statistical databases and market reports.
- Procedure registries.
- News articles, press releases and web-casts specific to the companies operating in the market.

10.4.2 Primary Research

GBI Research conducts hundreds of primary interviews a year with industry participants and commentators in order to validate its data and analysis. A typical research interview fulfills the following functions:

- It provides first-hand information on the market size, market trends, growth trends, competitive landscape and future outlook.
- It helps in validating and strengthening the secondary research findings.
- It further develops the analysis team's expertise and market understanding.

Primary research involves email correspondence, telephone interviews and face-to-face interviews for each market, category, segment and sub-segment across geographies.

The participants who typically take part in such a process include, but are not limited to:

- Industry participants: CEOs, VPs, marketing/product managers, market intelligence managers and national sales managers.
- Hospital stores, laboratories, pharmacies, distributors and paramedics.
- Outside experts: investment bankers, valuation experts, research analysts specializing in specific medical equipment markets.
- Key opinion leaders: physicians and surgeons specializing in different therapeutic areas corresponding to different kinds of medical equipment.

10.4.3 Models

Where no hard data is available GBI Research uses modeling and estimates in order to produce comprehensive data sets. The following rigorous methodology is adopted:

Available hard data is cross referenced with the following data types to produce estimates:

- Demographic data: population, split by segment.
- Macro-economic indicators: Gross Domestic Product, Inflation rate. .
- Healthcare Indicators: health expenditure, physicians base, healthcare infrastructure and facilities.
- Selected epidemiological and procedure statistics.

Data is then cross-checked by the expert panel.

All data and assumptions relating to modeling are stored and are available to clients on request.

10.4.4 Forecasts

GBI Research uses proprietary forecast models. The following four factors are utilized in the forecast models:

- Historic growth rates.
- Macro indicators such as population trends and healthcare spending.
- Forecast epidemiological data.
- Qualitative trend information and assumptions.

Data is then cross-checked by the expert panel.

10.4.5 Expert Panels

GBI Research uses a panel of experts to cross verify its databases and forecasts.

GBI Research's expert panel comprises marketing managers, product specialists, international sales managers from medical device companies; academics from research universities, KOLs from hospitals, consultants from venture capital funds and distributors/suppliers of medical equipment and supplies.

Historic data and forecasts are relayed to GBI Research's expert panel for feedback and adjusted in accordance with this feedback.

10.6 Disclaimer

All Rights Reserved.

No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publisher, GBI Research.