2016-2022

Germany Homeland Security & Public Safety Market



Europe's Terror & Migration Crisis Series

2 Volumes

Germany Homeland Security & Public Safety Market -2016-2022 - Volume 1

Germany Homeland Security & Public Safety Market - 2016-2022 - Volume 2

2016-2022

Germany Homeland Security & Public Safety Market Volume 1





Source: ISIS

Homeland Security Research Corp.

Europe's Terror & Migration Crisis Series

Germany Homeland Security & Public Safety Market

2016-2022

Volume 1

May 2016

Homeland Security Research Corp. (HSRC) is an international market and technology research firm specializing in the Homeland Security (HLS) & Public Safety (PS) Industry. HSRC provides premium market reports on present and emerging technologies and industry expertise, enabling global clients to gain time-critical insight into business opportunities. HSRC's clients include the EU, NATO U.S. Congress, DHS, U.S. Army, U.S. Navy, DOD, DOT, and US Congress GAO among others; as well as Counter Terror & PS government agencies in Japan, Korea, Taiwan, Israel, Canada, UK, Germany, Australia, Sweden, Finland, Singapore. With over 950 private sector clients (72% repeat customers), including major defense and security vendors, and Fortune 500 companies. HSRC earned the reputation as the industry's Gold Standard for Counter Terror & Public Safety market reports.

Washington D.C. 20004, 601 Pennsylvania Ave., NW Suite 900, Tel: 202-455-0966, info@hsrc.biz, www.homelandsecurityresearch.com

Acknowledgements

The authors of this report wish to convey their sincere thanks to all of the Counter Terror & Public Safety planners, engineers, scientists, security personnel, government officials, vendors, distributors and users, who granted us interviews, sent us their publications, provided us with non-published presentations, reviewed and commented on our drafts - giving us an invaluable insight into the working of technologies markets and trends. The list below contains the names of some of the people who have helped us directly or indirectly in the preparation of this report. We thank them and many others.

Jorge Domecq, Chief Executive of the European Defence Agency (EDA). Carl Bildt, Former Swedish Prime Minister and Minister of Foreign Affairs and Trustee of Friends of Europe. Ana Gomes, Member of the European Parliament, Committee on Civil Liberties, Justice and Home Affairs and on the Subcommittee on Security and Defence. Ian Bremmer, President and Founder of Eurasia Group. Elisabeth Guigou, President of the Foreign Affairs Commission of the French National Assembly, President of Anna Lindh Foundation and Trustee of Friends of Europe. Lock Pin Chew, Director of the Risk Assessment and Horizon Scanning Programme Office of Singapore's National Security Coordinating Secretariat. Peter Hultqvist, Swedish Minister of Defence. Luis De Almeida Sampaio, Portuguese Permanent Representative of Portugal to NATO. Wolfgang Ischinger, Chairman of the Munich Security Conference and former German Ambassador to the U.S. Jaap De Hoop Scheffer, Former NATO Secretary General and Trustee of Friends of Europe. Elizabeth Johnston, Executive Director of the European Forum for Urban Security. Marina Kaljurand, Estonian Minister of Foreign Affairs. Joanne Liu, International President of Medecins sans Frontieres (MSF). Mara E. Karlin, U.S. Deputy Assistant Secretary of Defense for Strategy and Force Development. Frederica Mogherini, High Representative of the Union for Foreign Affairs and Security Policy and Vice-President of the European Commission. Irene Khan, Director General of the International Development Law Organization and Former Secretary General of Amnesty International. Bert Koenders, Dutch Minister of Foreign Affairs. General Mikhail Kostarakos, Chairman of the European Union Military Committee (CEUMC). Baroness Pauline Neville-Jones, Member of the UK House of Lords and former Minister of State for Security and Counter-Terrorism. Thomas Gottschild, Director for EU & NATO Policies, Cassidian. Colonel Henry Neumann, Group Leader of CBRN Protection, Fire and Self Protection, German Armed Forces. Lieutenant Colonel Brian Clesham, HQ Land Command, Ministry of Defence, UK. Pentti Partanen, Director General, Finnish Department of Rescue Services. John Conaghan, Police Inspector, British Transport Police. Colonel Frank Kämper, Project Officer Protection, Capability Directorate, European Defence Agency. Gayle Gorman and Jamie Campbell, Eclipse Ventures. Lars Kjaer, World Shipping Council. John Avolio, Director, Security & Detection Systems, L3 Communications. Ted Strancyek, President, Aircraftsmen & Associates. Dore S. Perler, President & CEO, Sense Holding Inc. James T. Ryan, General Manager, Cantronic Ethnologies. M. Peretz. Executive Vice President, Integrated Detection Systems. Richard Doubrava, Managing Director of Security, Air Transport Association. Marian Terlecki, Manager, Cargo Security and ULD Industry Distribution & Financial Services, International Air Transport Association (IATA). Raphael Kahn, Director Secure, Marine. Tony Magnusson, Acting Head of Anti-Smuggling Division, National CSI coordinator, Swedish Customs. Nadège Grard, Assistant European Organisation for Security (EOS). Pavel Adam, Institute of Photonics and Electronics, Czech Republic. Ralph Hammer, Expert, National and European Security Research, Ministry of Transport, Innovation and Technology, Austria. Charles Elsen, Former Council of the European Union. Jean-Louis de Brouwer, European Commission. Audrey Baneyx, Sciences-Po Paris Médialab. Benoit Verjat, Sciences-Po Paris Médialab. Peter Jozsef Csonka, European Commission, Wenceslas de Lobkowicz, Former European Commission, Sciences Po Paris. Médéric Martin-Mazé, King's College, London. Tony Venables, Former European Citizen Action Service. Kees Groenendijk, University of Nijmegen. Beate Winkler, Author, former Director of the EU Agency in Vienna, now FRA. Fabrice Leggeri, Frontex. Elspeth Guild, University of Nijmegen, CEPS. Wouter Van De Rijt, Council of the European Union. Emilio de Capitani, Former European Parliament. Michael Kennedy, Eurojust. Petra Bard, Central European University. Willy Bruggeman, Europol. Monica den Boer, SeQure Research and Consultancy, Vrije Universiteit, Amsterdam. Johannes Vos, Former Council of the European Union. Peter Hustinx, Former European Data Protection Supervisor. Julien Jeandesboz, Université Libre de Bruxelles. Sandra Nunes, eu-LISA. Sharon Abbas, Business Development Manager Raytheon International, Europe. Nicolas D. Loannidis, Managing Director, Patras Port Authority, S.A. Anthony Comber, Sales and Marketing Manager, Thales Navigation Limited. Steven D. Botello - Director, Cargo Sales, Rapiscan Security Products. Jiří Homola, Institute of Photonics and Electronics, Czech Republic. Marek Piliarik, Institute of Photonics and Electronics, Czech Republic, Prague. Jianping Yao, Microwave Photonics Research Laboratory, Canada. Philip Anderson, Senior Fellow Homeland Security Initiatives, CSIS Center For Strategic & International Studies, Dale K, Kotter, Scientist, National Security -INEEL. Jerry Peck, Global Trade Management Solutions. Mike Bohlman, Horizon Lines and ISO TC 104. Charlie Piersall, ISO TC. Daniel Colonel Fred Hilpert, Director, Transformation Support, Joint CBRN Defence Centre of Excellence, Czech Republic. Bill DeWitt, SSA. Susan F. Hallowell, Ph.D., Director of Technology. Jerry W. McElwee, Vice President, Joint Programs, Boeing. Eric R. Schwartz, Director, Advanced Systems Technology Phantom Works, Boeing. Patrick OSZCZEDA, VP Counter Terror, Thales Group. Bruce Aitken, President, Homeland Security Industries Association (HSIA). R. Barry Ashby, President, Ashby & Associates. Rodney E. Thomas, CEO, Thomas & Herbert Consulting LTC. John C. Carrano, Ph.D., Program Manager Microsystems Technology Office, Defense Advanced Research Projects Agency. Mark J. Rosker, Ph.D., Program Manager, DARPA. John M. Libert, Physical Scientist, Display Metrology, Forensic Imaging, Department of Commerce National Institute of Standards and Technology Electronics and Electrical Engineering Laboratory of NIST. Tomáš Springer, Institute of Photonics and Electronics, Czech Republic. Milan Vala, Institute of Photonics and Electronics, Academy of Sciences of the Czech Republic, Prague. Benjamin R. Watts, Department of Engineering Physics, McMaster University. Tomasz Wolinski, Faculty of Physics, Warsaw University of Technology. Chang-Qing Xu, Department of Engineering Physics, McMaster University. Brig. Gen (Res.) Dani Arditi, Fmr. Director Israel National Security Council. Giorgio Abrate, Senior Vice President. Avio Olav Adami, Strategic Relations (GS). Thomas Ahammer, Deputy Military Representative Permanent Representation of Austria to the EU. Frank Amedick, Global Account Manager, NATO Siemens Belgium. Paul Ames, Freelance Journalist. Jacqueline Argence, Solution Portfolio Management Director, Cassidian. Aviel Atias, Consultant Mind-Alliance Systems, LLC. Fabio Bagnoli, Division Manager, D'appolonia. Paul Baker, Director/Associate Consultant Baker, R&C/Ecorys. Gary Bamford, Director, Arcadis Vectra. Alain Barbier, Deputy Special Representative to the European Union, International Criminal Police Organization (INTERPOL). Dan Baxter, Senior Vice-President and Director, Fleishman-Hillard. Jacquelyn Bednarz, Attaché, Department of Homeland Security Mission of the United States of America to the EU. Emanuela Bellan, Head of Unit, Crisis Management European Commission General Secretariat. Juliette Bird, First Secretary, Security and Terrorism Permanent Representation of

the United Kingdom to the EU. Ivan Bizjak, Director General for Justice and Home Affairs Council of the European Union. David Blackwell, Director for Cybersecurity DETICA (BAE Systems). Christian Blobner, Project Manager, Logistics and Factory Systems, Fraunhoffer Institute for Factory Operation and Automation IFF. Agnes Borg, Assistant, Weber. Shandwick Martin Borrett, Director, IBM Institute for Advanced Security. John Brading, Deputy BD Director, National Security, Raytheon, UK. Simon Busuttil, European Parliament. Geert Cami, Co-Founder & Director, Security & Defence Agenda (SDA). Genseric Cantournet, Vice President, Security Cross-Processes and Projects Telecom Italia. Patrice Cardot, Conseiller, Ministry of Defence, France, Direction Générale de l'Armement (DGA). Valentina Carletti, Advisor for EU. EDA and NATO affairs. Selex Sistemi Integrati. Albert Caruana. Information Assurance Officer, Council of the European Union. Claudio Catalano, Analyst, Studies Division, Finmeccanica, UK. Marc Cathelineau, Vice President, European Union & NATO Affairs, Thales. Inge Ceuppens, Project Officer, European Commission, DG for Information Society & Media. Jacques Cipriano, Vice President, European Affairs, Safran Group, Michael Clarke, Public Affairs Director, G4S. Robert Cox, Trustee, Friends of Europe. Eugenio Creso, Institutional Relations Director, Selex Sistemi Integrati S.p.A. Vincenzo Cuomo, Professor, Italian National Research Council (CNR). Charles de Couessin General Manager, ID Partners. Dennis Davis, Vice President, International Association of Fire and Rescue Services (CTIF). Jean-Louis de Brouwer, Director for Migration and Borders, European Commission, DG for Home Affairs. Gilles de Kerchove, European Counter-Terrorism Coordinator, Council of the European Union. Kirsten de Haan, Research Assistant, Fleishman-Hillard. Stanislas de Maupeou, Director for Cyber-Defence, Thales. Eva Diaz Perez, EADS Key Account NATO/EU, European Aeronautic Defence and Space Company (EADS). Anatoly Didenko, Counsellor. Mission of the Russian Federation to the EU. Claes Dorien, Office Manager, European Corporate Security Association (ECSA). Michael T. Dougherty, Director of Immigration Control, Raytheon. Jonathan Dowdall, Policy Analyst & Market Development, Security Europe. David Henry Doyle, Security & Defence Advisor, YPFP Brussels. Anna Katarzyna Dubowik, Secretary, Permanent Representation of Poland to the EU. H.E. Mr. Dumitru Sorin Ducaru, Ambassador, Delegation of Romania to NATO. Krzysztof Durczak, Key Account Manager, Defence & Security Sector, Thales. **Eeva Eek-Pajuste**, Counsellor, Political Affairs, Permanent Representation of Estonia to the EU. Sabine Ehmke-Gendron, Director for Civil Protection and Disaster Management, Council of the European Union. Ludwig Eickemeyer, Corporate Sales Executive, European Voice. Gamze Erdem, Advisor, Turkish Industry and Business Association, (TÜSIAD). Anu Eslas, Programmes Coordinator, Estonian Atlantic Treaty Association. Henning Faltin, Deputy Branch Head, European Union Military Staff (EUMS). David Fairnie, Director of Global Port Solution, G4S. Patsy Faynsztein, Manager, EU Business Development, Raytheon International, Europe. Maria Fialho, Special Advisor, Transatlantic Relations, European Parliament. Ulrich Fikar, Assistant to Zoltàn Martinusz, European Council Cabinet of President Herman Van Rompuy. Theodor Fokken, Director, Business Development EU-NATO, Rohde & Schwarz. Pierre-Alain Fonteyne, Chairman of the IMG-S Security Research Roadmap (SRR), Catholic University of Louvain. Roger Forsberg, Chief Information Security Officer, Swedish Fortifications Agency. Ulrike Freyert, Policy Officer, Justice and Interior Representation of Brandenburg to the EU. Octávia Frota, Senior Advisor, Conrad International. Marino Gallego, Innovation Business Director, Everis. Hugo Ganet-Sénoko, Senior Manager, Indra. Jim Gaudoin, Managing Director, L-3 Communication Systems Security & Detection Systems Division. Antoine Gérard, Head of the Brussels Liaison Office, United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA). Andrea Ghianda, Project Manager, Security & Defence Agenda (SDA). Pierluigi Massimo Giansanti, Director, NATO/EU Sales Department, Selex Sistemi Integrati, S.p.A. Bill Giles, Director General Europe, BAE Systems. Laurent Giquello, French National Expert, NATO Air Command and Control System Management Agency (NACMA). Lt. Gen. Jo Godderij, Director, NATO International Military Staff (IMS). Timo Harkonen, Director of Government Security, Office of the Prime Minister, Finland. Michael Hartinger, Project Officer, Capability Development Planning, European Defence Agency (EDA). Robert Havas, Chairman, Board of Directors, European Organization for Security (EOS). Rear Admiral Giorgio Lazio, Chief of Staff Maritime Command, NATO. James A. Lewis, Director and Senior Fellow of the Strategic Technologies Program of the Center for Strategic and International Studies (CSIS). Michael Printzos, Programme Director of The Hellenic Initiative. Lee Litzenberger, U.S. Deputy Permanent Representative to NATO. Didier Reynders, Belgian Deputy Prime Minister and Minister of Foreign Affairs and European Affairs. Katrin Suder. German Secretary of State at the Ministry of Defence. Carne Ross, Executive Director of Independent Diplomat. Sir Adam Thomson, UK Permanent Representative to NATO. Michael Roth, German Minister of State for Europe. Marietje Schaake, Member of the European Parliament, Vice-Chair of the Delegation for Relations with the United States, Member of the Committee on International Trade. Waldemar Very, Deputy Special Representative for the Rule of Law at the United Nations Mission in Liberia (UNMIL). Marriet Schuurman, NATO Special Representative. Catherine Woollard, Secretary General of the European Council on Refugees and Exiles (ECRE). Jamie Shea, NATO Deputy Assistant Secretary General for Emerging Security Challenges. Maria zakharova, Spokesperson of the Russian Ministry of Foreign Affairs. Julianne smith, Senior Fellow and Director of the Strategy and Statecraft Program at the Center for a New American Security (CNAS). Lamberto Zannier, Secretary General of the Organization for Security and Co-operation in Europe (OSCE). Javier Solana, Former NATO Secretary General and EU High Representative for CSDP and Trustee of Friends of Europe.

Table of Contents

 Germany Homeland Security & Public-Safety: Market Background Germany Terror Challenge & Counter Terror Strategy	28 35
3.1 The New Realities of Terror	28 35
3.2 Approach to Homeland Security and Public Safety	
4 Germany Migration Surge	
 Germany Homeland Security & Public Safety Market: SWOT Analys 5.1 Strengths 5.2 Weaknesses 5.3 Opportunities 5.4 Threats 	41 43
6.1 Germany Homeland Security & Public Safety Market – 2015-2022 6.1 Germany Homeland Security & Public Safety Market By Revenue Category – 2015-2022 6.1.1 2015 Market Data & 2016-2022 Market Forecast By Revenue Source 6.1.2 Market Dynamics By Revenue Source - 2016-2022 6.1.3 Market Breakdown By Revenue Source 6.2 Germany Homeland Security & Public Safety Vertical Markets – 2015-2022 6.2.1 2015 Market Data & 2016-2022 Market Forecast by Vertical Sub-Markets 6.2.2 Market Dynamics by Vertical Sub-Markets - 2016-2022 6.2.3 Market Breakdown by Vertical Sub-Markets 6.3 Germany Homeland Security & Public Safety Technology Market 2015-2022 6.3.1 2015 Market Data & 2016-2022 Market Forecast by Technology Sub-Markets	e
VERTICAL MARKETS	
7.1 Market Definition	5757595959

	7.3.1	German Aviation Security	62
	7.3.2	German Aviation Security Regulations	
	7.3.3	Aviation Security Act (Luftsicherheitsgesetz)	
	7.3.4	Germany Aviation Passengers Security Tax	
	7.3.5	The German Federal Aviation Office (Luftfahrt-Bundesamt)	
	7.3.6	The German Aviation Supply Chain Security	
		man Aviation Cybersecurity	
		many Aviation Śecurity: Market Background	
		many Aviation	
	7.6.1	Airport Security	
	7.7 Gerr	many Airports Passengers & Baggage Screening Statistics by	
		ort - 2016 & 2020	69
		tion Security Screening Technologies	
	7.8.1	X-ray Screening	
	7.8.2	Explosive Detection Systems (EDS)	
	7.8.3	Explosives Trace Detection (ETD)	
	7.8.4	Biological, Radioactive and Nuclear Detection System	
	7.8.5	Millimeter Wave Imaging Systems	
	7.8.6	Freight Forwarders	
	7.8.7	Customs	
	7.8.8	Aviation Passenger Screening Technologies Outlook: 2014-	
		2022	73
	7.8.9	Checked Baggage Screening Market	
	7.8.10	Counter-MANPAD Market	
	7.9 Air C	Cargo Screening Technologies & Markets	
	7.9.1	Air Cargo Outlook	
	7.9.2	Air Cargo Related Security Risks	
	7.9.3	Air-Cargo Supply Chain Security	
	7.9.4	Airport Perimeter Security Technologies & Markets	
	7.9.5	Germany Aviation Security Market Business Opportunities &	
		Challenges	76
	7.10 Gerr	many Airport Security Market- 2015-2022	77
	7.10.1	Market Size & Dynamics - 2015-2022	77
	7.10.2	Market Breakdown	
8	Gormany 9	Smart Border, Immigration Enforcement & Border Security	
0		016-2022	70
		ket Definition	
		ket-Background	
	8.2.1	Migration to Germany	
	8.2.2	Germany Visa Policy	
	8.2.3	German E-Passport	
	6.2.3 8.2.4	Immigration Legislation	
	8.2.5	Immigration Enforcement	
	8.2.5		
	8.2.6 8.2.7	Germany Border SecurityGerman Coast Guard	
	0.2.1	Gennan Guasi Guaru	oo

	8.2.8 8.3 Germ	Automated Border Control (ABC) Gatesany Smart Border, Immigration Enforcement & Border Security	86
		et - 2015-2022	89
	8.3.1	Market Size & Dynamics - 2015-2022	89
	8.3.2	Market Breakdown	
9	Germany C	ounter Terror & Counter Crime Intelligence Agencies	
		16-2022	92
		et Definition	
	9.2 Germ	any Intelligence Agencies: Market Background	93
		error Intelligence Industry Business Opportunities & Challenges	
		an Intelligence Agencies	
	9.4.1	Federal Intelligence Service (BND)	
	9.4.2	Federal Office for the Protection of the Constitution (BfV)	
	9.4.3	Military Counterintelligence Service (MAD)	
	9.4.4	The State Office for the Protection of the Constitution	98
		any Counter-Terror & Counter Crime Intelligence Agencies et – 2015-2022	00
	9.5.1	Market Size & Dynamics - 2015-2022	
	9.5.2	Market Breakdown	
4.0			
10		ritical Infrastructure Protection Market - 2016-2022	
		et Definition	
		any Critical Infrastructure Protection Market Background	
		ning of Infrastructure Security	
		nation Sharing with the Private Sector	
		al Infrastructure Security Market: Business Opportunities	
		Security	
		N Protection	
		any CIP Standards and specifications	
	10.10 Germ	any Critical Infrastructure Protection Market -2015-2022	112
	10.10.1	Market Size & Dynamics - 2015-2022	
	10.10.2	Market Breakdown	114
11		olice Modernization & Other 1st Responders Market – 2016-	445
	2022 11.1 Marke	et Definition	
		an Police Forces	
	11.2.1	BPOL - Federal Police	
	11.2.2	GSG 9 - Special Operations & Counterterrorism Unit	
	11.2.3	BFE/BFHu Units - Special Anti-Terrorist Unit of Federal Anti-	0
		Riot Police	117
	11.2.4	ASSIK - Special Task Force Protection in Crisis Areas	
	11.2.5	ZKA - Customs Investigation Bureau	
	11.2.6	ZUZ - Customs SWAT Unit	
	11.2.7	Military Police	

		ice Forces	118
		ate Special Operations Command Part of Uniformed	440
		bbile Task Force units, Part of Criminal Police	
		sponders, Firefighters & Emergency Medical	1 18
	Services		110
		ation & 1st Responders Market	
		Police Modernization & 1st Responder Business	120
		ities	124
		Modernization & Other 1st Responders Market -	
		,	125
	11.5.1 Market Si	ize & Dynamics - 2015-2022	125
	11.5.2 Market B	reakdown	127
12	Germany Safe City &	Public Events Security Market - 2016-2022	128
_		n	
		Cities: Market Background	
		ime in Germany	
		Safe City Projects	
	12.2.3 Example:	Stuttgart Safe City Project	130
		Safe City Market Eco-System	
		ecurity	
		ication Interoperability	
		r Security	
		rents Infrastructure Security	
		rents Emergency Services	134
		rents WMD and Hazmat Detection and Response	404
		Attacks	
		Level	
		Events Security Market: Business Opportunities &	130
	Challenges	Liverita decurity inarket. Business Opportunities &	137
		City & Public Events Security Market - 2015-2022	
		ize & Dynamics - 2015-2022	
		reakdown	
13	Cormony Building 9	Perimeter Security Market	1 1 1
13	13.1 Market Definition	n	1/1
		meter Security Technologies and Market	
		Building Security Guidelines	
		r Security	
	13.3 Germany Buildir	ng & Perimeter Security Market – 2015-2020	145
		ize & Dynamics - 2015-2022	
		reakdown	

14	Germany (CBRN Security & Safety Market - 2016-2022	148
		ket Definition	
	14.2 Rad	iological-Nuclear Detection Technologies	148
		mical Agents Detection Technologies	
		ogical Agents Detection Technologies	
		EU CBRN Terror Mitigation Actions	
		RN Mitigation Market overview	
		EU CBRN Risk Mitigation Centers of Excellence	
		many CBRN Security & Safety Market-Background	
		many CBRN Security & Safety Market- 2015-2022	
	14.9.1	Market Size & Dynamics - 2015-2022	
	14.9.2	•	
15	Gormany	Other Homeland security & Public Safety Vertical Markets –	
13		Julier Hollieland Security & Public Salety Vertical Markets –	150
		time Security	
	15.1 Man	Satellite Based Maritime Tracking	
	15.1.1	Wide Area Communications and Tracking Technology	
	15.1.2	SkyBitz Global Locating System	
	15.1.3	PAR Cargo*Mate	
	15.1.4	TRI-MEX "Black Box"	161
	15.1.6	Maritime Awareness Global Network (MAGNET)	
	15.1.7	Piracy Mitigation	
	15.1.7	The EU Coast Guard Program	
		many Mass Transportation Security Market	
		many Oil–Gas Industry Security Market	
	15.3.1	· · · · · · · · · · · · · · · · · · ·	
	15.3.1	Germany Oil & Gas Industry Security Market: Business	103
	13.3.2	Opportunities	167
	15.4 Geri	many Other Homeland Security & Public Safety Vertical Markets	107
		15-2022	168
	15.4.1	Market Size & Dynamics - 2015-2022	
	15.4.2	Market Breakdown	
	10.1.2	Markot Droakdottiiniiniiniiniiniiniiniiniiniiniiniinii	

List of Tables

Table 1 - Germany Facts & Figures	17
Table 2 - Germany Homeland Security & Public Safety Market [\$M] and AGR [%] – 2015-2022	19
	19
Table 3 - Germany Homeland Security & Public Safety Market [\$M] by Revenue Category – 2015-2022	48
Table 4 - Germany Homeland Security & Public Safety Market AGR [%] by	
Revenue Category – 2015-2022	50
Table 5 - Germany Homeland Security & Public Safety [\$M] by Vertical Markets – 2015-2022	52
Table 6 - Germany Homeland Security & Public Safety [\$M] by Vertical Markets – 2015-2022	54
Table 7 - Germany Homeland Security & Public Safety Technology Markets [\$M]	
<i>–</i> 2015-2022	56
Table 8 - Germany Air Transport Data – 2005-2013	60
Table 9 - Germany Major Airports: Passengers Screening, Carry-on & Checked	
Baggage Screening [M] by Airport - 2016 & 2020	70
Table 10 - Germany Aviation Security Market: Business Opportunities	77
Table 11 - Germany Airport Security Market [\$M] (incl. Sales, Aftersale and Other	
Revenues) and AGR [%] - 2015-2022	77
Table 12 - Germany Smart Borders, Immigration Enforcement & Border Security	
Market [\$M] (incl. Sales, Aftersale and Other Revenues) and AGR	
[%] – 2015-2022	89
Table 13 - Counter Terror & Crime Intelligence Market: Business Opportunities	96
Table 14 - Germany Counter-Terror & Counter Crime Intelligence Agencies	
Market [\$M] (incl. Sales, Aftersale and Other Revenues) and AGR	
[%] – 2015-2022	99
Table 15 - Critical Infrastructure Security Market: Business Opportunities by	
technology	.109
Table 16 - Critical Infrastructure Security Sub-markets Growth Outlook	.110
Table 17 - Germany Critical Infrastructure Protection Market [\$M] (incl. Sales,	
Aftersale and Other Revenues) and AGR [%] – 2015-2022	.112
Table 18 - Ranking of Manmade & Natural Disasters, Crime and Terror Threats	–
· · · · · · · · · · · · · · · · · · ·	.124
Table 19 - Germany Police Modernization & 1st Responders Market: Business	— .
Opportunities	124
Table 20 - Germany Police Modernization & Other 1st Responders Market [\$M]	. 127
(incl. Sales, Aftersale and Other Revenues) and AGR [%] – 2015-	
2022	125
Table 21 - Crime Statistics for Germany – 2011-2012	
Table 22 - Threat Level Definitions	
Table 23 - Germany Public Events Security Market: Business Opportunities	. 130
	127
Sectors	. ૧૭/

Table 24 - Germany Public Events Security & Safe City Market [\$M] (incl. Sales,	
Aftersale and Other Revenues) and AGR [%] – 2015-2022	138
Table 25 - Germany Building & Perimeter Security Market [\$M] (incl. Sales,	
Aftersale and Other Revenues) and AGR [%] – 2015-2022	145
Table 26 - Germany CBRN Security & Safety Market [\$M] (incl. Sales, Aftersale	
and Other Revenues) and AGR [%] - 2015-2022	157
Table 27 - Germany Oil & Gas Industry Security Market: Business Opportunities	167
Table 28 - Germany Other Homeland Security & Public Safety Vertical Markets	
[\$M] (incl. Sales, Aftersale and Other Revenues) and AGR [%] -	
2015-2022	168

List of Figures

Figure 1 - Germany Market Report Organogram	17
Figure 2 - Germany Counter Terror & Public Safety Agencies Organogram	18
Figure 3 - Germany Homeland Security & Public Safety Market [\$M] – 2015-2022.	19
Figure 4 - 2015 Refugee Applications to Germany vs. Rest of Europe by Month	25
Figure 5 - 2015 Migrant Applications to Europe by Country of Origin	25
Figure 6 - Main Routes of Migration to Germany and the Rest of the EU	26
Figure 7 - Asylum-Seeker Decisions: Germany VS. Rest of Europe	27
Figure 8 - European Terror Attacks Timeline- 1980-April 2016	30
Figure 9 - Europe Major Terror Attacks-2001 to March 2016	
Figure 10 - Percentage of Germany Muslim Population Vs. Other EU Countries	
Figure 11 - The Balkan Migration Route to Germany	38
Figure 12 - Germany Homeland Security & Public Safety Market [\$M] by	
Revenue Category – 2015-2022	49
Figure 13 - Germany Homeland Security & Public Safety Market Shares [%] by	
Revenue Category – 2015-2022	51
Figure 14 - Germany Homeland Security & Public Safety [\$M] by Vertical	
Markets – 2015-2022	53
Figure 15 - Germany Homeland Security & Public Safety Vertical Market Shares	
[%]– 2015-2022	55
Figure 16 - Germany Air Passengers [M] – 2005-2013	61
Figure 17 - The German Federal Aviation Office Organization Chart	65
Figure 18 - German Aviation Security Layers	
Figure 19 - Airport Passengers Screening – Segments	73
Figure 20 - Germany Airport Security Market Share [%] by Revenue Category –	
2015-2022	
Figure 21 - Main Migrant Routes to Germany	
Figure 22 - Refugee Acceptance by Country 2015	
Figure 23 - An Automatic Border Control (ABC) Gate	
Figure 24 - Automated Passport Control at Frankfurt Airport	88
Figure 25 - Germany Smart Borders, Immigration Enforcement & Border Security	
Market [\$M] by Revenue Category (Sales, Aftersale and Other	
Revenues) – 2015-2022	90
Figure 26 - Germany Smart Borders, Immigration Enforcement & Border Security	
Market Share [%] by Revenue Category – 2015-2022	91
Figure 27 - Germany Counter-Terror & Counter Crime Intelligence Agencies	
Market [\$M] by Revenue Category (Sales, Aftersale and Other	
Revenues) – 2015-2022	.100
Figure 28 - Germany Counter-Terror & Counter Crime Intelligence Agencies	
Market Share [%] by Revenue Category – 2015-2022	
Figure 29 - Critical Infrastructure Security, Layers of Security	
Figure 30 - Hierarchy of Critical Infrastructures	
Figure 31 - Germany Critical Infrastructure Investment Priorities Scheme	.106

Figure 32 - Germany Critical Infrastructure Protection Market [\$M] by Revenue	
Category (Sales, Aftersale and Other Revenues) – 2015-2022	113
Figure 33 - Germany Critical Infrastructure Protection Market Share [%] by	
Revenue Category – 2015-2022	114
Figure 34 - Future 1 st Responders Communications Services	122
Figure 35 - First Responders' Mobile Devices Network	123
Figure 36 - Germany Police Modernization & Other 1st Responders Market [\$M]	
by Revenue Category (Sales, Aftersale and Other Revenues) –	
2015-2022	126
Figure 37 - Germany Police Modernization & Other 1st Responders Market	
Share [%] by Revenue Category – 2015-2022	127
Figure 38 - Stuttgart Safe City Steering Committee	130
Figure 39 - Safe City ICT Flow	131
Figure 40 - Germany Public Events Security & Safe City Market [\$M] by Revenue	
Category (Sales, Aftersale and Other Revenues) – 2015-2022	139
Figure 41 - Germany Public Events Security & Safe City Market Share [%] by	
Revenue Category – 2015-2022	140
Figure 42 - Germany Building & Perimeter Security Market [\$M] by Revenue	
Category (Sales, Aftersale and Other Revenues) – 2015-2022	146
Figure 43 - Germany Building & Perimeter Security Market Share [%] by	
Revenue Category – 2015-2022	147
Figure 44 - EU Chemical CBRN Risk Mitigation Centers of Excellence members	
Figure 45 - EU Chemical CBRN Risk Mitigation Centers of Excellence Statistics	155
Figure 46 - Germany CBRN Security & Safety Market [\$M] by Revenue Category	
(Sales, Aftersale and Other Revenues) – 2015-2022	157
Figure 47 - Germany CBRN Security & Safety Market Share [%] by Revenue	
Category – 2015-2022	158
Figure 48 - The EU Maritime "Border"	163
Figure 49 - Germany Other Homeland Security & Public Safety Vertical Markets	
[\$M] by Revenue Category (Sales, Aftersale and Other Revenues)	
– 2015-2022	169
Figure 50 - Germany Other Homeland Security & Public Safety Vertical Markets	4
Share [%] by Revenue Category – 2015-2022	170

2016-2022

Germany Homeland Security & Public Safety Market Volume 2



Homeland Security Research Corp.

Europe's Terror & Migration Crisis Series

Germany Homeland Security & Public Safety Market

2016-2022

Volume 2

May 2016

Homeland Security Research Corp. (HSRC) is an international market and technology research firm specializing in the Homeland Security (HLS) & Public Safety (PS) Industry. HSRC provides premium market reports on present and emerging technologies and industry expertise, enabling global clients to gain time-critical insight into business opportunities. HSRC's clients include the EU, NATO U.S. Congress, DHS, U.S. Army, U.S. Navy, DOD, DOT, and US Congress GAO among others; as well as Counter Terror & PS government agencies in Japan, Korea, Taiwan, Israel, Canada, UK, Germany, Australia, Sweden, Finland, Singapore. With over 950 private sector clients (72% repeat customers), including major defense and security vendors, and Fortune 500 companies. HSRC earned the reputation as the industry's Gold Standard for Counter Terror & Public Safety market reports.

Washington D.C. 20004, 601 Pennsylvania Ave., NW Suite 900, Tel: 202-455-0966, info@hsrc.biz, www.homelandsecurityresearch.com

Table of Contents

TE	CHNOLOGY	MARKETS	17
1	Germany (Cybersecurity Market – 2016-2022	17
		oe	
	1.2 Gerr	many Cybersecurity Technologies & Market Background	17
	1.2.1	European Cybersecurity Landscape - 2016	17
	1.2.2	EU Threat taxonomy	
	1.2.3	Cybersecurity Strategy: Recent Conclusions	23
	1.2.4	Business Related Cybersecurity: Recent Conclusions	
	1.2.5	Cyber Terror & Crime	
	1.2.6	Cyber Warfare	25
	1.2.7	Denial of Service	
	1.2.8	Deliberate Manipulation of Information	26
	1.2.9	Detection of Unauthorized Activity	
	1.2.10	Anti-Malware Cyber-Security	27
	1.2.11	Privacy Enhanced Technologies (PETs)	29
	1.3 The	German Cyber Security Strategy	30
	1.3.1	Scope	30
	1.3.2	Cyberattack Assessment Strategy	30
	1.3.3	Ensuring cybersecurity	31
	1.3.4	German Cybersecurity Strategy Principals	31
	1.3.5	Critical Information Security	32
	1.3.6	The German National Cyber Response Center	
	1.3.7	The German Cybersecurity Council	
	1.3.8	Cyberattacks Response Strategy	
	1.3.9	Cybercrime Mitigation	34
	1.3.10	Usage of steadfast and dependable IT	35
		Cybersecurity Vendors	
	1.5 Gerr	many Cybersecurity: Business Opportunities	36
		many Cybersecurity Market – 2015-2022	
	1.6.1	Market Size & Dynamics - 2015-2022	
	1.6.2	Market Breakdown	38
2	Germany H	Homeland Security & Public Safety Information Technology	
_		t – 2016-2022	
		De	
		mation Technologies (w/o Intel & Cyber)	
		nter Terror & Public Safety: Data Center Systems	
	2.3.1	Overview	
	2.3.2	Counter Terror and Public Safety: Data Center Services	
	2.3.3	Counter Terror and Public Safety: Support Services	
	2.3.4	Counter Terror and Public Safety: Technical Consulting	_
	-	Services	42
	2.3.5	Outsourcing Services	
		-	

	2.3.6	Application Services	43
	2.4 Co	unter Terror and Public Safety: Enterprise Software	43
	2.5 Co	unter Terror and Public Safety: IT Services	44
	2.5.1	Counter Terror and Public Safety Agencies: Cloud Storage &	
		Computing	
		a Issuance IT	
		rman E-Passport	
		rman Intelligence Agencies IT	
	2.8.1	Introduction	
	2.8.2	Intelligence community Software as a Service (SaaS)	
	2.8.3	Platform as a Service (PaaS)	
	2.8.4	Infrastructure as a Service (IaaS) IT	
	2.8.5	The intelligence Community Cloud Infrastructure IT	
	2.8.6	The Intelligence Community Big Data IT	
		rmany Homeland Security & Public Safety IT Market – 2015-2022.	
	2.9.1	Market Size & Dynamics - 2015-2022	
	2.9.2	Market Breakdown	51
3	Germany	Communication Systems & Devices Market – 2015-2022	53
		ppe	
		rket and Technology Background	
	3.2.1	Emergency Communication	
	3.2.2	Germany Counter Terror & Public Safety Communication	
		Equipment: Business Opportunities	56
	3.3 Ge	rmany Communication Systems & Devices Market – 2015-2022	
	3.3.1	Market Size & Dynamics - 2015-2022	
	3.3.2	Market Breakdown	
4	Gormany	Biometrics Market – 2016-2022	60
+		Dpe	
		chnology and Market Background	
		Itimodal Biometric Systems	
	4.3 Mu	Homeland Security & Perimeter Security Applications	
		rmany Biometrics: Business Opportunities & Challenges	
		rmany Biometrics Market – 2015-2022	
	4.5.1	Market Size & Dynamics - 2015-2022	
	4.5.2	Market Breakdown	
_			
5		Video Surveillance Technologies Market – 2015-2022	
		ppe	
		eo Surveillance: Market Background	
	5.2.1	Introduction	/2
	5.2.2	Video Surveillance: Homeland Security & Public Safety	٦.
	5 00	Applications	/9
	5.2.3	Germany Video Surveillance Market: Business Opportunities	00
	E 0 \/:-1	& Challenges	
	5.3 Vid	eo Analytics Market Background	ชา

	5.4 Germ 5.4.1	any Video Surveillance Technologies Market – 2015-2022 Market Size & Dynamics - 2015-2022	
	5.4.1	Market Breakdown	
6	Germany In	trusion Detection Systems Market – 2015-2022	85
	6.1 Scope	9	85
		nology and German Market Background	
	6.2.1	Access Control Systems	
	6.2.2	Access Control Systems	
	6.3 Intrus	ion Detection Systems: Business Opportunities & Challenges	
	6.3.1	Challenges	
	6.3.2	Germany Intrusion Detection Systems Market: Business	
		Opportunities	
	6.4 Germ	any Intrusion Detection Systems Market - 2015-2022	91
	6.4.1	Market Size & Dynamics - 2015-2022	91
	6.4.2	Market Breakdown	92
7	Germany Bo	order & Perimeter Security Technologies Market – 2015-	
		, , , , , , , , , , , , , , , , , , , ,	94
	7.1 Scope	9	94
		er & Perimeter Barriers	
	7.2.1	Vibration Sensors Mounted on Fence	95
	7.2.2	Capacitance Sensors Fence	96
	7.2.3	Strain Sensitive Cables Fence	
	7.2.4	Fiber Optic Fence	97
	7.2.5	Taut Wire Fence	
	7.2.6	Ported Coax Buried Line Fence	
	7.2.7	Fence	
	7.2.8	Electronic Fencing: Business Opportunities & Challenges	
		natic Border Control (ABC) Systems	99
		any Border & Perimeter Security Technologies Market – 2015-	400
		Mada 0' - 0 D	
	7.4.1	Market Size & Dynamics - 2015-2022	
	7.4.2	Market Breakdown	103
8		xplosives & Weapons Detection Technologies Market -	
	•)	
		et Background	
	-	Scanners	
	8.3.1	Background	
	8.3.2	X-ray Screening Technologies	
	8.3.2.1	Luggage, Baggage & Other Items Screening Technologies	
	8.3.2.2	People Screening X-ray Backscatter (AIT) Technology	
	8.3.2.3	Coherent Scatter 2D X-ray	
	8.3.2.4	Transportable X-RAY Screening Checkpoints	
	8.3.2.5	X-ray Technologies: Performance Comparison	112

8.3.3	X-ray Screening Market Background	113
8.3.3.1	Airports and Secured Facilities	
8.3.3.2	Rail Stations X-ray Screening	
8.3.3.3	Air Cargo Explosive Screening	115
8.3.3.4	ACES: The European Air Cargo Explosive Screening	115
8.3.3.5	The European RA3 and ACC3 Regulations	115
8.3.4	Germany X-ray Screening: Business Opportunities &	
	Challenges	116
8.4 Tomo	ographic Explosive Detection Systems & BHS	117
8.4.1	Explosives Detection Systems: Technology Background	
8.4.2	Explosive Detection Systems: Throughput	
8.4.3	EDS Principle of Operation	
8.4.4	EU Standard - 3 Approved Tomographic EDS Products	
8.4.5	EU Standard - 3 Approved Tomographic EDS Products	
8.4.6	Hybrid Tomographic EDS & 2D X-ray Screening	
8.4.7	EDS EU Standard-3 Certification	
8.4.8	Aviation Security: EDS Checked Luggage Screening	
	rity-related Airport Baggage Handling Systems (BHS)	
	age Handling Systems	
8.6.1	High-Volume In-Line Checked Luggage BHS Systems	124
8.6.2	Checked Luggage BHS: Mini In-Line Checked Luggage	405
0.00	Screening System	
8.6.3 8.7 EDS	Stand-alone EDS	
	Market Background	
8.8.1	osives Trace Detection (ETD)	
8.8.2	ETD Technologies	
8.8.2.1	Technology Overview	
8.8.2.2	Ion Mobility Spectroscopy (IMS)	
8.8.2.3	Current Explosives & Narcotics Detection Technologies	
8.8.2.4	Handheld and Desktop ETD	
8.8.2.5	Airport Boarding Gate Explosives Scanners	
8.8.2.6	Vehicle Screening ETD Systems	139
8.8.3	EU Approved ETD Products: By Manufacturer, Model and	
0.0.0	Version	140
8.8.4	Germany Business Opportunities & Challenges	
	l Detectors	
8.9.1	Hand-Held Metal Detectors	
8.9.2	Walk Through Metal Detection Portals	
8.10 Germ	nany Metal Detectors Market: Business Opportunities &	
	enges	145
	doff Explosives & Weapon Detection	
8.11.1	Technology and Market Background	
8.11.2		

	8.12 Gern	nany Standoff Explosives & Weapon Detection: Business	
	Oppo	ortunities & Challenges	153
	8.12.1	Business Opportunities	
	8.12.2	PBIED & VBIED Detection: Technological Challenges	155
	8.13 Vehic	cle & Container Screening Systems	156
	8.13.1	Vehicle & Container Screening Portals Technologies	156
	8.13.2	Comparison of Container-Vehicle Screening Technologies	
	8.13.3	X-ray Container-Vehicle Screening Systems	159
	8.13.4	Dual Energy X-ray Container-Vehicle Screening	
	8.13.5	Dual-View X-ray Container-Vehicle Screening	
	8.13.6	Backscatter X-ray Container-Vehicle Screening	163
	8.13.7	Gamma Ray Systems Container-Vehicle Screening	164
	8.13.8	Linac Based X-ray Container-Vehicle Screening systems	165
	8.13.9	Market Background	
	8.14 Gern	nany Explosives & Weapons Detection Technologies Market –	
	2015	j-2022	
	8.14.1	Market Size & Dynamics - 2015-2022	168
	8.14.2	Market Breakdown	170
9	Germany C	Other Security Technologies Market – 2015-2022	171
3	9.1 Scop	De	171
		nany C2/C4ISR Systems	
	9.2.1	C2/C4ISR Market & Technology Background	
	9.2.2	Germany C2/C4ISR Systems: Business Opportunities	
	_	nany Bio-Agents & Infectious Disease Mitigation	
	9.3.1	Market Background	
	9.3.2	European Biosecurity	
	9.3.2.1	European Bio-Terror & Infectious Disease Detection and	101
	5.5.2.1	Mitigation Standards	181
	9.3.2.2	Biosecurity and Biosafety	
	9.3.2.3	European CBRN Defense Strategy	
	9.3.2.4	European Commission Bio-Preparedness Actions	
	9.3.2.5	European Bio-Terror & Infectious Disease Detection and	102
	0.0.2.0	Mitigation Legislation	183
	9.3.2.6	EU Biosafety and Biosecurity Initiatives	183
	9.3.2.7	Europe Infectious Diseases Threat Perception	
	9.3.2.8	European Bio-Surveillance Strategy	
	9.3.2.9	Bio-Terror & Infectious Disease Early Alert System	
	9.3.2.10		
	9.3.2.11		188
	9.3.3	Bio-Detection Technologies and Market Background	
	9.3.3.1	Sampling the Environment	
	9.3.3.2	Bio-Detectors in a Multitude of Ambient Settings	
	9.3.4	Bio-Agents & Infectious Disease Detection: Homeland	150
	5.5.7	Security & Public Safety Applications	190
		- Occurry & Fubilic Calcty Applications	1 50

9.4 Germ	nany Bio-Agents & Infectious Disease Detection: Business	
	ortunities	194
9.5 Germ	nany Chemical, Hazmat & Nuclear Detection	194
9.5.1	Technology Background	194
9.5.1.1	Scope	194
9.5.2	Chemical Agent Detection Technologies	195
9.5.3	Nuclear/Radiological Detection Technologies	195
9.5.3.1	The Advanced Spectroscopic Portal (ASP)	196
9.5.3.2	Human Portable Radiation Detection Systems (HPRDS)	
	Program	196
9.5.3.3	Nuclear- Radiological People Screening Portals	196
9.5.4	Market Background	
9.5.4.1	Chemical Plant Security	197
9.5.4.2	Nuclear/Radiological Detection Markets	197
9.5.5	Germany Chemical, Hazmat & Nuclear Detection: Business	
	Opportunities	
9.6 Germ	nany Decontamination of CBRN & Hazmat Incidents	
9.6.1	CBRN & Hazmat Decontamination Technology Background	
9.6.1.1	Decontamination of CBRN & Hazmat Incidents	
9.6.1.2	Decontamination Core Technologies	
9.6.1.3	The Decontamination Cycle	
9.6.2	Decontamination Strategy	
9.6.3	CBRN & Hazmat Decontamination Market Background	207
9.6.4	The Decontamination Industry	
9.7 Germ	nany Natural & Manmade Disaster Mitigation	
9.7.1	Market & Technology Background	
9.7.2	Emergency Medical Services (EMS)	
9.7.3	Emergency Management Software	
9.7.4	Mass Emergency Notification Technologies	
9.7.4.1	Introduction	
9.7.4.2	Text Alert Systems	
9.7.4.3	Voice Alert Systems	
9.7.4.4	Siren Systems	214
9.7.4.5	Cell broadcast Mass Emergency Notification	215
9.7.4.6	Mass Emergency Notification: Applications	
9.7.4.7	Mass Emergency Notification: Business Opportunities	217
9.8 Germ	nany Non-Lethal Weapons (NLW)	
9.8.1	Less-Lethal Weapons Technology and Market Background	
9.8.2	Less-Lethal Weapons Market	
9.8.3	Non-Lethal Weapons: Business Opportunities & Challenges	
	nany Personal (Ballistic & CBRNE) Protective Gear	
9.9.1	Market & Technology Background	
9.9.2	Personal Body Armor	
9.9.3	Respiratory Protective Equipment	
9.9.4	CBRN and Hazmat Personal Protective Gear	229

	9.10 Germany Counter-IED Technologies	231
	9.10.1 Counter-IED Technology & Market Background	
	9.10.1.1 Maintenance and Upgrades (Particularly of Jammers, and	
	Armored Trucks)	234
	9.10.1.2 Sensors and Other Electronic Systems Upgrade/s	
	9.10.1.3 Standoff Suicide Bombers Detection	
	9.10.1.4 Suicide Bombers Detonation Neutralization	
	9.10.1.5 Standoff Detection of VBIED	
	9.10.1.6 VBIED Detonation Neutralization	
	9.10.1.7 Standoff Explosive Detection in Urban Environment	230
	9.10.1.8 Large Area IED Detection Coverage 9.10.1.9 IED Placement Detection	
	9.10.2 Counter-IED Technologies: Business Opportunities &	231
	Challenges	237
	Onalicingos	201
A D I	DENDICES	220
	PENDICES	
10	Appendix A: Germany Counter Terror & Public Safety Agencies	
	10.1 Germany Homeland Security Institutions	
	10.2 Intelligence Authorities	
	10.3 Law Enforcement	
	10.4 Coordination	
	10.5 Public Safety	
	10.6 German Local Governments: Crisis Response	
	10.8 Islamist and Other Extremists – Recent Situation	
	10.9 Crime Situation	
4.4		
11	Appendix B: European Homeland Security & Public Safety Related	245
	Product Standards	
	11.1 European Committee for Standardization (CEN)	
12	Appendix C: The European Union Challenges and Outlook	
	12.1 Summary	269
	12.2 The EU Economy	
	12.3 The EU Economic Difficulties	
	12.4 Anti-EU Trends	
	12.5 The EU Frail Leadership and Poor Strategic Vision	
	12.6 Migration and Refugee Crisis	
	12.7 European Security Worries	
	12.8 Terrorism	
	12.9 EU Future Scenarios	
13	Appendix D: Europe Migration Crisis & Border Security	
	13.1 Introduction	
	13.2 EU Migration: Background	
	13.3 The European Borders Security	293

	13.3.1	Introduction	293
	13.3.2	The Schengen Area	
	13.3.3	The European Integrated Border Management System (IBM)	
	13.3.4	The EU Smart Borders Initiative	
	13.3.5	The Schengen Zone: Passenger Name Record (PNR) System	
		Outlook	298
	13.3.6	Temporary Reintroduction of Border Control	303
	13.4 Europ	pean Smart & Secure Border Market	306
14	Appendix E	: Abbreviations	309
15	Scope, Met	hodology & Disclaimer	321
	The second secon	arch Scope	
		arch Methodology	
16	Disclaimer	& Copyright	323

List of Tables

Table 1 - EU Cyber-Threats: Ranking & Trends – 2013-2015	23
Table 2 - Germany Cybersecurity Market: Business Opportunities	
Table 3 - Germany Cybersecurity Market [\$M] (incl. Sales, Aftersale and Other Revenues) and AGR [%] – 2015-2022	37
Table 4 - Germany Homeland Security & Public Safety Information Technologies	01
Market [\$M] (incl. Sales, Aftersale and Other Revenues) and AGR	
[%] – 2015-2022	50
Table 5 - Germany Communication Systems & Devices Market: Business	
Opportunities	56
Table 6 - Germany Homeland Security & Public Safety Communication Systems	
& Devices Market [\$M] (incl. Sales, Aftersale and Other Revenues)	
and AGR [%] – 2015-2022	57
Table 7 - Strengths and weaknesses of biometric systems	62
Table 8 - Comparison of Biometric Modalities	
Table 9 - Germany Biometrics Market: Business Opportunities	68
Table 10 - Germany Homeland Security & Public Safety Biometrics Market [\$M]	
(incl. Sales, Aftersale and Other Revenues) and AGR [%] – 2015-	
	69
Table 11 - Video Surveillance Market: Business Opportunities	80
Table 12 - Germany Video Surveillance Technologies Homeland Security &	
Public Safety Market [\$M] (incl. Sales, Aftersale and Other	0.2
Revenues) and AGR [%] – 2015-2022	83
Table 13 - Intrusion Detection Systems Market: Business Opportunities	90
Safety Market [\$M] (incl. Sales, Aftersale and Other Revenues) and	
AGR [%] – 2015-2022	91
Table 15 - Germany Electronic Fencing Market: Business Opportunities	98
Table 16 - Germany Border & Perimeter Security Technologies Market [\$M] (incl.	00
Sales, Aftersale and Other Revenues) and AGR [%] – 2015-2022	102
Table 17 - Comparison of X-ray Detection Technologies	
Table 18 - Germany X-ray Screening Market: Business Opportunities	
Table 19 - Explosive Detection Systems vs. Other Luggage Screening	
Technologies	117
Table 20 - 64 EU Standard-3 Approved EDS Products: By Manufacturer, Model	
& Version	
Table 21 - EU Approved ETD Products: By Manufacturer, Model and Version	140
Table 22 - Germany Explosives Trace Detection (ETD) Market: Business	
Opportunities	
Table 23 - Germany Metal Detectors Market: Business Opportunities	145
Table 24 - Comparison of Open Space Explosives & Weapon Detection	450
Technologies	
Table 25 - Container-Vehicle Screening - Technologies Comparison	158

Table 26 - Germany Explosives & Weapons Detection Technologies Market [\$M] (incl. Sales, Aftersale and Other Revenues) and AGR [%] – 2015-	
2022	.168
Table 27 - Germany Counter Terror & Public Safety C2/C4ISR Business	
Opportunities	.177
Table 28 - Germany Bio-Agents & Infectious Disease Detection Market: Business	
Opportunities	.194
Table 29 - Nuclear Terror Detection Roadmap	.196
Table 30 - Typical Goals of an EMS System: Daily vs. Disaster	.211
Table 31 - Notification Systems Technologies Characteristics	.214
Table 32 - Germany Mass Emergency Notification Market: Business	
Opportunities	.217
Table 33 - Non-Lethal Weapons Counter-Personnel Means	.220
Table 34 - Electromagnetic NLW Technologies	.221
Table 35 - Mechanical & Kinetic, Acoustic, Ancillary and Chemical NLW	
Technologies	.221
Table 36 - Non-Lethal Weapons Market: Business Opportunities	.225
Table 37 - European Homeland Security and Public Safety Standards	.245
Table 38 - Membership in the EU, Eurozone, and Schengen Area	.271

List of Figures

Figure 1 - EU ENISA Threat Taxonomy and its use-cases	21
Figure 2 - The EU ENISA, Cybersecurity Flowchart	22
Figure 3 - The European "Computer Emergency Response Teams & Command	
Centre" (CERTs. CERT/CCs)	29
Figure 4 - Germany Cybersecurity Market [\$M] by Revenue Category (Sales,	
Aftersale and Other Revenues) – 2015-2022	38
Figure 5 - Germany Cybersecurity Market Share [%] by Revenue Category –	
2015-2022	39
Figure 6 - German Biometric Passport	47
Figure 7 - Germany Homeland Security & Public Safety Information Technologies	
Market [\$M] by Revenue Category (Sales, Aftersale and Other	
Revenues) – 2015-2022	50
Figure 8 - Germany Homeland Security & Public Safety Information Technologies	
Market Share [%] by Revenue Category – 2015-2022	51
Figure 9 - Germany Homeland Security & Public Safety Communication Systems	
& Devices Market [\$M] by Revenue Category (Sales, Aftersale and	
Other Revenues) – 2015-2022	58
Figure 10 - Germany Homeland Security & Public Safety Communication	
Systems & Devices MarketShare [%] by Revenue Category – 2015-	
2022	59
Figure 11 - Elements and Flowchart of a Biometric System	62
Figure 12 - Germany Homeland Security & Public Safety Biometrics Market [\$M]	
by Revenue Category (Sales, Aftersale and Other Revenues) –	
2015-2022	70
Figure 13 - Germany Homeland Security & Public Safety Biometrics Market Share	
[%] by Revenue Category – 2015-2022	71
Figure 14 - Video Surveillance Technologies Timeline	73
Figure 15 - A Wireless Video Surveillance System	77
Figure 16 - Germany Video Surveillance Technologies Homeland Security &	
Public Safety Market [\$M] by Revenue Category (Sales, Aftersale	
and Other Revenues) – 2015-2022	83
Figure 17 - Germany Video Surveillance Technologies Homeland Security &	
Public Safety Market Share [%] by Revenue Category – 2015-2022	84
Figure 18 - Multi-Modal Intrusion Detectors	
Figure 19 - Example of Intrusion Detection System Architecture	88
Figure 20 - Germany Intrusion Detection Systems Homeland Security & Public	
Safety Market [\$M] by Revenue Category (Sales, Aftersale and	
Other Revenues) – 2015-2022	92
Figure 21 - Germany Intrusion Detection Systems Homeland Security & Public	
Safety Market Share [%] by Revenue Category – 2015-2022	93
Figure 22 - Diagram of Physical Security Fence Functions	
Figure 23 - Automated Border Controls Technology	
Figure 24 - Automated Border Control Gates at Frankfurt Airport	

Figure 25 - Germany Border & Perimeter Security Technologies Market [\$M] by	
Revenue Category (Sales, Aftersale and Other Revenues) – 2015-	
2022	103
Figure 26 - Germany Border & Perimeter Security Technologies Market Share	
[%] by Revenue Category – 2015-2022	104
Figure 27 - Major Explosives Detection Technologies: Bulk vs. Trace	106
Figure 28 - X-ray Conveyor-Based Screening Systems - Principles of Operation	
Figure 29 - Multi-View Dual Energy X-ray Screening	
Figure 30 - X-ray Backscatter (AIT) Principle of Operation	110
Figure 31 - Coherent X-ray Scheme	111
Figure 32 - Rapiscan Mobile Check ES002 Contains Two Screening Lanes	112
Figure 33 - Whole-Object EDS Scheme	
Figure 34 - Aviation Security: "100% EDS" Screening Flow Scheme	122
Figure 35 - Checked Luggage ETD, EDS & X-ray Screening	
Figure 36 - Checked Luggage ETD, EDS & X-ray Screening	125
Figure 37 - Schematic Visualization of a Mini In-Line System	
Figure 38 - Checked Luggage ETD, EDS & X-ray Screening Mini In-Line System	
with Light Integration	126
Figure 39 - Checked Luggage ETD, EDS & X-ray Screening Configuration 4 -	
Stand-alone EDS	
Figure 40 - Explosive Trace Detection: Principle of Operation	131
Figure 41 - ETD Operational Workflow	
Figure 42 - Explosive Materials Classification	
Figure 43 - The Most Commonly Used Explosives Classification	133
Figure 44 - Explosives Detection Technologies: Bulk vs. Trace Detection	135
Figure 45 - Explosives Trace Detection Configuration: Hand Held ETD, &	
Tabletop ETD,	
Figure 46 - Boarding Card ETD Reader	
Figure 47 - Airport Boarding Gate with Built-in ETD Screening Technology	
Figure 48 - Hand-Held weapon Metal Detector "Wands"	
Figure 49 - A Metal Detection Portal at a Sport Stadium	144
Figure 50 - A Walk through Mobile Metal Detector	145
Figure 51 - Suicide Attack Sequence	148
Figure 52 - Spectrum of Evolving Standoff People Screening Technologies	153
Figure 53 - PBIED & VBIED Detection Technologies: Performance Criteria	154
Figure 54 - Container/Vehicle Screening Technologies	157
Figure 55 - X-ray Screening – Block Diagram	161
Figure 56 - Dual Energy X-ray	162
Figure 57 - Dual View X-ray - Principles of Operation	163
Figure 58 - Backscatter X-ray + Penetrating X-ray	164
Figure 59 - Gamma Ray Screening - Block Diagram	
Figure 60 - Linac Screening System Block Diagram	166
Figure 61 - Germany Explosives & Weapons Detection Technologies Market	
[\$M] by Revenue Category (Sales, Aftersale and Other Revenues)	
- 2015-2022	169

Figure	62	- Germany Explosives & Weapons Detection Technologies Market	
J		Share [%] by Revenue Category – 2015-2022	.170
Figure	63	- A Seaport Security C2/C4ISR System Block diagram	.177
		- Biosecurity and Safety Agencies & Processes Roadmap	
		- The European Bio-Detection Surveillance and Situational Awareness:	
J		Areas of Responsibility	.193
Figure	66	- Multi-Tiered Chemical, Hazmat & Nuclear Detection and Mitigation	.197
-		- Nuclear-Radiological Threats Weapon Sophistication vs.	
J		Consequence	.198
Figure	68	- The Three-tiered Port of Entry Nuclear Threat Screening Architecture	.200
Figure	69	- Comparison in Weight of Pathogens between BW Agents and CW	
			.202
Figure	70	- Closed Area (e.g., building) Decontamination Boundaries	.203
		- Open Area Decontamination Boundaries	
Figure	72	- Decontamination Corridor	.203
Figure	73	- Decontamination Core Technologies Overview	.204
Figure	74	- The Decontamination Cycle	.205
Figure	75	- Decontamination Strategy: from Sample Collection to	
			.206
Figure	76	- Basic Phases of Response and Recovery to a CBRN & HAZMAT	
		Incident	.207
		· · · · · · · · · · · · · · · · · · ·	.209
		- Multimodal Mass Emergency Notification	
		- Near Term Counter-Personnel NLW	
		- Less-Lethal Weapons Clinical Effects	
_		- Mid-Term Counter-Personnel Non-Lethal Weapons	
		- Far-Term Counter-Personnel Non-Lethal Weapons	
		- Personal Body Armor	
		- Respiratory Protective Equipment Segments	
		- CBRN Personal Protective Gear	
		- IED Ready for Detonation	
		- IED "Kill Chain" and Its Relevant Time Frame	
		- German Counter Terror & Public Safety Agencies Organogram	
		- German Federal and Local Governments Disaster Response	
		- The European Union: Member States and Candidate Countries	
		- EU Countries Currency Status – 2016	
		- European 2015-2016 GDP Growth Forecast [%] By Country	
		- Europe GDP per Capita By Country	
		- 2015 Refugee Applications to Europe by Month	
		- 2015 Migrant Applications to Europe by Country of Origin	
		- Main Routes of Migration	
		- European Asylum-Seeker Decisions by Country	
		- Refugee Acceptance by Country 2015	
		- Asylum Claims per 100.000 Local Populations 2015	
rigure	10() - Fragility and Instability in Europe Neighborhood MEA Countries	.291

Germany Homeland Security & Public Safety Market 2016-2022 - Vol. 2

Figure 101 - Europe Inflows of Threats	292
Figure 102 - European Borders	
Figure 103 - The 2016 Schengen Border Map	
Figure 104 - The Advanced Passenger Analysis (APA) System	
Figure 105 - Migrant Arrivals by Sea and Land Borders in 2015	