



Study on the development of statistical data on the European security technological and industrial base

Final Report

Client: European Commission DG Migration and Home Affairs

Rotterdam, June 2015



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DECISION
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EXECUTIVE SUMMARY

Background

In 2012, the European Commission set out for the first time its vision for an industrial policy for the security sector¹². However, in presenting its proposals for action, the Commission acknowledged that developing a clear picture of the security sector in the EU is hampered by the absence of reliable data. To which, the Commission proposed to “develop an empirical basis on which more reliable figures on the security markets can be obtained” and further that such an undertaking should be made with cooperation of the main trade associations. Responding to the Communication, the European Economic and Social Committee (EESC)³ also placed emphasis on the need for relevant, detailed statistics looking at the security sectors companies, not least, of their production, workforce and size⁴.

In light of the above, the European Commission set out its intention to launch a study for the ‘Development of statistical data on the European Security and Technological Industrial Base’ aimed at developing statistical data that would allow to obtain a clearer picture of the technological and industrial base of the security industry in Europe. This would allow to obtain a better understanding of the strengths and weaknesses of the European security industry, as well as to better monitor the impact of R&D activities on the European security industry.

There have been various earlier attempts to estimate the size of the security market. Ecorys (2009)⁵ for example estimated on behalf of the European Commission the global security market to be worth some €100 billion with around 2 million persons employed worldwide; while, the EU security market was estimated to have a market value in the range of €26 billion to €36.5 billion with around 180,000 employees. At the same time, based on a narrower definition, the European Organisation for Security (EOS) estimates that the European security system market (including border control, protection of infrastructures and of the cyber space, crisis / disaster management) is expected to be of € 11-12 billion in 2012 (with respect to a world market of € 50 - 60 billion). More recently, Ecorys (2013)⁶ estimated the global security market to be worth some €137 billion, of which the value of the EU market is estimated at € 35 billion. In addition, national studies have been carried out, including a recent study done by BIGS on the German market⁷ which estimated the size of the security industry for Germany alone at € 35 billion. The large range of these estimates confirms the difficulty in obtaining a precise idea of the EU market size and, equally, that of the EU security industry itself.

¹ European Commission. (2012). Security Industrial Policy: Action Plan for an innovative and competitive Security Industry. COM(2012) 417

² European Commission. (2012). Security Industrial Policy. SWD(2012) 233

³ European Economic and Social Committee (2013)

⁴ In general, the EESC also recommends setting priorities for action using a product-based, rather than sector-based, approach.

⁵ Ecorys (2009), “Study on the competitiveness of the EU security industry”, Final Report

⁶ Euralarm (2013), “A vision for a competitive European security industry and secure society”, white paper outlining Euralarm’s European policy priorities and action agenda 2013-2015

⁷ BIGS (2013). Die Sicherheitswirtschaft in Deutschland

Among the factors hindering the quantification of the size and structure of the security sector are the following⁸:

- There is currently no clear definition of the security sector;
- The security industry is not covered as such by the main statistical nomenclatures (NACE, Prodcom, etc.);
- The production of security-related items is hidden under a wide range of headings;
- Statistics for these headings do not distinguish between security and non-security related activities;
- There is no statistical data source available at European level from the industry itself;
- From a demand-side perspective, procurers of security equipment and systems can be reluctant to provide information on security expenditures.

Methodology and approach

In light of the challenges and needs, this study was launched with the overall aim to contribute to the development of statistical data that provide a clear picture of the technological and industrial base of the security industry in the EU. At the same time, the study has also served to contribute to the development of statistical data on the security services sector.

The study was divided into two phases:

- **The 'Definition Phase'** which covered preparatory activities, included the formulation of a definition and delineation of the security sector. Based on this work, an inventory was made of various options available for collection and quantification of the security sector, together with an assessment of the feasibility of implementing these options. Based on this assessment, which was validated in a workshop and confirmed by the European Commission, the approach to adopted for the development of statistical data was selected;
- **The 'Implementation Phase'** which covered the implementation of the quantification exercise. This exercise consisted of a combination of a the analysis of existing statistical data and a company survey conducted in seven Member States (DE, EE, ES, FR, IT, PL, UK), with the purpose of increasing the understanding of the structure and conduct of the security sector in the EU. The results were extrapolated to arrive at an assessment of the size, structure and performance of the overall EU security industry sector and market.

Delineating and segmenting the security sector

The delineation of the security industry starts with the definition of civil (or internal) security. Drawing on the identification of (civil) security risks and threats and the security 'response' cycle/security functions (ranging from preparation and intelligence to response and recovery at the other hand of the spectrum), the following definition of 'civil security' has been applied in the study.

Civil security (or internal security) is concerned with ensuring an environment – primarily within the territory of a State – in which citizens, enterprises, and public and social institutions are safe from civil security risks and threats.

In this context, for the purposes of this study, the security industry is defined as follows:

⁸ European Commission. (2012). Security Industrial Policy: Action Plan for an innovative and competitive Security Industry. COM(2012) 417

The **security industry** is understood to encompass private enterprises (and research institutions) that are engaged in or that support the development and supply of products and services that provide (technical) capabilities used in the delivery of civil security functions.

Finally, for the purposes of this study, the security market is defined as follows:

The **security market** is understood to encompass State and private actors (including private citizens) that procure and/or consume products and services supplied by the security industry in order to perform security functions, whether on their own behalf, for third parties, or for the wider security of society.

Following on the above definitions, the study has explored various ‘conceptual’ approaches that could be utilised for the purposes of delineating and segmenting the security industry (and the security sector in a broader sense). In this respect, two main angles of approach for defining and categorising security can be identified:

- **Threat-based approach:** i.e. the risks and threats that are causes of insecurity in societies and the domains (economic, social, physical or virtual) in which these risks and threats are manifested;
- **Response-based approach:** i.e. the organisation of the response to risks and threats that are causes of insecurity and the corresponding resources employed.

With regard to the causes of insecurity (i.e. risks and threats), these are typically categorised following two main sub-approaches:

- **Risk/threat source:** i.e. the type of perpetrator or event leading to insecurity (e.g. terrorism, organised crime, natural disaster etc.);
- **Risk/threat domain:** i.e. the domain in which the risk or threat is present; in particular where a particular environment is considered more susceptible or vulnerable (e.g. aviation or maritime sector, international borders, critical infrastructure, etc.).

With regard to the response side, two main sub-approaches to the categorisations of security can be identified:

- **Response actors:** i.e. the types of actors having responsibilities to maintain security and/or to respond an occurrence of a security risk/threat (e.g. police, first responders, infrastructure operators, etc.);
- **Response cycle:** i.e. the types of activities undertaken to address or respond to a security risk/threat (e.g. intelligence, counter measures, event reaction, etc.)

Table I Main dimensions for the classification of security

Security threat approach	Security response approach
Security risks and threats	Security actors
Security risk and threat domains	Security cycle
Capability requirements	

Source: Ecorys

The aforementioned approaches can be viewed as different dimensions shaping the demand-side of the market for security products and services that can be used in different combinations to provide different mappings of the delineation and segmentation of the ‘market’ for security products and services. These combinations can, in turn, be translated into functional and technical requirements, or response capabilities:

- **Capability requirements:** i.e. the types of capabilities required to respond to security risk/threat or occurrence of a security incident;
- The security capabilities approach can be seen as providing the linkage between demand side needs and the supply of security products and services (i.e. supply-side characteristics); see Figure I. Concerning the supply-side of the security sector, a pragmatic approach to the delineation and segmentation has been applied which at a first level reflects the underlying main broad divisions of the security ‘industry’ (hereby covering both public and private supply of security products and services) into four main broad segments:
 - **Cyber security products and services:** Providers of integrated systems, sub-systems, solutions, and technologies used for the security of IT systems, electronic data storage, and electronically processed or communicated information, and providers of services relating to the assessment, auditing, planning, development, integration, operation and management of secure IT systems and networks, infrastructure, devices and processes in a wide sense;
 - **Other physical security products:** Providers of integrated systems, sub-systems, products, equipment and technologies used for the (‘physical’) security of persons, tangible property and assets, infrastructures and environments;
 - **Private security services:** Providers of manpower-related and other services for the security of persons, tangible objects and assets, infrastructure and environments;
 - **Public security services:** This encompasses key public security service provision including first responders and law and order services.

With respect to the first 3 segments identified above, which provide the main focus for the subsequent development of statistical data, the second-level segmentation of products and services is based on commonly used categories that are essentially recognisable for industry players. Primarily, this approach has been adopted in order to facilitate the subsequent collection of statistical data while, in so far as possible, retaining the possibility to link product and service categories back to functional capability requirements.

In practical terms, elements of the threat-based approach enter into the setting of the perimeters of the security industry such that, for the collection of data on the security industry, the scope of the ‘security’ industry is defined in terms of the supply of products and services to address different threat categories.⁹ Meanwhile, as noted above, the segmentation of products and services reflects (in so far as possible) security capability characteristics that can be linked to the security response cycle. Finally, information collected on the customer/market segments for security firm’s supply of products and services, can be used to infer demand-side characteristics in terms of ‘domain’ and ‘actor’ based delineation and segmentations.

⁹ Firms included in the survey work are selected on the basis that they supply products or services for one or more of the following: (i) protection against criminality, terrorism, or public disorder; (ii) the protection of critical infrastructures; (iii) border protection and/ or border control; and (iv) to prepare for or respond to natural and man-made disasters.

Findings from publicly available statistical data

Private and public security services data derived from public statistics

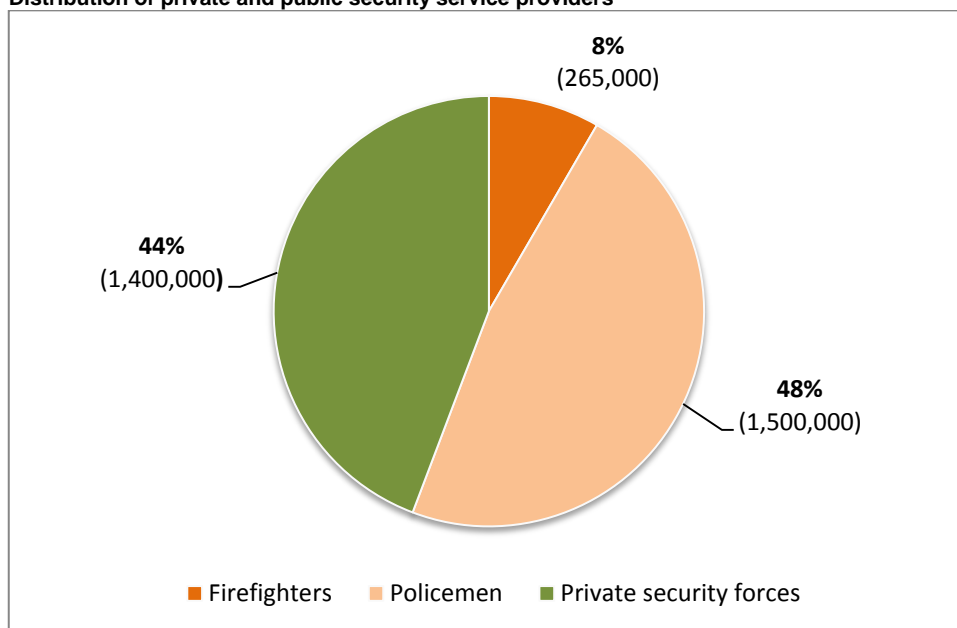
Based on publically available statistics (such as Eurostat, CoESS and other sources), part of the quantification of the security industry can be established. This mainly concerns information on selected private security services (in terms of guarding and manning, investigation activities and security system services) and public security services/first responders (in terms of police forces and firefighters).

Eurostat figures on the private security services sector allow to provide an estimate on the size of the segment covering **54,000 companies** which generate a **turnover of about €46 billion** and **employ 1.4 million persons** in the EU (2012 data).

For the public security services (first responders) it is more difficult to get to aggregated estimates. Moreover, turnover data are obviously not available for this segment. Combining various sources allows getting a basic understanding of the number of staff professionally active as police forces or firefighters. Our EU estimates show that there are about **1.5 million police forces** active in the EU and **265,000 professional firefighters**. Combining private and public security providers hence leads to the following distribution:

Figure II

Distribution of private and public security service providers



Source: Ecorys based on various sources

This amount does however not cover the broad range of persons employed by the private security market which is not falling under the definition of publically available statistics. Examples are other security products (such as locks, safes, electronic access control systems and alarm systems), cyber security providers and other services (such as consultancy, research and training).

Findings from the Security Sector Survey

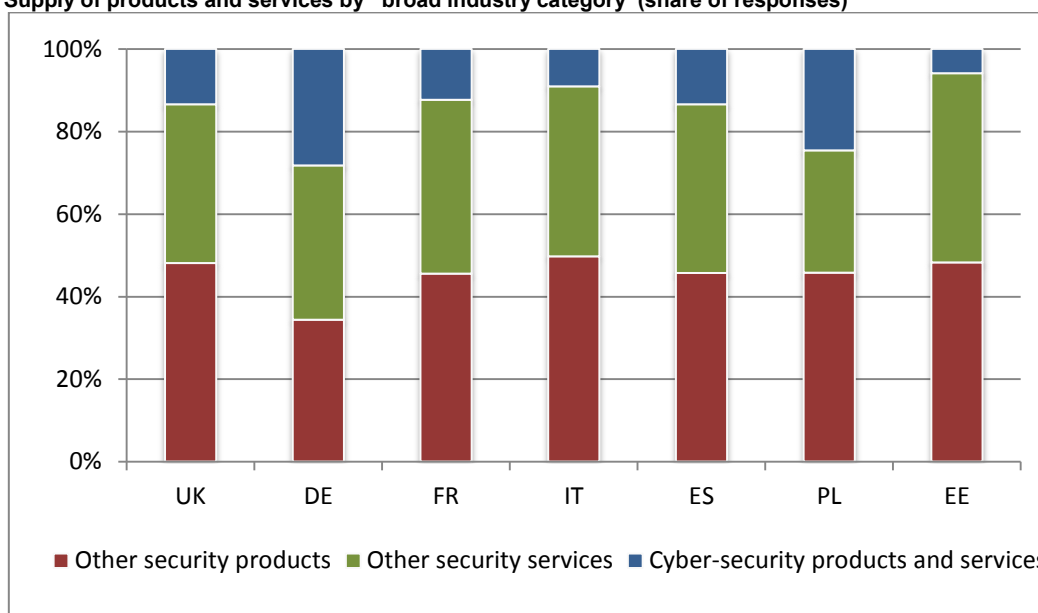
Security Sector Survey

In view of the lack of data available in public statistics, a major element in mapping the European security sector and market was to undertake a survey of security companies in seven Member States (DE, EE, ES, FR, IT, PL, UK). Conducting of the Security Sector Survey (SSS) itself has been sub-contracted to a professional survey company (GfK), with the exception of Germany where the survey was implemented by BIGS (as a follow-up round to previous surveys they conducted as part of an ongoing research activity). Survey questionnaires have been aligned and similar analyses have been carried out for all countries. In preparation of the survey we developed a questionnaire and a contact list for the selected Member States. The preparation of the contact lists focussed primarily on identifying private companies active in the field of civil security, but also other categories (e.g. research institutes) were identified. The survey was then conducted in all seven Member States between October 2014 and February 2015. The results allow analysing and comparing specific country structures and overall trends.

Survey results

Most companies surveyed supply products and services for 'protection against criminality, terrorism or public disorder' and the 'protection of critical infrastructure'. Border protection and the supply of goods and services for natural and man-made disaster are relatively smaller threat categories. Notable is the importance of critical infrastructures in France and the UK (some 70% of the companies supply goods and services to the threat category).

Figure III Supply of products and services by 'broad industry category' (share of responses)



Source: Ecorys SSS and BIGS SSS

In most countries the "physical" security industry is the most important industry category. Cybersecurity products and services are a relatively smaller category.

Cyber security appears to be in general a rather stand-alone activity which is only in a limited sense integrated in the supply of other security products and services. Within this category, comparing across countries, infrastructure security, hardware security, security management systems and data security solutions clearly figure among the most important product/service categories.

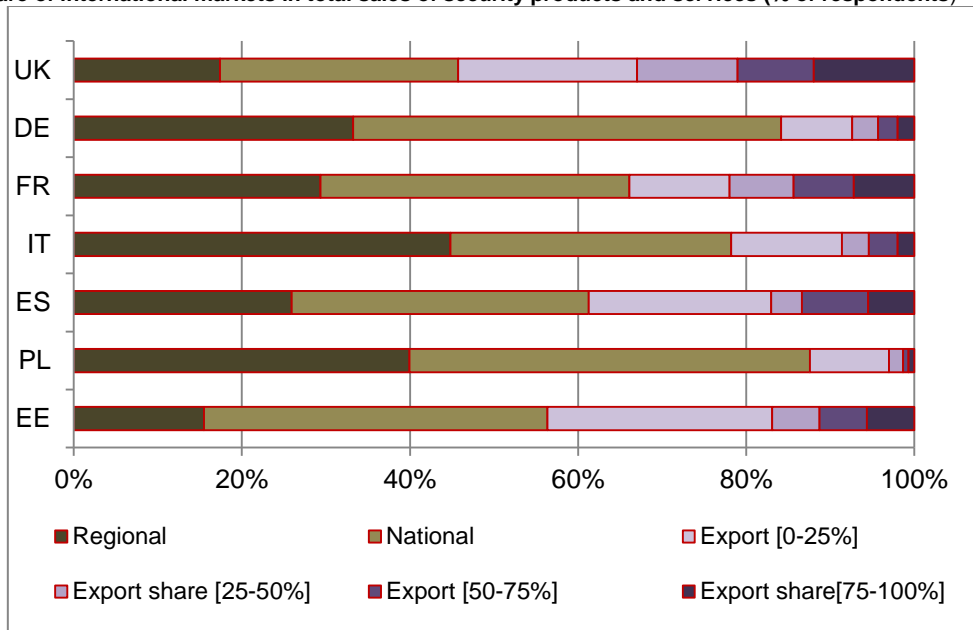
In terms of physical security products, traditional product groupings such as access control systems (including identification and authentication), and observation (CCTVs etc.) and alarm systems are found to figure prominently among most important products supplied by companies in the sector. Also protective clothing is indicated as a relatively important product, in particular in Poland.

The most important security services are “guarding and manning” and “security consulting”, although exceptions can be noted for individual countries. The low share of guarding and manning for Spain appears to be contradicted by figures on the private security business (both COESS and Eurostat) which indicate a more important role for these activities.

Three major groups of **end-users** are distinguished across all countries although the rank of individual end-users might differ, partially reflecting the different economic structure of a country. These are: private individual and households, public administrations and security service providers, other economic sectors (commonly mentioned sectors are construction, hotels & restaurants, wholesale & retail, health & education, manufacturing, and real estate).

A large part of the security industry is oriented at regional or national **markets**. To some extent this is due to the type of products and services that are offered.

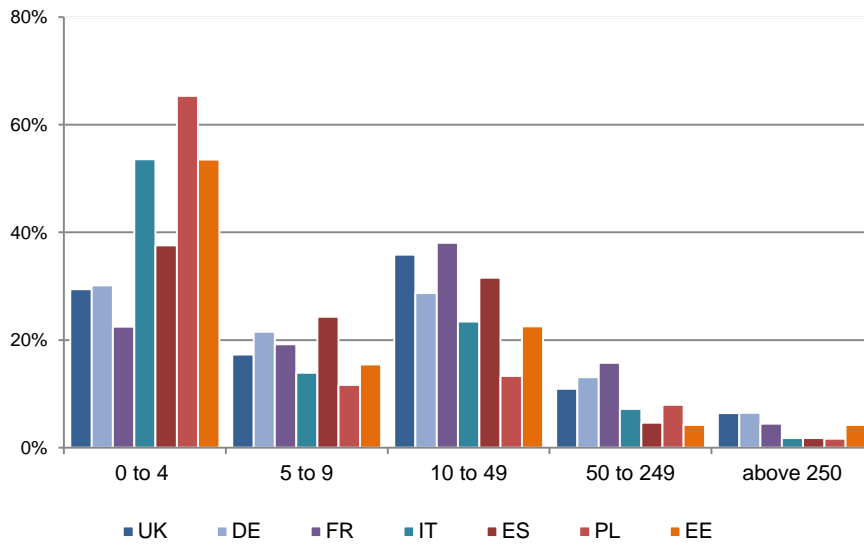
Figure IV Share of international markets in total sales of security products and services (% of respondents)



Source: Ecorys SSS and BIGS SSS

The security industry is characterised by a high percentage of small and medium sized enterprises. In particular the number of micro-enterprises (employing up to 4 persons) is well represented. This is even stronger in Italy, Poland and Estonia. A similar pattern can be observed in terms of turnover distribution.

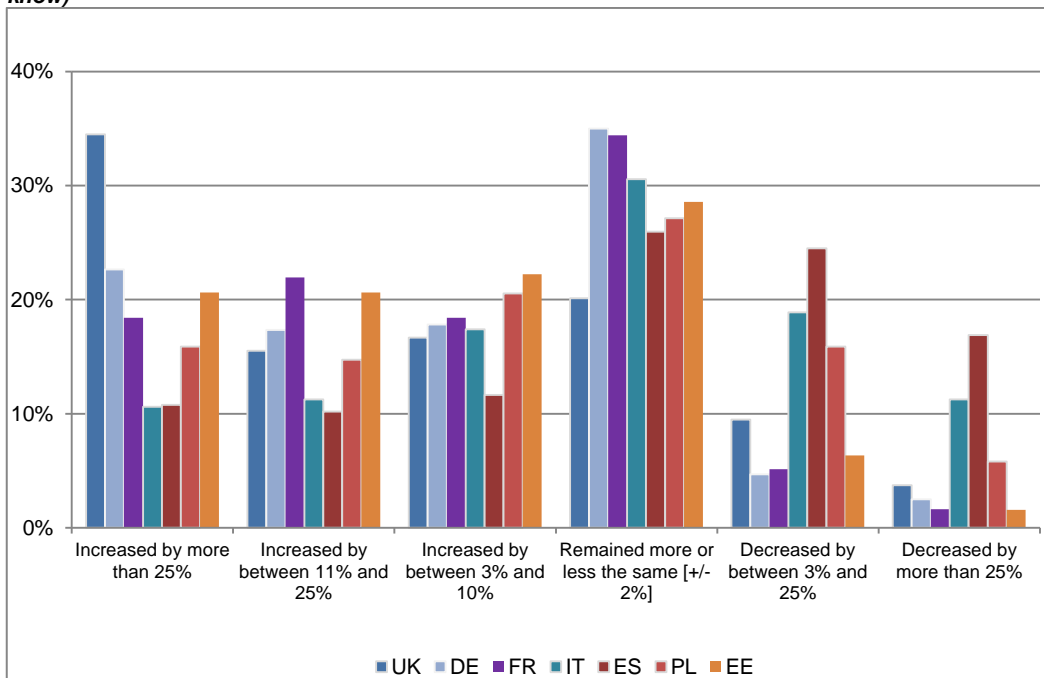
Figure V Distribution of number of employees working in security by main broad industry category
All respondents



Source: Ecorys SSS and BIGS SSS

Assessing past and future expected trends show that the security industry in general is a growth industry with most companies reporting growth over the last 5 years. From a country perspective, in particular companies in the UK have shown a very strong growth. Although overall still showing positive figures, the impact of the economic crisis was strongest felt in Spain and Italy according to these figures. In comparison, cybersecurity has shown the strongest growth. Towards the future the majority of companies expects to continue such a growth pattern.

Figure VI Distribution of turnover growth over the past 5 years (% of respondents, excluding no answer / don't know)



Source: Ecorys SSS and BIGS SSS

Further differentiated by geographical markets, companies in most countries expect Europe and countries outside Europe to represent the largest growth markets. In terms of client groups market demand for security products and services for critical infrastructure is expected to show the largest demand growth.

Estimation of the overall size of the EU security industry

Survey based estimates of the aggregate size (turnover and employment) of the security industry

An important part of the analysis of the Security Sector Survey (SSS) has been to use the collected data as the basis for estimating aggregate level of employment and turnover at national and EU levels.

For the extrapolation of findings from the individual national surveys to provide aggregate country level estimates, two different methodologies have been applied that (in effect) provide upper and lower estimates of the size of the sector¹⁰. For practical purposes the mid-point of the estimates from the two approaches is taken as the 'measure' of the size of the security sector¹¹, while the upper and lower estimates provide some indication of the potential 'range' around the mid-point estimates¹².

Furthermore, although the survey is designed to exclude firms that supply security products and services exclusively to the defence sector, the survey covers firms active in both the civil security and defence markets. Based on firm's own declarations an additional adjustment is made in an attempt to exclude from the estimation of the size of the 'civil' security sector possible defence-related turnover and employment¹³. Thus two sets of turnover and employment are calculated, an overall ('baseline') measure and a lower measure that incorporates a downward adjustment for possible defence related activities.

The following two tables (Table II and Table III) present the 'headline' estimates of security-related turnover and employment for the seven countries covered by the survey. When compared to national GDP levels, these data reveal a strong correlation between the estimated size of the security industry and the total size of the domestic economy. On this basis, the simplifying assumption that employment and turnover in the security industry are basically proportional to GDP is used in order to extrapolate from the 7 surveyed countries – which collectively account for close to three-quarters of EU28 GDP – to derive EU aggregate turnover and employment estimates.

¹⁰ The first approach is to assume that the size distribution of firms in the survey sample is fully representative of the size distribution in the whole population of security firms in the country; in which case the aggregate turnover (or employment) will be directly proportional to the (inverse) share of surveyed firm within the entire population of security firms in the country. For example, if the survey covers one quarter of the total population of firms, then the total aggregate turnover (or employment) for the country will be 4 times that observed in the survey. The second approach recognises that the observed size distribution of firms is observed to be highly skewed with a preponderance of small firms and relatively few larger firms. Therefore, the second approach – which is based on the assumption of a log-normal size distribution of firms – attempts to correct for this by essentially reducing the influence of larger firms with the survey sample on the estimation of average firms size (in turnover or employment terms). The assumption of a log-normal (or Pareto) distribution is reasonably well accepted as providing an empirical approximation for the size distribution of firms, where the distribution is skewed towards smaller firms. The reality is that it is not possible to know which approach will yield an estimate of the aggregate size that is closest to reality. In practical terms, however, the first approach tends to yield estimates that are larger than the second approach. Accordingly, the two approaches have been used to provide an upper and lower bound for the expected value of total employment and turnover. These two approaches are described in more detail in Section 5.1.

¹¹ For example, for the purposes of extrapolation to the EU-level.

¹² Note, this does not represent a statistical based measure of the 'expected' range around the mid-point.

¹³ Essential, this involves adjusting (reducing) individual firms' employment and turnover data, such that it corresponds the declared proportion of their business activities relating to the supply of security-related products and services to civilian markets.

The EU aggregate EU turnover and employment estimates are shown in Table IV, which also provides a breakdown by three main broad industry categories covered by the survey¹⁴.

The 'mid-point' estimates indicate that the security industry in the EU generates a total turnover of as much as € 191 billion and employing as many as 2.3 million people. The 'other' security products are the largest broad segment of the security industry in terms of turnover, while 'other' security services are the largest employment segment. Although there is a wide margin around these 'headline' figures, the findings suggest that the overall size of the security industry in the EU is significantly larger than has been suggested by previous estimates. The tables below also show adjusted estimates with respect to companies that provide both civil security and defense services and products.

Table II All security: estimates of total employment by country (thousand employees)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	268	254	102	63	57	13	-
Upper estimate	602	346	216	109	78	16	-
Mid-point estimate	435	300	159	86	67	14	450
Adjusted for defence							
Lower estimate	209	228	92	56	50	11	-
Upper estimate	495	320	184	108	69	18	-
Mid-point estimate	352	274	138	82	59	14	365

Source: Ecorys SSS and BIGS SSS

Table III All security: estimates of total turnover by country (€ billion)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	27.6	24.3	10.2	6.4	1.2	0.4	-
Upper estimate	46.8	39.4	27.0	13.4	1.9	2.1	-
Mid-point estimate	37.2	32.0	18.6	9.9	1.6	1.3	34.5
Adjusted for defence							
Lower estimate	20.1	21.5	9.2	5.4	1.0	0.2	-
Upper estimate	30.7	33.7	23.7	10.0	1.6	0.9	-
Mid-point estimate	25.4	27.7	16.5	7.7	1.3	0.6	27.8

Source: Ecorys SSS and BIGS SSS

¹⁴ It should be noted that the estimations for the three main broad industry categories do not sum to the overall aggregate (all firms) totals; this is due to the fact that the broad industry category estimates have been estimated separately from the overall (all firms) estimates. This also reflect the fact that some firms are active in multiple broad industry categories leading to some overlap in the allocation of turnover and employment to different categories.

Table IV

Estimates of total security industry employment and turnover

	Employment (thousand)		Turnover (€ billion)	
	Baseline	Adjusted for defence	Baseline	Adjusted for defence
A Security (sum I+II+III)				
Lower	1,880	1,650	154	123
Upper	2,650	2,310	227	181
Mid-point	2,260	1,990	191	153
I - 'Other' Security Products				
Lower	640	560	77	58
Upper	850	750	99	80
Mid-point	740	660	88	69
II 'Other' Security Services				
Lower	980	880	56	50
Upper	1,480	1,310	97	77
Mid-point	1,230	1,100	77	64
III Cyber Security Products and Services				
Lower	260	210	21	15
Upper	320	250	31	24
Mid-point	290	230	26	20

Source: Ecorys SSS and BIGS SSS

Breakdown of survey based estimates of aggregate size (turnover and employment) by business activities

The aforementioned estimates of the overall size of the security sector should be set in context. In particular it is important to bear in mind that the estimates are based on the declared information on the turnover (and employment) of surveyed firms. In particular, the data do not reflect the incremental value added attributable to the supply of security products and services. In this respect there is a potential for 'double counting', for example by counting the value of turnover from the supply of security products at both the manufacturing stage and the (retail) distribution stage, or again at the installation stage.

The survey data do not directly provide a breakdown of firm's turnover (or employment) according to different categories of business activities. However, for 'other' security products and cyber security products and services, firms are requested to provide information on the business activities that they are engaged in and, among these activities, to identify the most important (ranking of top 3 business activities). These data have been used to provide an estimate of the relative importance of different business activities (at national and EU level) which has been applied to overall turnover (and employment) estimates to provide an indication of the shares that might be attributable to different activities.¹⁵ These estimates (for 'other' security products and cyber security products and services) are shown in Table V, following a typical value/supply chain ordering.

Taking the case of 'other' security products, the data indicate that '*manufacturing and assembly*' activities occupy a relatively limited position in overall turnover, for example when compared to '*distribution*' and '*installation*' activities. Similarly, the combined total for '*research and development*' and '*design and engineering*' is significantly larger than '*manufacturing and assembly*'. On reflection, the estimated breakdown by business activity does not seem unreasonable given what is known of the structure and organisation of the 'other' security products sector. In particular, it is known that many of the basic products and components that are used in 'traditional' security

¹⁵ The methodology used is described in Section 6.1.

product sectors¹⁶ are not manufactured in the EU, while ‘*research and development*’ and ‘*design and engineering*’ activities are retained in the EU.

Table V Estimated breakdown of turnover by business activity (€ million, % of total)¹⁷

Business activity	‘Other’ security products	Cyber security products and services
Research and development	8,700 (9.9%)	2,700 (10.3%)
Design and engineering	8,500 (9.7%)	2,600 (10.2%)
Software development	-	3,000 (11.5%)
Manufacturing and assembly	11,400 (12.9%)	1,000 (4.0%)
System Integration	4,800 (5.5%)	2,600 (9.9%)
Wholesale or retail distribution	18,000 (20.5%)	2,800 (10.8%)
Installation	16,500 (18.8%)	2,600 (9.9%)
Test and inspection	4,900 (5.6%)	2,000 (7.5%)
Maintenance and servicing	10,200 (11.6%)	2,600 (10.0%)
Monitoring services	4,400 (5.0%)	2,800 (10.9%)
Other (including not declared)	600 (0.7%)	1,300 (4.9%)
Total	88,000 (100.0%)	26,000 (100.0%)

Source: Ecorys SSS and BIGS SSS

Breakdown of survey based estimates of aggregate size (turnover and employment) by product and service category

As with business activities, the survey data do not directly provide a breakdown of firm’s turnover (or employment) according to product and service categories activities. However, firms are requested to provide information on the products and services that they are supply and, among these, to identify the most important (ranking of top 3 business activities) by main broad industry category. Using this information, estimates of the relative importance of different products and services have been constructed (at national and EU level) which has been applied to overall turnover and employment estimates to provide an indication of the shares that might be attributable to different products and services¹⁸. The estimated breakdowns are shown in Tables VI to VII¹⁹.

For ‘other’ security products, the estimated breakdown points to the dominance of more traditional – and to an extent, high volume – products, with ‘*fire detection, alarm and suppression*’, ‘*intruder detection and alarm*’, ‘*local area observation (including CCTV)*’ and ‘*mechanical access control and barriers*’ having a combined estimated share of 53% of total turnover (and 52% of employment). Applied to the EU aggregate turnover estimate²⁰, these shares imply a combined estimated turnover value of over € 45 billion. For ‘other’ security services, the largest shares are for ‘*guarding and manning*’ and ‘*security consulting*’, which each have a turnover share above 20%. Taken together, ‘manpower-based’ security services that are typically most closely associated to the private security services sector, namely ‘*guarding and manning*’, ‘*security of persons*’ and ‘*remote monitoring*’ have a combined estimated aggregate turnover share of around 46% and an employment share of 51%. For cyber security, the three product/service types with the highest aggregate estimated turnover shares are ‘*data security solutions*’, ‘*hardware security solutions*’ and ‘*identity and access management solutions*’. Overall, however, there appears to be a relatively even spread of turnover across different cyber security product/service types.

¹⁶ For example, alarm systems, video and CCTV equipment, etc.

¹⁷ Numbers may not add up due to rounding

¹⁸ The methodology used is described in Section 6.1.

¹⁹ It should be noted that the method is not really capable of distinguishing differences in importance of products and services with respect to turnover and employment. Accordingly there is only limited variation in the turnover and employment shares for different products and services within each main broad industry category.

²⁰ The ‘mid-point’ estimate of EU turnover for ‘other’ security products is € 88 billion.

Table VI 'Other' security products: estimated breakdown of turnover by product category (€ million, % of total)²¹

Product category	Employment (number of employees)	Turnover (€ million)
Fire detection, alarm and suppression	107,800 (14.6%)	12,700 (14.4%)
Intruder detection and alarm	93,400 (12.6%)	11,900 (13.5%)
Mechanical access control, barriers, enclosures etc.	93,500 (12.6%)	11,000 (12.5%)
Local area observation (incl. video / CCTV surveillance)	88,800 (12.0%)	10,900 (12.4%)
Identification and authentication (incl. electronic access control)	73,000 (9.9%)	8,800 (10.0%)
Communication equipment and systems	34,000 (4.6%)	4,400 (5.0%)
Protective and specialised clothing	35,800 (4.8%)	4,200 (4.8%)
Wide area observation and surveillance	26,800 (3.6%)	3,300 (3.7%)
Tracking and tracing; positioning and localisation	22,400 (3.0%)	2,600 (2.9%)
Command and control and decision support systems	22,900 (3.1%)	2,500 (2.8%)
Intelligence and information gathering systems	16,900 (2.3%)	2,100 (2.4%)
Detection and screening	18,400 (2.5%)	1,800 (2.1%)
Vehicles and platforms	13,700 (1.8%)	1,400 (1.6%)
Other equipment and supplies	47,400 (6.4%)	5,200 (5.9%)
Other (including not declared)	45,100 (6.1%)	5,300 (6.0%)
Total	740,000 (100.0%)	88,000 (100.0%)

Source: Ecorys SSS and BIGS SSS

Table VII 'Other' security services: estimated breakdown of turnover by service category (€ million, % of total)²²

Service category	Employment (number of employees)	Turnover (€ million)
Guarding and manning	333,500 (27.1%)	18,300 (23.8%)
Remote monitoring	168,500 (13.7%)	9,500 (12.3%)
Security of persons	123,000 (10.0%)	7,500 (9.8%)
Detection and investigation	56,100 (4.6%)	4,200 (5.5%)
Other (manned services)	24,600 (2.0%)	1,400 (1.8%)
Security consulting	238,600 (19.4%)	16,500 (21.4%)
Security training	138,600 (11.3%)	8,800 (11.4%)
Security research - tech	80,000 (6.5%)	6,200 (8.1%)
Security research - other	33,700 (2.7%)	2,800 (3.6%)
Other (services)	33,200 (2.7%)	1,800 (2.4%)
Total	1,230,000 (100.0%)	77,000 (100.0%)

Source: Ecorys SSS and BIGS SSS

²¹ Numbers may not add up due to rounding

²² Numbers may not add up due to rounding

Table VIII Cyber' security services: estimated breakdown of turnover by service and product category (€ million, % of total)²³

Product or service category	Employment (number of employees)	Turnover (€ million)
Data security solutions	42,800 (14.8%)	3,800 (14.6%)
Hardware security solutions	36,600 (12.6%)	3,300 (12.7%)
Identity and access management solutions	35,200 (12.1%)	3,300 (12.6%)
System integration and implementation services	27,200 (9.4%)	2,400 (9.1%)
Applications security solutions	24,800 (8.6%)	2,300 (8.8%)
Governance, vulnerability and cyber-security management systems	24,600 (8.5%)	2,200 (8.6%)
Infrastructure (network) security solutions	22,100 (7.6%)	2,000 (7.6%)
Audit, planning and advisory services	22,100 (7.6%)	1,900 (7.4%)
Management and operations services	20,700 (7.1%)	1,800 (6.9%)
Security training services	17,000 (5.9%)	1,600 (6.1%)
Other/not-specified products	8,400 (2.9%)	700 (2.6%)
Other/not-specified services	8,500 (2.9%)	800 (3.1%)
Total	290,000 (100.0%)	26,000 (100.0%)

Source: Ecorys SSS and BIGS SSS

Breakdown of survey based estimates of aggregate size (turnover and employment) by market segments

Finally, the security survey data has been used to provide estimates of the breakdown of demand for security products and services by market segments. As previously, the survey data do not directly provide a breakdown of firm's turnover (or employment) by market segment. Rather, the breakdown has been estimated using information on the market segments served by surveyed firms and their most important (top 3) market segments. Using this information, estimates of the relative importance of different market segments have been constructed (at national and EU level) which has been applied to overall turnover and employment estimates to provide an indication of the shares that might be attributable to different market segments²⁴. The estimated breakdowns for turnover are shown in Table IX.

The estimated breakdowns across different main broad industry categories reveal marked similarities²⁵. Although there are some noticeable differences, such as the importance of 'financial services' for cyber security products and services, the general similarities in for the three broad security industry categories suggest some commonalities in demand patterns. To some extent, the similarities might reflect the relative weight of different market segments in overall economic activity. It may also be indicative of possible complementarity in demand for different security products and services within market segments.

²³ Numbers may not add up due to rounding

²⁴ The methodology used is described in Section 6.1.

²⁵ Since most firms are typically active in only one broad industry category, this finding is unrelated to the fact that survey respondent are only requested to provide an indication of the market segments in which they are active and corresponding ranking (top 3) without distinguishing between broad industry categories (or different products and services therein). The similarities observed across broad industry categories reflect common patterns in terms of the frequency with which firms (from the different broad industry categories) identify themselves as having customers in the different market segments and in the importance they attach to individual market segments (i.e. top 3 ranking).

Table IX Estimated breakdown of turnover by market segments (€ million, % of total)²⁶

Market segment	'Other' security products	'Other' security services	Cyber security products and services	Total
Cyber security industry	900 (1.0%)	900 (1.1%)	2,100 (8.3%)	3,900 (2.0%)
Other security industry	4,300 (4.9%)	2,800 (3.7%)	600 (2.3%)	7,700 (4.0%)
Other security services	8,500 (9.6%)	7,600 (9.9%)	1,500 (5.8%)	17,600 (9.2%)
Defence	5,000 (5.7%)	3,500 (4.5%)	1,400 (5.3%)	9,900 (5.2%)
Public security service providers	6,000 (6.8%)	4,300 (5.6%)	1,500 (5.8%)	11,800 (6.2%)
Public administrations	6,900 (7.8%)	6,000 (7.8%)	2,300 (8.9%)	15,200 (8.0%)
Health and education	3,600 (4.1%)	3,200 (4.2%)	1,000 (4.0%)	7,900 (4.1%)
Transport	3,500 (3.9%)	3,500 (4.5%)	1,000 (3.9%)	7,900 (4.2%)
Energy and water	2,500 (2.9%)	2,700 (3.5%)	1,000 (3.9%)	6,200 (3.3%)
Communications and information services	1,600 (1.8%)	1,900 (2.5%)	1,300 (5.0%)	4,800 (2.5%)
Financial services	3,200 (3.6%)	3,400 (4.5%)	2,400 (9.2%)	9,000 (4.7%)
Primary sectors	1,500 (1.7%)	1,700 (2.2%)	500 (2.0%)	3,700 (2.0%)
Manufacturing	5,600 (6.3%)	4,700 (6.1%)	1,600 (6.3%)	11,900 (6.2%)
Construction	4,700 (5.4%)	4,800 (6.2%)	1,000 (4.0%)	10,500 (5.5%)
Real estate and property management	3,200 (3.7%)	4,100 (5.3%)	1,000 (3.9%)	8,300 (4.4%)
Wholesale and retail distribution	7,800 (8.9%)	4,800 (6.3%)	1,500 (5.6%)	14,100 (7.4%)
Hotels, restaurants and leisure	3,900 (4.4%)	4,100 (5.4%)	1,100 (4.1%)	9,100 (4.7%)
Other market services	2,200 (2.5%)	2,500 (3.2%)	700 (2.8%)	5,400 (2.8%)
Private individuals and households	9,800 (11.2%)	8,000 (10.3%)	1,900 (7.4%)	19,700 (10.3%)
Other (including not specified)	3,400 (3.8%)	2,600 (3.3%)	400 (1.7%)	6,400 (3.3%)
Total	88,000 (100.0%)	77,000 (100.0%)	26,000 (100.0%)	191,000 (100.0%)

Source: Ecorys SSS and BIGS SSS

Combining survey results with findings from statistics

The extrapolated survey results for 'other security services' can be compared with the data available from statistics. As indicated earlier the total number of people employed in private security services as covered by Eurostat is 1.4 million. This is only partially covered by the survey since, as it was known that statistical data was available from other sources, private manning and guarding firms were only partially covered by the survey company listings. On this basis, the survey estimates for the service categories of "guarding and manning", "remote monitoring", "security of persons", "detection and investigation" and "other (manned services)" can be complemented by Eurostat estimates. We assess that the survey-based estimates would need to be increased by 0.7 million persons (employees) and by an additional € 5 billion in turnover.

In addition employment in public, first responders services need to be added to arrive at the full number of people employed in the security sector. This adds a further 1.7 million persons.

Combining both survey results and publicly available data indicates that **total EU estimates** for the security industry in the EU generates **turnover of close to € 200 billion**, and creates **employment for 4.7 million persons**.

²⁶ Numbers may not add up due to rounding

1 Introduction

1.1 General Context

In 2012, the European Commission set out for the first time its vision for an industrial policy for the security sector²⁷²⁸. However, in presenting its proposals for action, the Commission acknowledged that developing a clear picture of the security sector in the EU is hampered by the absence of reliable data. To which, the Commission proposes to “develop an empirical basis on which more reliable figures on the security markets can be obtained” and further that such an undertaking should be made with cooperation of the main trade associations. Responding to the Communication, the European Economic and Social Committee (EESC)²⁹ also placed emphasis on the need for relevant, detailed statistics looking at the security sectors companies, not least, of their production, workforce and size³⁰.

In light of the above, as part of its Security Research Programme for 2013³¹, the European Commission set out its intention to launch a study for the ‘Development of statistical data on the European Security and Technological Industrial Base’ aimed at developing statistical data that would allow to obtain a clearer picture of the technological and industrial base of the security industry in Europe. This would allow to obtain a better understanding of the strengths and weaknesses of the European security industry, as well as to better monitor the impact of R&D activities on the European security industry.

Based on earlier work undertaken on behalf of the European Commission, Ecorys (2009)³² estimated the global security market to be worth some €100 billion with around 2 million persons employed worldwide; while, the EU security market was estimated to have a market value in the range of €26 billion to €36.5 billion with around 180,000 employees. At the same time, based on a narrower definition, the European Organisation for Security (EOS) estimates that the European security system market (including border control, protection of infrastructures and of the cyber space, crisis / disaster management) is expected to be of € 11-12 billion in 2012 (with respect to a world market of € 50 - 60 billion). More recently, Ecorys (2013)³³ estimated the global security market to be worth some €137 billion, of which the value of the EU market is estimated at € 35 billion. The large range of these estimates confirms the difficulty in obtaining a precise idea of the EU market size and, equally, that of the EU security industry itself.

²⁷ European Commission. (2012). Security Industrial Policy: Action Plan for an innovative and competitive Security Industry. COM(2012) 417

²⁸ European Commission. (2012). Security Industrial Policy. SWD(2012) 233

²⁹ European Economic and Social Committee (2013)

³⁰ In general, the EESC also recommends setting priorities for action using a product-based, rather than sector-based, approach.

³¹ European Commission (2012). Work Programme 2013: Cooperation, Theme 10, Security. C(2012)4536

³² Ecorys (2009), “Study on the competitiveness of the EU security industry”, Final Report

³³ Ecorys (2012), “Study on Civil Military Synergies in the field of Security”, Final Report

Among the factors hindering the quantification of the size and structure of the security sector are the following³⁴:

- There is currently no clear definition of the security sector;
- The security industry is not covered as such by the main statistical nomenclatures (NACE, Prodcom, etc.);
- The production of security-related items is hidden under a wide range of headings;
- Statistics for these headings do not distinguish between security and non-security related activities;
- There is no statistical data source available at European level from the industry itself;
- From a demand-side perspective, procurers of security equipment and systems can be reluctant to provide information on security expenditures.

The deficiencies occurring as a consequence of the factors mentioned above need to be addressed in order to develop statistical data that provide a clearer and more reliable picture of the technological and industrial base of the security industry in Europe and its market potential.

1.2 Aim of this study

In view of the challenges to quantify the size of the EU security sector, the overall aim of this study was to contribute to the development of statistical data that provide a clear picture of the technological and industrial base of the security industry in the EU.

The study has resulted in the development of more comprehensive, complete and reliable statistical data for security industry of seven Member States (DE, EE, ES, FR, IT, PL, UK) and extrapolated them to the EU level. These data allow for a better understanding of the strengths and weaknesses of the security industry and improve monitoring of the impact of R&D activities on the industry's competitive performance.

1.3 Methodology

The methodology of this study was divided into two main phases:

- **Definition Phase** covered preparatory activities that led to an 'Implementation Plan' for the development of statistical data on the security industry;
- **Implementation Phase** covered the implementation of the tasks and activities elaborated in the 'Implementation Plan' and as agreed with the Commission services.

The 'Definition Phase' (Phase I) has provided the necessary groundwork to arrive at a feasible and realistic approach for obtaining the required statistical data. It was followed by a second 'Implementation Phase' (Phase II), which converted actual data collection and gap-filling tasks and led to the presentation of statistical data on the security industry in the EU (i.e. size, structure, performance etc.).

³⁴ European Commission. (2012). Security Industrial Policy: Action Plan for an innovative and competitive Security Industry. COM(2012) 417

1.3.1 Definition Phase

In the 'Definition Phase' we further delineated and segmented the security sector, and analysed and assessed different methods to measure the security sector on their usefulness. This has resulted in an implementation plan that we executed under the second phase of the study.

As mentioned, the 'Definition Phase' included an assessment of different approaches for classifying and segmenting the EU security sector and its sub-segments. As result we established a segmentation of products and services as well as broad market segmentation. This selection was used for the collection of statistical data (Phase II of the study). For this purpose, it has been developed in a way that companies are able to easily relate to and to position themselves in terms of their supply of security products and services. The delineation and segmentation of the security sector is described in more detail in Chapter 2 of this report.

As a second step, we identified and assessed the position of security within the main European statistical classifications of economic activities (NACE) and products (Prodcom). In addition, we determined to what degree these classifications (and data based thereupon) can be used to measure the security domain. We concluded that NACE codes and statistics can be applied for the identification of most private security services (non-cyber), although an unknown part of security service activities are mixed with other activities (e.g. under combined facility management services). This means that NACE codes will not provide a complete picture of the sector. In general, NACE and Prodcom codes do not enable the identification of physical security products and cyber security. This is due, in particular, to the fact that security systems often use both specialised products and general use products (in particular communications and computer products). It is also due to the fact that security use, as such, is not often used as a discriminating criterion in NACE and Prodcom classifications and definitions.

A core element of Phase I of the study has been to establish a clear picture of the possible roles that can be played by different data suppliers and relevant organizations, and of the scope, detail and type of data that can potentially be collected. Based on this information, we made an assessment of different approaches for data collection with the aim of identifying the most feasible, realistic and cost-effective options that may be proposed for eventual implementation in a Phase II of the project. The following main approaches were identified:

1. **Company based approach:** Identification of security relevant companies (mainly through associations, but also from other sources), followed by a survey;
2. **Top-200 company-based approach:** Similar to 1, but targeted at the top-companies. More elaborated 1 on 1 company research and interviews;
3. **Statistical classification-based approach:** Identification of the security industry by use of relevant NACE and PRODCOM codes;
4. **Market research-based approach:** Select a number of relevant sub-markets and assess market size based on these sub-markets;
5. **Demand/end user-based approach:** Build-up of demand and supply security market information starting from end-users.

The data approaches were validated with relevant stakeholders in a workshop, which took place on the 19th of May 2014. Based on expert judgement approved by the European Commission, it was concluded that a combination of different methods will produce the best results, with the statistical analysis and the market segment approach being the most relevant to collect data on private security services and public security functions, whereas the remaining two methods being required to fill specific data gaps. Based on the findings of Phase I we elaborated an 'Implementation Plan' for the collection and analysis of statistical data necessary to describe the EU security industry and to analyse its competitiveness.

The full results of Phase I are enclosed in the Interim Report of the study. Thus the final report summarizes the highlights of this report.

1.3.2 *Implementation Phase*

The second phase of the study, the 'Implementation Phase', focused on the collection of data and their analysis, including the overall quantification of the size of the sector in terms of employment and turnover. As described above, we followed a hybrid data approach: first, using statistics and secondly, followed-up by a survey approach. Subsequently, we organised stakeholders' consultation in order to better understand the survey results.

As first step, we analysed those market segments that could be distinguished through formal statistics, or those which were less relevant to be collected through a company survey. For the former, this was mainly related to the analysis of existing industry data for private security services (NACE 80) and for product data on burglar and fire alarms (Prodcom codes 2630 5020 and 2630 5080). For private security services, we used data available from COESS as a reference point. The results of the overview of data available in statistics have been described in Chapter 3.

As a second step, we needed to collect contact lists of relevant companies to be surveyed in the selected Member States. Starting point for developing the contact lists was firstly to identify relevant security associations within each country, who could provide us with their member lists. The contact list was completed with additional companies contacts, found via desk research. The survey in form of telephone interviews was conducted by our sub-contractor GfK for all countries except Germany, where BIGS implemented an online survey. In detail this meant that first, the questionnaire developed for the sector was translated into the respective language and the supporting surveying tools programmed and the interviewers instructed. After a test phase, the field phase was conducted. The implementation phase was undertaken in two stages. In total seven countries were covered, with three countries analysed in the first stage (DE, ES, UK), followed by a second batch of the remaining countries (EE, FR, IT, PL). For the analysis of the survey we received SPSS/Excel outputs from our sub-contractor, which allowed us to analyse the individual country outcomes, extrapolate them to the whole country and then extrapolate figures to the EU level (for methodology and results see Chapter 5).

Following the elaboration of draft country reports based on the survey, we validated the results through stakeholders' consultation. We therefore conducted interviews with a limited number of key stakeholders in each country, in order to get a better understanding of what lies "behind" the data and to get better insight in the key issues in each country. Key stakeholders included major companies, trade associations (both at national and EU level) and Member State representatives (e.g. Ministries for Economics and Home Affairs). For each of the analysed Member States we have prepared a 'country report', which presents the survey results together with the input from the stakeholders' consultation (see Annex). The comparative survey results have been described in Chapter 4.

1.4 Structure of the report

The report follows the following structure:

- Chapter 2: Delineation and segmentation of the security sector;
- Chapter 3: Overview of data available in statistics;
- Chapter 4: Comparative survey results;
- Chapter 5: Extrapolation on the national and European level.

In **Chapter 2** we present the **delineation and segmentation of the security sector**. We define the security sector and present the scope of this study. Subsequently, we summarise the outcomes of Phase I.

In **Chapter 3** we elaborate on the state of play of our **overview of data available in statistics**. The analysis of the private security services sector which corresponds to private security and investigation services activities is thereby mainly based on data from Eurostat SBS and COESS.

In **Chapter 4** we provide an analysis of the **comparative survey results**. We first elaborate on the research tool “survey” which we applied in seven countries (DE, EE, ES, FR, IT, PL, UK). We then present final country findings for all seven countries. Subsequently, we provide a comparative analysis of the survey results.

Chapter 5 presents the **extrapolation on the national and European level**. We first explain the methodology selected for extrapolation of survey results and then present the estimated size of the EU-28 security industry.

2 Delineation and segmentation of the security sector

2.1 Introduction

The aim of this chapter is to identify, describe and assess possible approaches for classifying the EU security industry (i.e. the perimeters and main segmentation of the sector). The main purpose of this exercise is to develop proposals (options) for classification that may be applied for the collection and analysis of statistical data on the EU security industry.

The starting point for development of a classification are - together with previous work undertaken by Ecorys - the segmentations developed in the Security Industrial Policy and accompanying Staff Working Document³⁵. These documents provide *inter alia* a general indication of the relevant scoping of the security industry for the purposes of the study. To complement this 'initial' segmentation, additional information on classifications applied to the security industry (or security sector more broadly) were identified through a review of relevant academic literature and studies, policy documents (national and international level), industry sources (e.g. trade associations and representative bodies), and business intelligence and market research sources.

2.2 Delineation and segmentation of the sector

2.2.1 Security definitions

Drawing on the identification of (civil) security risks and threats and on the concept of the security 'response' cycle (or security functions), the Ecorys definition of security is provided in the following table. This definition provides the basis for describing the corresponding scope of the security industry and market.

³⁵ http://ec.europa.eu/enterprise/policies/security/industrial-policy/communication/index_en.htm

Table 2.1 Security definition

Security definition	
Civil (or internal) security	<p>Civil security is concerned with ensuring an environment – primarily within the territory of a State – in which citizens, enterprises, and public and social institutions are safe from civil security risks and threats.</p> <p>Civil security risks and threats³⁶ are understood to include:</p> <ul style="list-style-type: none"> • Intentional harm and damage to persons, property and assets resulting from, for example: <ul style="list-style-type: none"> – Terrorism: terrorism of all forms, including where due to religious, political or ideological extremism and radicalisation etc. – Criminality (whether or not classed as ‘organised’ or ‘serious’ crime) including cross-border criminal activities; – Violations of public order and civil unrest; • Unintentional harm and damage to persons, property and assets resulting from, for example: <ul style="list-style-type: none"> – Natural disasters: relating to geological (e.g. earthquakes, volcanic activity) and climatic related risks (floods, storms, forest fires); – Manmade disasters: relating to major industrial accidents (including, for example, release of chemical or radiological materials) or failure of complex industrial systems and critical/essential infrastructure (e.g. communication and energy networks). – Epidemiological threats: relating to serious outbreaks (pandemics) of infectious diseases. • Other specified security risks, for example: <ul style="list-style-type: none"> – Illegal Migration: negative impacts of illegal or irregular migration flows including, also, (illegal) migrants ‘in distress’. – Espionage: including both state-led and privately orchestrated attempts to obtain information and data. <p>Civil security functions are understood to encompass all measures and activities linked to preparedness and response to civil security risks and threats, including:</p> <ul style="list-style-type: none"> • Preparation (e.g. planning, organisation, training) • Intelligence (e.g. information gathering and assessment) • Counteraction: <ul style="list-style-type: none"> – Prevention (e.g. measures to prevent the occurrence of security threats) – Protection (e.g. measures to reduce vulnerability or increase resilience to security threats) – Mitigation (e.g. measures to lessen the harm or damage resulting from the manifestation of a security threat) • Intervention: <ul style="list-style-type: none"> – Response (e.g. deployment and intervention) – Recovery (e.g. restoration and recovery of critical functions, systems and information)
Security industry	The security industry is understood to encompass private enterprises (and research institutions) that are engaged in or that support the development and supply of products and services that provide (technical) capabilities used in the delivery of civil security functions.
Security market	The security market is understood to encompass State and private actors (including private citizens) that procure and/or consume products and services supplied by the security industry in order to perform security functions, whether on their own behalf, for third parties, or for the wider security of society.
Notes	<p><i>For the purposes of the collection of statistical data, epidemiological threats are excluded from the scope of civil security risks and threats.</i></p> <p><i>For the purposes of the collection of statistical data, the scope of security risks and threats also covers those relating to fire, explosions and similar risks whether or not they are associated specifically to other mentioned security challenges.</i></p>

Source: Ecorys

³⁶ It is recognised that security risks and threats may be influenced by specific contexts and can be changeable over time.

2.2.2 Conceptual segmentation and delineation

In broad terms, it is possible to identify two main angles of approach for defining and categorising security and, in turn, the concept of the security industry:

- **Threat-based approach:** i.e. the risks and threats that are causes of insecurity in societies;
- **Response-based approach:** i.e. the resources employed to respond to risks and threats that are causes of insecurity.

Table 2.2 Main dimensions for the classification of security

Security threat approach	Security response approach
Security risks and threats	Security actors
Security risk and threat domains	Security cycle
Capability requirements	

Source: Ecorys

With regard to the causes of insecurity (i.e. risks and threats), these are typically categorised following two main sub-approaches:

- **Risk/threat source:** i.e. the type of perpetrator or event leading to insecurity (e.g. terrorism, organised crime, natural disaster etc.);
- **Risk/threat domain:** i.e. the domain in which the risk or threat is present; in particular where a particular environment is considered more susceptible or vulnerable (e.g. aviation or maritime sector, international borders, critical infrastructure, etc.).

With regard to the response side, two sub-approaches to the categorisations of security can be identified:

- **Response actors:** i.e. the types of actors having responsibilities to maintain security and/or to respond an occurrence of a security risk/threat (e.g. police, first responders, infrastructure operators, etc.);
- **Response cycle:** i.e. the types of activities undertaken to address or respond to a security risk or threat (e.g. intelligence, counter measures, event reaction, etc.).

Broadly speaking, the first four identified approaches can be seen as providing different elements that shape the overall demand-side of the market for security products and services, by providing responses to the following questions:

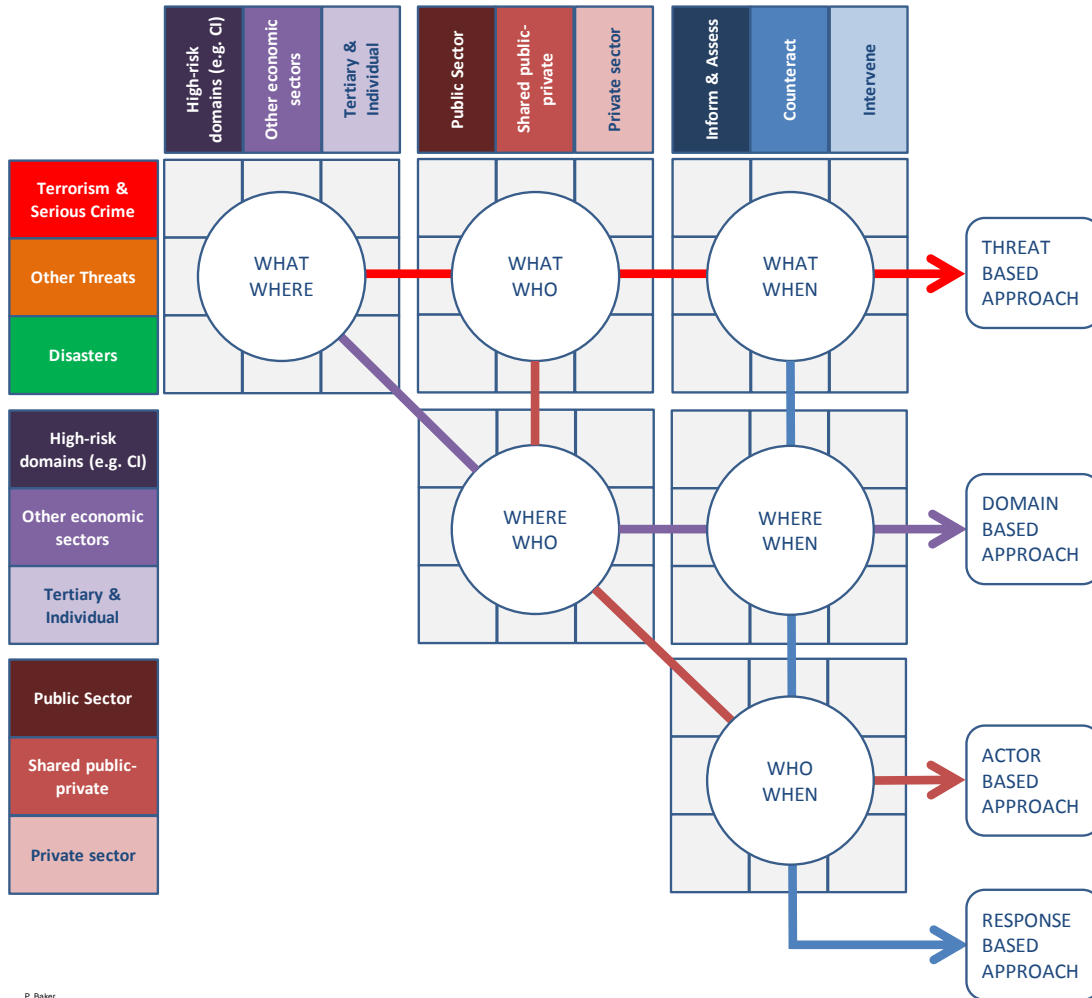
- **What** is the security risk or threat (*security risks and threats*)?
- **Where** does the security risk or threat manifest itself (*security domains*)?
- **Who** has responsibility to address the security risk or threat (*security actors*)?
- **When** is the responsible actor engaged (*security response cycle*)?

Addressing any one of these questions provides a starting point for characterising the structure of **demand for security products and services** (see Figure 2.1). Basically responding to each of these questions can be viewed as addressing different dimensions shaping the demand-side of the market for security products and services. Used in different combinations, these approaches provide different mappings of the delineation and segmentation of the 'market' for security products and services. These combinations can, in turn, be translated into functional and technical needs that define capability requirements:

- **Capability requirements:** i.e. the types of capabilities required to respond to security risk/threat or occurrence of a security incident.

A security capabilities approach can be seen as providing the linkage between demand side needs and the supply of security products and services. Effectively, the security capabilities approach comes closest to the translation of demand (in terms of functional and technical requirements) to the supply of different types of security products and services (i.e. supply-side characteristics). Thus, the capabilities approach provides the linkage from the demand-side to the supply-side of the market, as presented in Figure 2.2. The following sub-sections describe these elements in more detail.

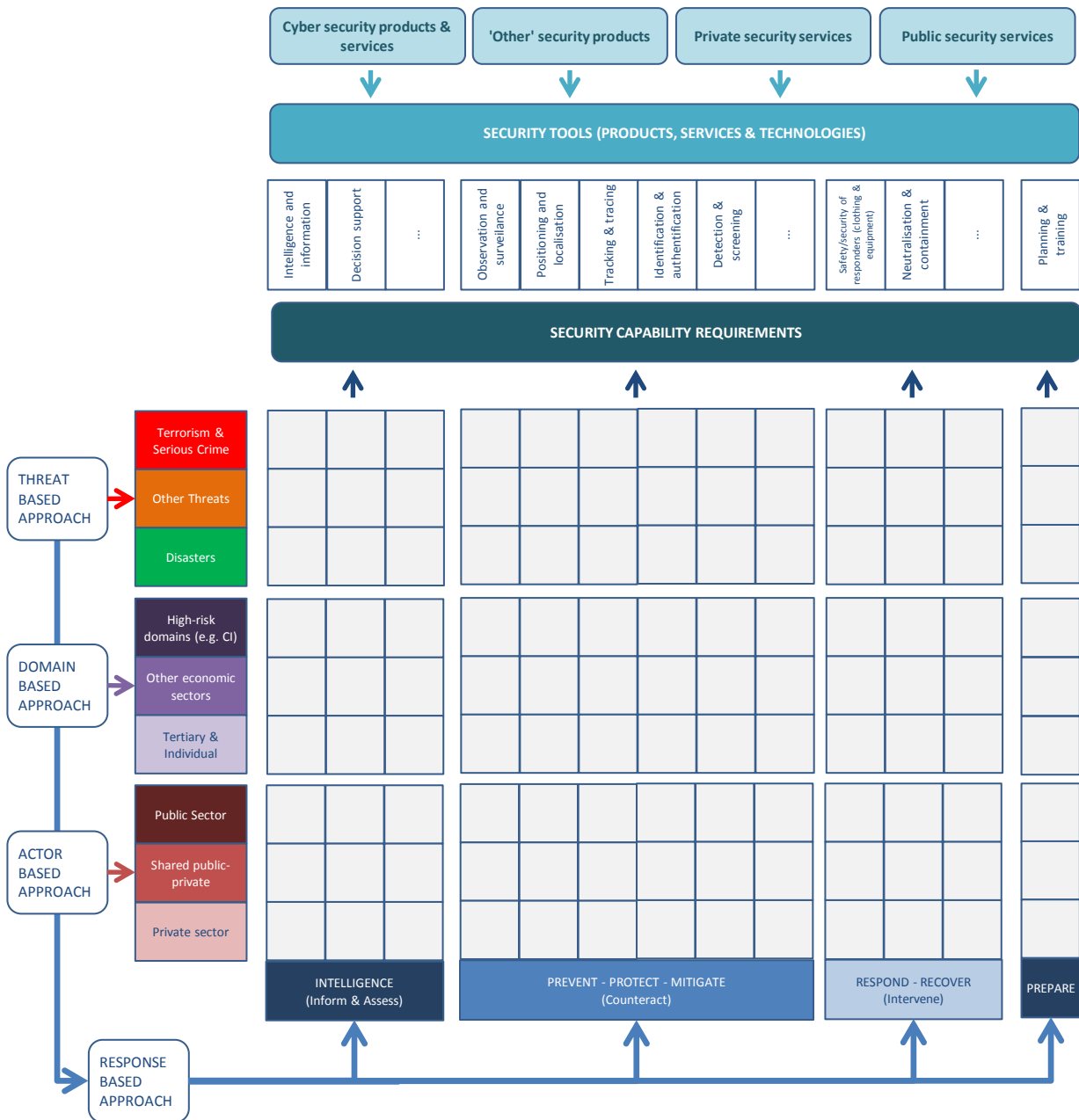
Figure 2.1 Overview of demand-side (market) approaches to delineating and segmenting the security industry



P. Baker

Source: Ecorys

Figure 2.2 Linking demand-side ('use') and supply-side ('provision') within the security sector



Source: Ecorys

2.2.3 Security threats and risks

In terms of security policies, the EU's own security policy documents provide some degree of separation between the broad security environment and the internal security dimension. For example, the EU's Internal Security Strategy (2010)³⁷ identifies terrorism, organised crime, cross-border crime, cyber-crime and natural and man-made disasters as the main internal security threats for the EU.

Taking a pragmatic view, the main categories of security risks and threats that seem pertinent to consider for the purposes of the present study are as follows:

Intentional / malicious threats (terrorism, criminality, public disorder etc.)

These threats include typical threats/risks as:

- **Terrorism:** relating both to terrorist acts undertaken by (international) terrorist organisations and their affiliates, or by 'lone wolf' individuals. A broad definition of terrorism would cover both terrorism motivated by fundamentalist religious ideology and other forms of political and social ideological extremism;
- **Criminality:** primarily concerning illegal activity against property and persons for monetary gain. The main aspects of criminal activity that are of concern from a security policy perspective relate to '**organised**' crime engaged in 'serious' criminal activities (e.g. drug trafficking, economic crime, human trafficking, smuggling of persons, arms trafficking, sexual exploitation of minors and child pornography, violent crimes, money-laundering and document fraud). By implication, such activities may be contrasted with non-organised and less serious forms of criminality, at least from an internal security policy perspective; hereafter referred to as '**ordinary**' crime;³⁸
- **Violations of public order and civil unrest:** primarily concerned with widespread and mass violations of law and order (e.g. urban riots), that may be motivated by social or political causes. Although not addressed in depth by the EU Internal Security Strategy³⁹, threats associated to public order are addressed in a number of Member States' security policy and strategy documents;
- **Espionage:** which may concern economically motivated attempts to obtain information and data (e.g. industrial espionage) or be undertaken for political or ideological reasons. Threats relating to espionage are not addressed by the EU Internal Security Strategy but appear in a number of Member States' security policy and strategy documents. Undoubtedly recent revelations and accusation pointing to both state-led and privately orchestrated attempts at espionage are likely to raise the profile of this threat category;
- **Migration (illegal):** risks relating to illegal and irregular migration flows are identified in a number of Member States' security policy and strategy documents, even though they may be grouped alongside other 'cross border' concerns (e.g. cross-border movements of terrorists, organised criminals, and illicit goods).

³⁷ Council of the European Union (2010), *Internal Security Strategy for the European Union: "Towards a European Security Model"*, 5842/2/10 REV 2.

³⁸ Note, although EU security policy focusses mainly on 'organised and serious crime', for the purposes of this study it is understood that the security industry encompasses also products and services whose purpose is to prevent, protect against and respond to 'ordinary' criminal activities. For example, the security industry should cover products against crimes such as theft, burglary, assault etc. (e.g. access control, alarm systems, surveillance cameras).

³⁹ Note, the EU Internal Security Strategy briefly mentions youth violence or hooligan violence at sports events. Violations of public order and civil unrest are not addressed in the accompanying European Commission Communication COM(2010) 673.

Unintentional / accidental and other threats: natural and man-made disasters

Both EU and Member States' policies extend the concept of (internal) security to cover natural and man-made disasters⁴⁰. The main identified subcategories are:

- **Natural disasters:** relating to geological (e.g. earthquakes, volcanic activity) and climatic related risks (floods, storms, forest fires);
- **Industrial, technological and other accidental disasters:** relating to major industrial accidents (including, for example, release of chemical or radiological materials) or failures in critical infrastructure (e.g. communication and energy networks);
- **Epidemiological threats:** relating to serious outbreaks (pandemics) of infectious diseases.

2.2.4 Security risk and threat domains

In addition to identifying risk and threat categories, most security policy and strategy documents link these to specific (horizontal) domains. Typically these domains are subject to heightened security concerns, either because the likelihood of a security 'event' occurring is thought to be high, or because the magnitude of the potential impacts⁴¹ of a security 'event' are substantial, or both. In particular, the following 'at risk' domains – that overlap to a greater or lesser degree – are commonly identified:

- **International borders:** as alluded to above under the heading of migration, particular attention is given to the cross-border dimension to recognised security threats (e.g. drugs trafficking, human trafficking, trafficking in arms, and cross-border movements of terrorists and criminals);
- **Critical infrastructure:** this recognises the particular risks to citizens and assets that may result from an intentional or unintentional act resulting in a failure or disruption of critical services (e.g. energy, ICT, transport);
- **ICT infrastructure and systems (cyber):** given the fundamental social and economic importance of information and communication services and networks, the potential for threats to be directed toward information and communications networks, or for threats to promote or perpetrate using such networks is universally recognised. Essentially all of the identified intentional / malicious threat categories identified above have both a physical representation and a digital ('virtual') equivalent (e.g. cyber terrorism, cybercrime, cyber espionage, cyber unrest). At the same time, failure and disruption to communication or information systems could potentially constitute a major disaster affecting the well-being of citizens.

Essentially, a domain based approach to the classification of the security industry tends to reflect a market-based segmentation of security. Though, at the same time, while such approaches tend to identify some specific key market segments relating to particular types of economic activity or physical environments and infrastructure (e.g. airports/aviation transport, ports/maritime transport) these are often combined with additional segmentation based on specific threat categories (e.g. CBRN detection), technologies (e.g. biometric authentication), or user categories (e.g. emergency responders).

⁴⁰ The EU Internal Security Strategy, for example, notes that "*The concept of internal security must be understood as a wide and comprehensive concept which straddles multiple sectors in order to address these major threats and others which have a direct impact on the lives, safety, and well-being of citizens, including natural and man-made disasters such as forest fires, earthquakes, floods and storms.*"

⁴¹ The impact may relate to loss of life and injury, physical or economic damage and loss, and/or to 'psychological' effects such as damage to national status or citizens sense of well-being and security.

2.2.5 Security actors

Having identified security risks and threats and the domains where they manifest themselves, the question arises as to which actors have responsibilities for addressing security risks and threats in each domain? In broad terms, a distinction can be made between public responsibilities (i.e. vested in governments and their agencies) and private responsibilities to maintain security. The dividing line between public and private responsibilities is not, however, necessarily clearly defined.

Main categories of security market actors are as follows:

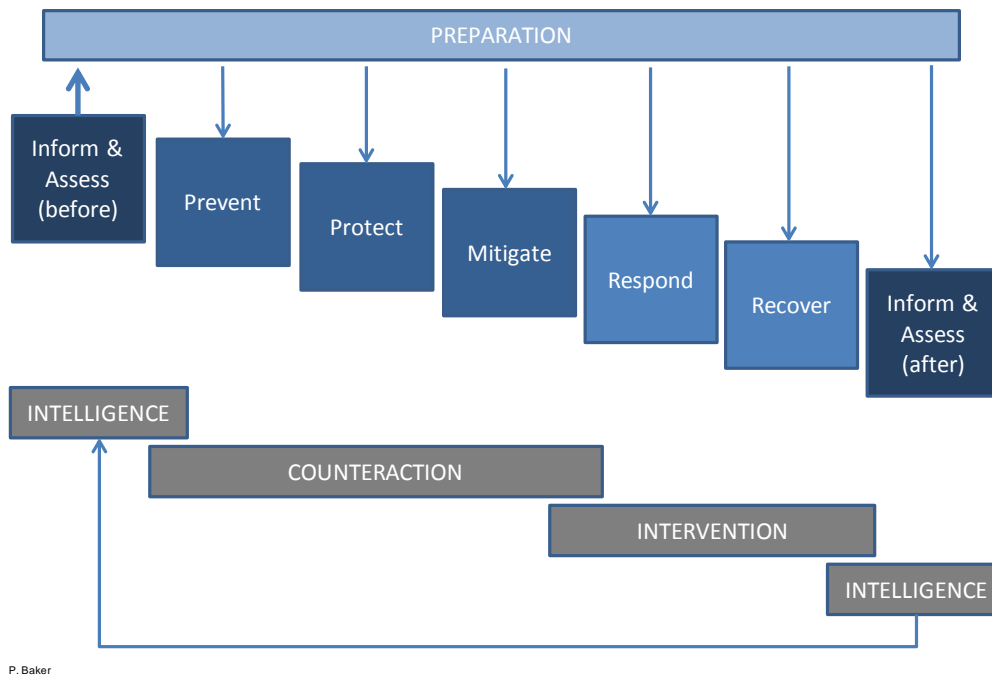
1. **Public services:**
 - a. **Intelligence services** (including counter-terrorism, and intelligence on criminal and natural/man-made risks);
 - b. **Law and order services:**
 - i. **Police;**
 - ii. **Border guards and similar** (e.g. customs, coast guards).
 - c. **First responders:**
 - i. **Fire and medical services;**
 - ii. **Military and similar** (i.e. support for responding to disasters).
 - d. **Other public services:** includes both public services considered as 'critical' and also other public services activities that may be users of security products and services.
2. **Intermediate / shared public-private:** including operators of critical infrastructure and other sectors subject to specific security requirements and/or shared public-private security responsibilities;
3. **Private sector:**
 - a. **Private security service providers** (see above);
 - b. **Other industries and service sectors**⁴²;
 - c. **Small businesses, private individuals and residential.**

2.2.6 Security response cycle

Having identified security risks and threats, security domains and actors, then the question arises as to what types of actions (functions) should be performed by different actors to address security risks and threats in each domain? This question can be approached by considering security from the perspective of a response cycle. Typically, the main elements used to describe a security response cycle are based around the functions of prevention, protection, mitigation, response and recovery. To these may be added the cross-cutting dimension of 'preparation', which covers the wide variety of actions taken to maintain and enhance capabilities within and across functional areas. Another important element concerns the intelligence functions (i.e. information collection and assessments) needed to evaluate security risks and threats in order that appropriate response actions can be developed. These main functional elements are shown in Figure 2.3 where they are grouped into 3 broad 'sequential' categories: intelligence, counteraction and intervention, together with the cross-cutting function of preparation. These categories are not mutually exclusive (nor are their underlying sub-elements); for example, surveillance capabilities may be used in intelligence gathering, as preventative and protection measures and to support intervention.

⁴² Note: includes also industry suppliers of security products and services.

Figure 2.3 Security response cycle: main elements



P. Baker
Source: Ecorys

2.2.7 Security tools (products & services)

There is no commonly applied and broadly accepted classification of security products, services and technologies. A variety of categorisations of security products and services is used in the literature describing and analysing the security sector and in market research sources providing data on security markets. Moreover, when the scope is extended to cover categorisation of security technologies – including technologies with potential security applications – there is a tendency to arrive at vast listings of security tools (products, services and technologies) whose usefulness seems rather limited in the context of the present study.

Using a pragmatic approach to the delineation and segmentation of the security industry, at a first level the underlying main broad divisions of the security ‘industry’ (hereby covering both public and private supply of security products and services) can be divided into four main broad segments. This segmentation draws a distinction between the supply of products and services concerned with protection and response to cyber risks and threats (‘Cyber security industry’) and the supply of products and services that essentially support the security in the ‘physical’ world, covering both private and public sector supply. This results in the following main segments:

- **Cyber security products and services:** Providers of integrated systems, sub-systems, solutions, and technologies used for the security of IT systems, electronic data storage, and electronically processed or communicated information, and providers of services relating to the assessment, auditing, planning, development, integration, operation and management of secure IT systems and networks, infrastructure, devices and processes in a wide sense;
- **Other security products:** Providers of integrated systems, sub-systems, products, equipment and technologies used for the (‘physical’) security of persons, tangible property and assets, infrastructures and environments;
- **Private security services:** Providers of manpower-related and other services for the security of persons, tangible objects and assets, infrastructure and environments;
- **Public security services:** This encompasses key public security service provision including first responders and law and order services.

With respect to the first 3 segments identified above, which provide the main focus for the subsequent development of statistical data, the second-level segmentation of products and services is based on commonly used categories that are essentially recognisable for industry players. Primarily, this approach has been adopted in order to facilitate the subsequent collection of statistical data while, in so far as possible, retaining the possibility to link product and service categories back to functional capability requirements.

Cyber security: products and services

There is no accepted definition of cyber security that is in use consistently globally. Most attempts at defining cyber security focus on digital data and devices connected to the Internet. But some countries include internal networks not part of the Internet. Others include communications assets such as routers, switches and cellular network infrastructure. Basically, cyber security is the set of processes and technologies that make it possible to conduct public administration, business, commerce and private lives digitally, while in a safe environment.⁴³

In practical terms, cyber security includes the plan, build and run of cyber security solutions that range from strategy formulation through services and software to physical cyber security infrastructure. This includes cyber security services and software and the related hardware, both specific cyber security hardware (such as appliances) and related non-specific hardware (such as servers that host cyber security software)

The market for cyber security is a varied one, and the market structure and supply chain depend on the nature of the business being protected and the extent of exposure to potential threats. Based on different cyber security products and tools provided by the various actors on the market, together with solutions bringing together combinations of technologies, the following table describes the developed segmentation of cyber security products and services.

⁴³ For example, the Netherlands' national cyber security strategy provides the following definition of cyber security: "Cyber security refers to efforts to prevent damage caused by disruptions to, breakdowns in or misuse of ICT and to repair damage if and when it has occurred. Such damage may consist of any or all of the following: reduced reliability of ICT, limited availability and violation of the confidentiality and/or integrity of information stored in the ICT systems".

Table 2.3 Cyber Security: broad segmentation of products, technologies and services

Cyber security products and solutions	<i>Examples:</i>
Governance, vulnerability and cyber-security management	<ul style="list-style-type: none"> • Information security management systems; • SIEMS (security information and event management) systems.
Identity and access management	<ul style="list-style-type: none"> • Electronic access control (identification and authentication) for IT and communications equipment (hardware), systems and networks.
Data security	<ul style="list-style-type: none"> • Encryption, cryptography and digital signature solutions; • Public key infrastructure solutions; • Digital rights management solutions; • Information rights management solutions; • Data loss/leak prevention, secure data deletion, secure archiving, data recovery solutions; • Content filtering and anti-spam solutions.
Applications security	<ul style="list-style-type: none"> • Security of IT software and applications (design, coding development and testing).
Infrastructure security	<ul style="list-style-type: none"> • System and network security software (e.g. firewalls, antivirus, anti-DDoS⁴⁴, intrusion detection, tracking and tracing); • Unified Threat Management (UTM) solutions; • Terminal (fixed or mobile) security solutions and endpoint hardening solutions; • Vulnerability scanners; • Internet/network communications security solutions (e.g. secure phone, video conferencing, e-mail and messaging systems).
Hardware (device/endpoint) security	<ul style="list-style-type: none"> • Secure personal portable devices and identity documents; • Hardware security modules; • Enrolment and issuance equipment/systems for access control and identify management; • Biometric-based security equipment/systems; • Network encryption equipment/systems; • Special casings etc. for IT hardware.
Cyber security services	<i>Examples</i>
Audit, planning and advisory services	<ul style="list-style-type: none"> • Security audit, vulnerability and intrusion testing, and risk and threat assessment; • Security strategy, planning and management advice; • Security certification and conformity/compliance assessment; • Digital forensics: post event (incident / intrusion) analysis, Investigation and proof preservation; • Other IT/cyber security consultancy services.
System integration and implementation services	<ul style="list-style-type: none"> • Security engineering, design and architecture development; • Security project management; • Implementation and integration, interoperability testing; • Implementation support (technical assistance/expert support services).
Management and operations services	<ul style="list-style-type: none"> • Security system management and operations; • Operational support (technical assistance/expert support services); • Managed security services; • Secure outsourcing; • Continuity and recovery management; • Trusted third party services / E-content and e-reputation services.
Security training services	<ul style="list-style-type: none"> • IT / cyber-security education and training.

Source: Ecorys

⁴⁴ Distributed Denial of Service (DDoS)

Other (physical) security products

The table below shows the proposed segmentation of other ('physical') security products. The underlying approach is to categorise security products according to their technical capabilities which can by and large be grouped according to functional capability requirements that reflect the security response cycle.

Table 2.4 Other Security Products: broad segmentation of products, technologies and services

Other security products	Examples:
Mechanical access control, barriers, enclosures and physical resilience	<ul style="list-style-type: none"> • Locks and locking systems; • Safes, strongboxes etc.; • Armoured and fire-resistant doors; • Mechanical seals (and electronic seals without tracking); • Physical perimeter barriers (e.g. fencing and other security barriers); • Other materials and products to enhance physical resilience to security threats (e.g. blast proofing, hardening, strengthening etc.).
Identification and authentication	<ul style="list-style-type: none"> • Electronic access control systems for buildings and other designated areas (sites and places), including with smartcards or biometric identification and authentication.; • Other identification, accreditation and authentication systems for persons (including with biometrics); e.g. PIN and chip cards, identity cards, passport systems, etc.; • Identification and authentication of materials, goods and equipment (e.g. vehicle recognition, protection against forgery and counterfeiting).
Intruder detection and alarm	<ul style="list-style-type: none"> • Intruder detection and alarm systems (with or without remote monitoring).
Fire detection, alarm and suppression	<ul style="list-style-type: none"> • Fire, smoke and explosion detection and alarm systems (with or without remote monitoring); • Fire suppression systems.
Detection and screening for dangerous or illicit items or concealed persons	<ul style="list-style-type: none"> • Detection capabilities for dangerous/hazardous or illicit items and substances (e.g. screening of persons, baggage, cargo, etc.); • Detection capabilities for concealed persons; • Specialised detection for CBRNE (chemical, biological, radiological, nuclear, and explosives) and other risks.
Observation and surveillance (localised)	<ul style="list-style-type: none"> • Video and other observation and surveillance systems (e.g. CCTV) including video analytics etc. (with or without remote monitoring). Includes surveillance systems for facilities, infrastructure and specified locations (e.g. urban areas, transport hubs, etc.).
Observation and surveillance (wide area)	<ul style="list-style-type: none"> • Large area (specialised environment) observation and surveillance systems (e.g. air, maritime and land border surveillance) for civil security purposes.
Tracking and, tracing, positioning and localisation	<ul style="list-style-type: none"> • Tagging and tracing devices and systems (e.g. bar code, RFID, Wi-Fi based); • Tracking, localisation and positioning devices and systems (e.g. for cargo containers, land vehicles, ships and aircraft; such as AIS, LRIT etc.); • Tracking, localisation and positioning of persons, equipment, supplies etc. in crisis situations; • Tracking, localisation and positioning of hazardous substances and devices (e.g. radioactive materials, hazardous chemicals, etc.); • Electronic seals with tracking/positioning (e.g. GPS, RFID).
Communications	<ul style="list-style-type: none"> • Communication systems for use by civil security service providers (e.g. police, fire fighters, private security services), particularly secure communication systems; • Public information and situation alert communication systems.

Other security products	<i>Examples:</i>
Command, control and decision support	<ul style="list-style-type: none"> • Command and control systems for use in security situations (e.g. emergency response and rescue, special security missions and crisis management); • Information management and decision support systems for use in security situations; • Other tools and systems to support planning and organisation and maintaining of security (functional) capabilities; including tools for simulation, modelling, mapping etc. for security purposes.
Intelligence and information gathering	<ul style="list-style-type: none"> • Intelligence and information gathering systems for security-related purposes; • Equipment and materials for security forensics.
Vehicles and platforms	<ul style="list-style-type: none"> • Special land vehicles for use by civil security service providers (e.g. police, fire fighters, private security services) such as armoured vehicles, water cannon systems etc.; • Aircraft (planes, helicopters) and un-manned flight systems (UAVs) for use by civil security service providers; • Ships and boats for use by coastguards; • Robotic platforms for use in civil security operations (e.g. bomb disarmament and disposal, search and rescue).
Protective clothing	<ul style="list-style-type: none"> • Protective and specialised clothing for use by public and private security service providers (police, fire fighters, security guards, etc.).
Equipment and supplies for security services	<ul style="list-style-type: none"> • (Other) specialised gear, equipment and supplies for law enforcement, public order and safety services, other emergency services and private security service providers (including weapons and ammunition).
Security systems integration	<ul style="list-style-type: none"> • Specific activities related to the integration of functional security systems (as separate from the supply of associated equipment and platforms).

Source: Ecorys

Private security services

The following table shows the proposed segmentation of other security services. This covers three broad headings: (i) private security services (i.e. manpower-related services), (ii) security consultancy and training services and (iii) security research services.

Table 2.5 Private security services sector: broad segmentation

Private security services	Manpower based security services
Guarding and manning	<ul style="list-style-type: none"> • Guarding and manning services (e.g. securing buildings, infrastructure, spaces and environments through the deployment of persons, including with animals); • Security patrol services; • Protection of valuables (e.g. cash-in-transit services).
Remote monitoring	<ul style="list-style-type: none"> • Remote monitoring and surveillance services.
Security of persons	<ul style="list-style-type: none"> • Protection of individuals or groups of persons (e.g. VIP protection services).
Detection and investigation	<ul style="list-style-type: none"> • Security investigation and detective service activities.
Security consultancy services	Consultancy, advisory and training services
Security consulting and advisory services	<ul style="list-style-type: none"> • Risk assessment and advisory services; • Threat assessment and analysis; • Security engineering and design services; • Other security related consultancy and advisory services.
Security training services	<ul style="list-style-type: none"> • Specialised security training services; • Note: excludes IT security training services.
Security research services	Public and private institutions engaged in security-related research activities
Technologies and technical solutions	<ul style="list-style-type: none"> • Educational, academic and private institutions engaged in security-related research activities concerning the development of technologies and technical solutions.
Other research	<ul style="list-style-type: none"> • Educational, academic and private institutions engaged in security-related research activities concerning, for example, social, behavioural, organisational, economic and legal aspects of security.

Source: Ecorys

Public security services

The public sector plays a dual role both as a supplier of security services and as a market for products and services supplied by the security industry. It is not easy to identify and delineate all public sector actors engaged in security related activities as countries differ in the way that such activities are organised and apportioned between the public sector and private actors (on either a commercial or voluntary basis). The proposed broad segmentation distinguishes between two categories of public security provision:

- **Public security services**, which covers the provision of public order, safety, fire and other manpower-related public security services. Essentially, this covers public services such as police, coast and border guards and fire services;
- **Public security intelligence and preparedness**, which covers higher-level security functions undertaken by public or quasi-public organisations such as intelligence, contingency planning and disaster management ('Public security intelligence and preparedness').

Table 2.6 Public security sector

Public security sector	
Public security services	<i>Examples:</i>
	<ul style="list-style-type: none"> • Regular and auxiliary police forces, special police forces, border guards, coast guards etc.; • Regular and auxiliary fire brigades in fire prevention, firefighting, search and rescue, assistance in civic disasters (natural or man-made); • Other specialised fire prevention and firefighting services (e.g. airports, oil and gas, forest fires) whether or not in the public sector; • Other specialised providers of assistance and remediation services in the event of civic disasters; • Technical services supporting public security services (e.g. police laboratories).
Public security intelligence and preparedness	<i>Examples</i>
	<ul style="list-style-type: none"> • State intelligence services (including counter-terrorism, and intelligence on criminal and natural/man-made risks); • Public administrations (other than covered under 'Public security services') involved in security preparedness and intervention (e.g. risk assessment, contingency planning, disaster management etc.).

Source: Ecorys

3 Overview of data available in statistics

This chapter consists of two parts, covering respectively the private security services sector and the public security sector. Within the overall security industry both sectors are relatively well covered in publicly available statistics. The challenge at this level is to filter out the relevant data, fill remaining gaps through estimations and bring the findings into the appropriate context.

3.1 Private security services sector

When assessing the size of the EU private security services sector we can look into two key sources: Eurostat SBS and CoESS data. Eurostat SBS provides data on the NACE 2 code 80 Security and investigation activities and its subgroups which exclusively cover security services. Such data is available until the year 2012 (remaining data gaps can in most cases be covered by previous year data) and for various indicators of our interest (such as turnover, persons employed, number of companies). To verify the reliability of the provided data, it is however also useful to compare it with data provided by CoESS for the year 2010. The following table compares CoESS data with data under Eurostat NACE 2, *80.1 - Private security activities*:

The figures provided under the Eurostat SBS column correspond to the subsector *80.1 - Private security activities*, which is the dominant part of the overall NACE 80. CoESS data is mainly based on information from their members which on the basis of our understanding are mostly reflected under this NACE code. There may however also be some overlap with data reflected in the other sub-sectors NACE 2, *80.2 - Security systems service activities* and NACE 2, *80.3 - Investigation activities*.

Although there is some divergence between Eurostat SBS estimates and the COESS data, which can partly be attributable to the different years covered by the data, the overall order of magnitudes is comparable. It can be noted that the aggregate Eurostat estimates are lower for persons employed and the number of companies, but higher for turnover. Aside from deviating years of reference, it is unclear what is the exact cause of such differences. Potential reasons may be different definitions, data collection methods or other reasons.

Table 3.1 Key data on private security sector in the EU – comparing Eurostat SBS NACE 80.1 and CoESS data

Member State	Number of companies		Number of persons employed		Turnover	
	Eurostat (2012)	SBS (2010)	Eurostat (2012)	SBS (2010)	Eurostat (2012)	SBS (2010)
AT	208	200	12,604	9,500	376	350
BE	195	220	14,804	15,411	863	640
BG	897	1,200	48,785	57,146	248	311
CY	28	60	1,043	1,700	23	25
CZ	2,202	5,629	42,908	51,542	654	692
DE	2,875	3,700	172,842	168,000	4,943	4,390
DK	305	470	2,778	5,000	200	430
EE	65	252	5,933	4,627	89	128
ES	1,707	1,494	116,415	188,018	4,022	3,386
FI	425	250	8,656	12,500	452	400
FR	6,294	9,425	155,214	147,800	6,371	5,290
GR	688	1,200	41,126	30,000	1,192	275
HR	120	246	14,736	16,000	165	160
HU	5,971	11,304	23,666	80,000	844	550
IE	161	280	n/a	20,000	n/a	1,200
IT	1,407	1,299	63,162	47,858	3,168	2,700
LT	98	121	7,237	11,000	65	58
LU	22	13	n/a	2,700	133	n/a
LV	264	500	5,542	21,500	88	366
MT	31	n/a	n/a	1,613	n/a	n/a
NL	1,968	1,300	34,091	31,543	1,745	1,480
PL	1,849	3,200	93,507	200,000	1,205	1,500
PT	305	160	37,967	38,928	648	730
RO	1,364	1,282	116,829	107,000	692	643
SE	558	250	19,293	20,000	1,217	840
SI	106	113	6,766	6,364	167	1
SK	652	n/a	14,999	17,200	216	n/a
UK	4,769	2,500	188,201	364,586	7,777	3,970
EU	35,534	46,668	1,259,900	1,677,536	37,780	30,516

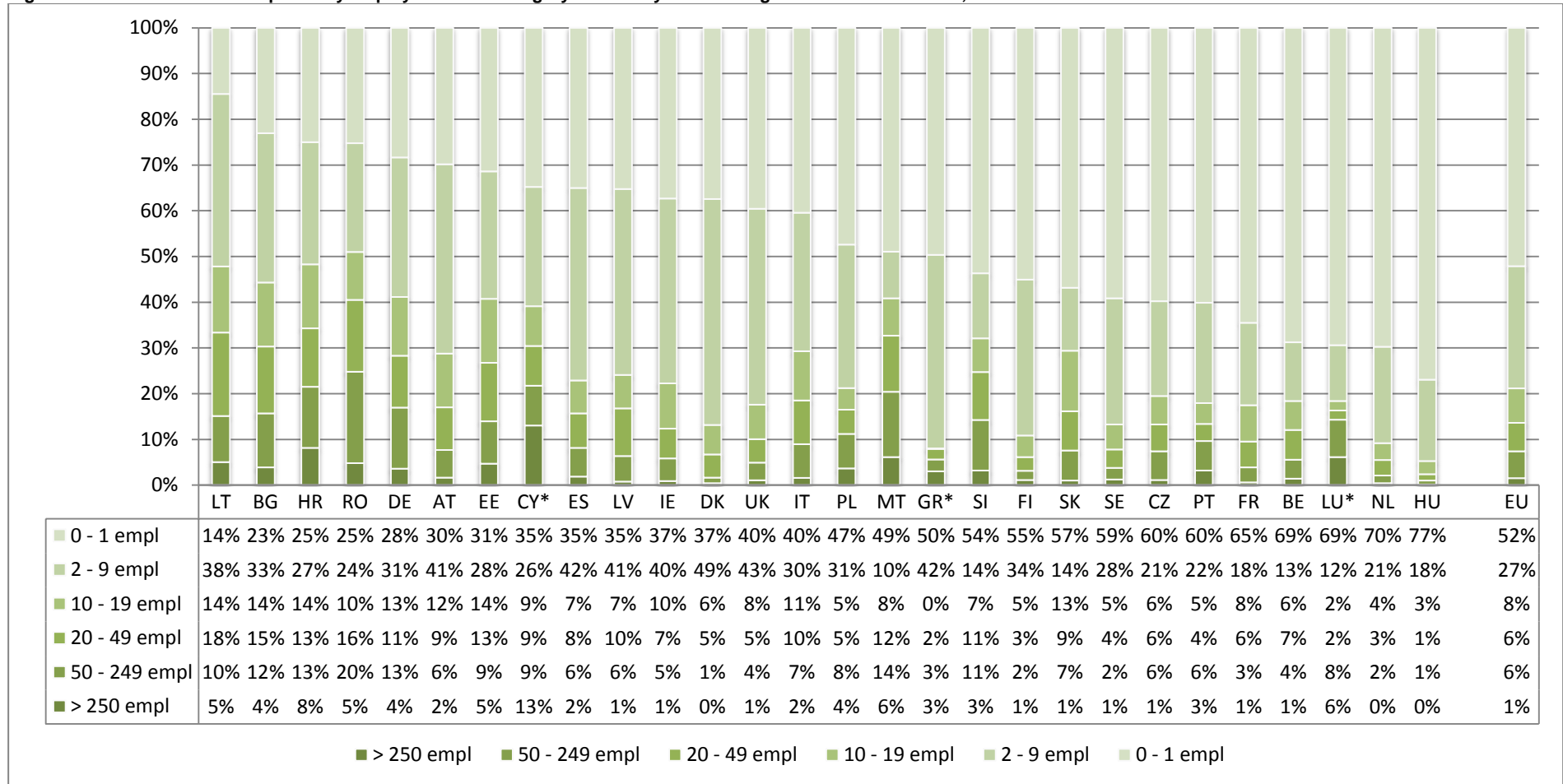
Source: Ecorys based on Eurostat SBS and CoESS (2011)

In the remainder of this sub-section we provide a general overview of the size and structure of the private security services sector as revealed by the Eurostat SBS data (given the clear and coherent structure of its data collection strategy).

3.1.1 Company structure

To describe the overall company structure of the sector we distinguish between company size classes covering the share of the market in terms of number of companies, turnover and employment. Thus the following figures compare the structure of companies active in NACE 2, 80 - Security and investigation activities.

Figure 3.1 Number of enterprises by employment size category in security and investigation activities NACE 2, 80 in 2012



Source: Ecorys based on Eurostat SBS

Figure 3.2 Share of turnover by size category in security and investigation activities NACE 2, 80



Source: Ecorys based on Eurostat SBS

Figure 3.3 Share of employment by size category in security and investigation activities NACE 2, 80



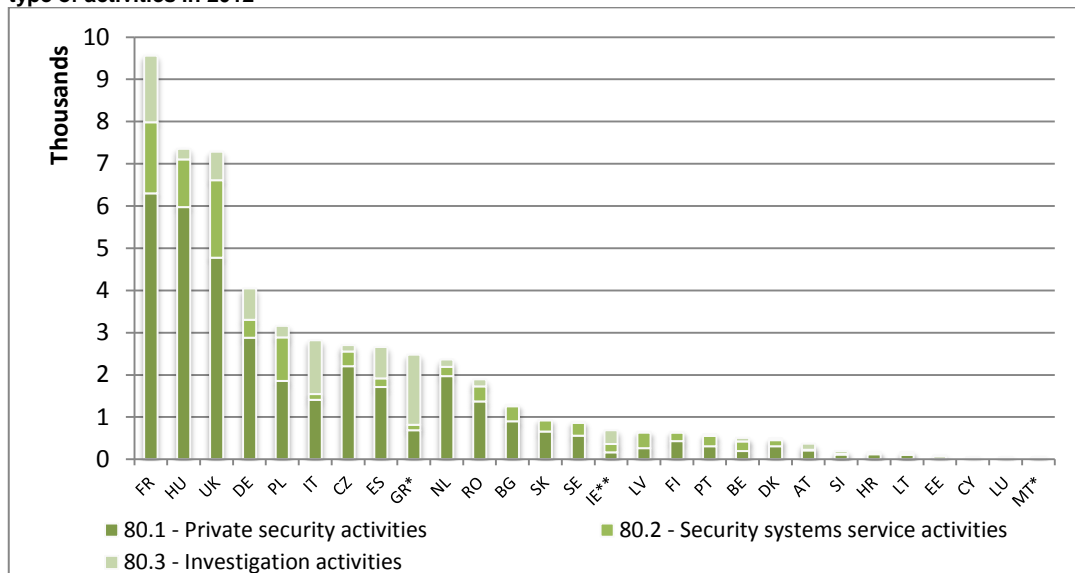
Source: Ecorys based on Eurostat SBS

There are diverse patterns of company structure of the sector cross the EU. On average about 50% of the companies are one-person enterprises. However, in Hungary the share of one-person enterprises is close to 80 % and a similarly high share can be found in the Benelux countries. In contrast, in Member States such as Lithuania, Bulgaria and Romania there is a lower level of one-person companies. Overall, companies employing up to 249 persons account for 99 % of the total number of companies within NACE 2, 80 - *Security and investigation activities*. With respect to the service segment definition (see. Chapter 2) this code contains the categories “Guarding and manning”, “Remote monitoring”, “Security of persons” and “Detection and investigation”. Other security services such as security consultancy services or security research services are excluded from this code. In terms of share of overall turnover and employment in the sector the picture is however upside-down: The remaining 1 % of companies employs more than half the persons active in the sector and are responsible for more than half of total sectors’ turnover.

3.1.2 Number of companies

Going further in-depth on the company structure, looking at the number of companies by sub-segment, we can see that in almost all Member States the activity with the highest amount of companies is NACE 2, 80.1 – *Private security activities*.

Figure 3.4 Number of companies active in NACE 2, 80 - Security and investigation activities by Member State and type of activities in 2012



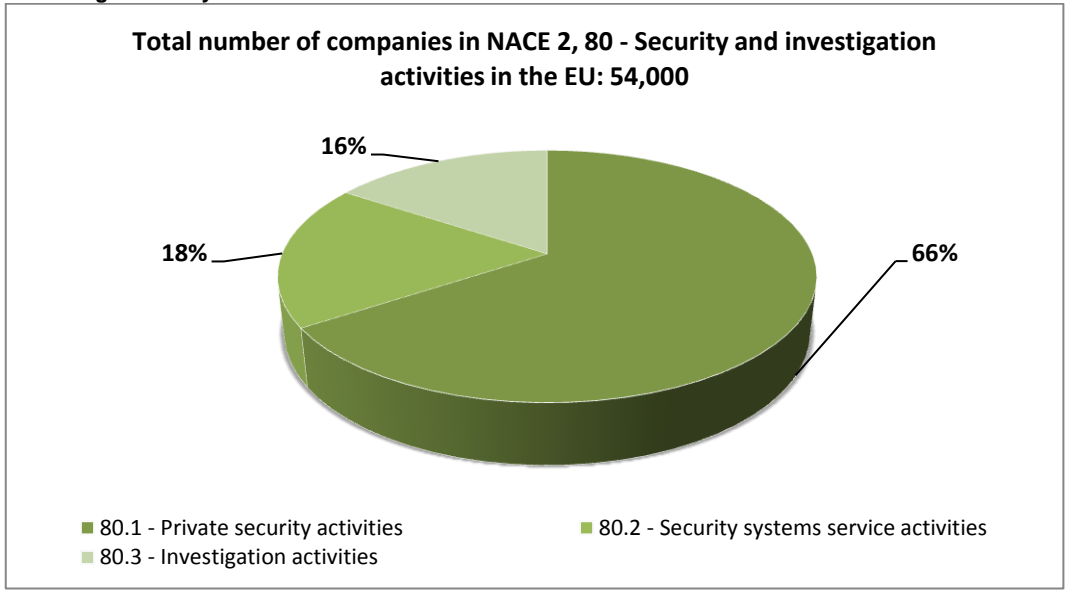
Source: Ecorys based on Eurostat SBS

*2010 data

**Estimates based on subtraction of other countries from Eurostat EU total estimates

France is with almost 10,000 companies registered under NACE 2, 80 – *Security and investigation activities*, the Member State with the highest amount of companies, whereas more than 6,000 of them are part of NACE 2, 80.1 – *Private security activities*. Most other Member States have a similar structure. As already indicated above, Hungary with its focus on one-person companies is the Member State with the second highest amount of enterprises in the sector. Interesting is that Greece has far more companies under NACE 2, 80.3 – *Investigation activities* than in the other activities.

Figure 3.5 Share (in %) of private security companies under NACE 2, 80 - Security and investigation activities according to activity in the EU in 2012



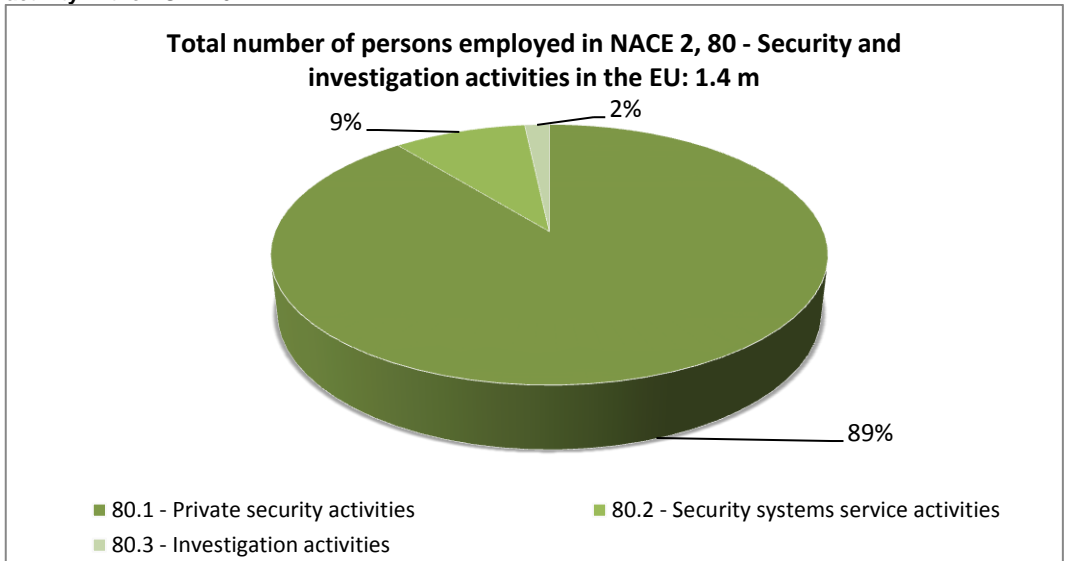
Source: Ecorys based on Eurostat SBS

Overall in the EU about 66% of the total 54,000 enterprises in the sector are part of NACE 2, 80.1 – Private security activities. NACE 2, 80.2 – Security systems service activities and NACE 2, 80.3 – Investigation activities contain with 18 % and 16 % similar shares of the total sector.

3.1.3 Employment

Looking into employment figures, NACE 2, 80.1 – Private security activities, is even more important than already indicated in the number of companies. Almost 90% of the total employment in NACE 2, 80 – Security and investigation activities is reflected under the first sub-sector.

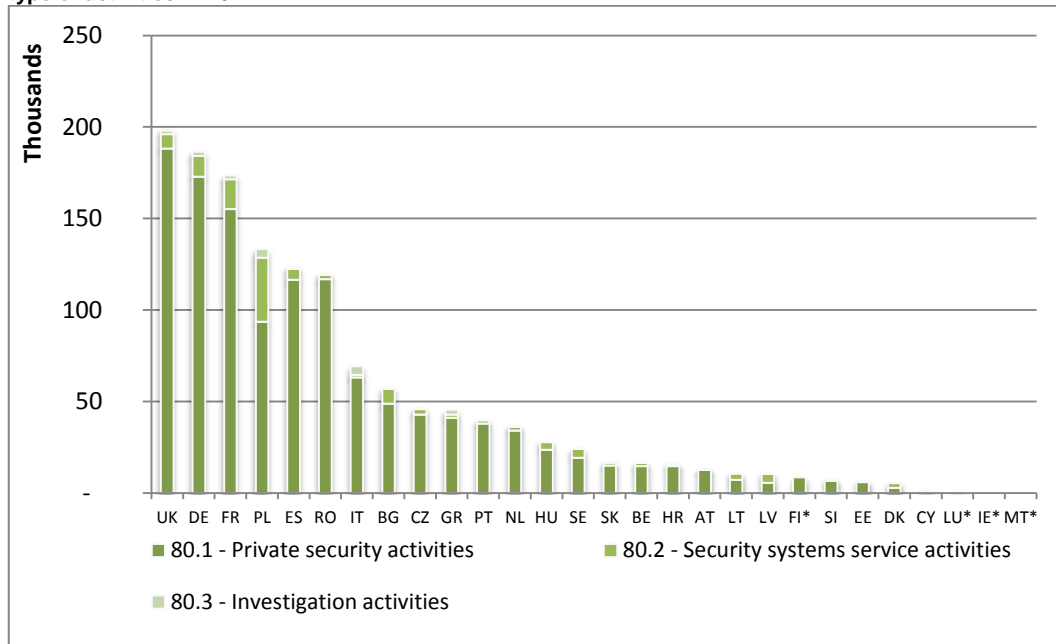
Figure 3.6 Share (in %) of persons employed under NACE 2, 80 - Security and investigation activities according to activity in the EU in 2012



Source: Ecorys based on Eurostat SBS

Looking into country figures shows that the sector generates most employment in the UK, followed by Germany, France and Poland.

Figure 3.7 Number of persons employed in NACE 2, 80 - Security and investigation activities by Member State and type of activities in 2012



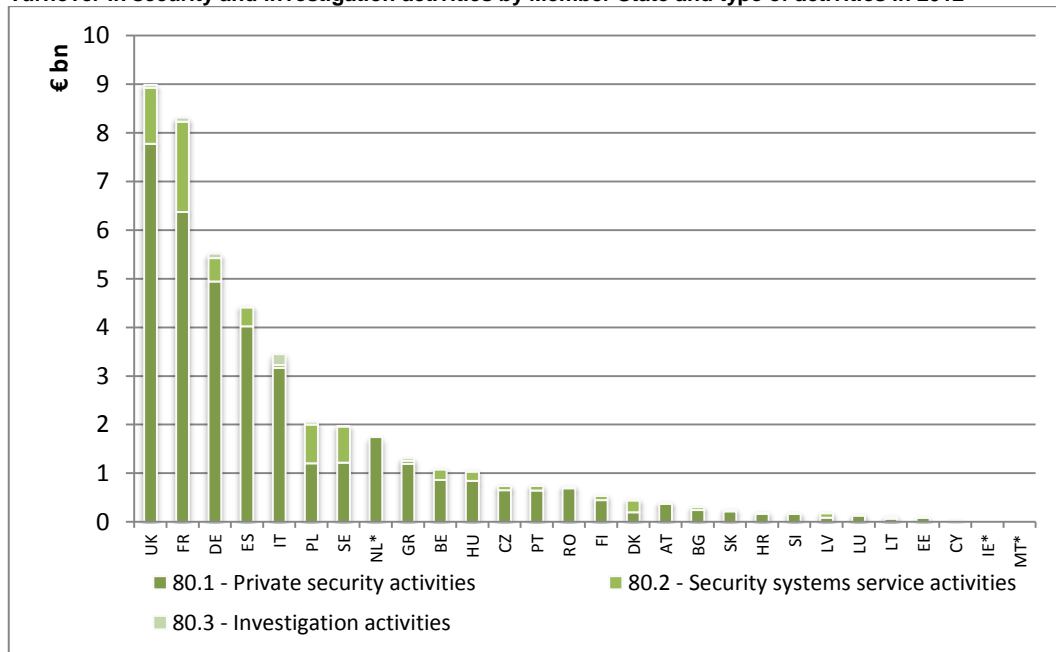
Source: Ecorys based on Eurostat

*no or limited data available

3.1.4 Turnover

Looking into turnover data we can see that in particular the UK, FR, Germany, Spain and Italy have high turnover values for NACE 2, 80.1 – Private security activities.

Figure 3.8 Turnover in security and investigation activities by Member State and type of activities in 2012



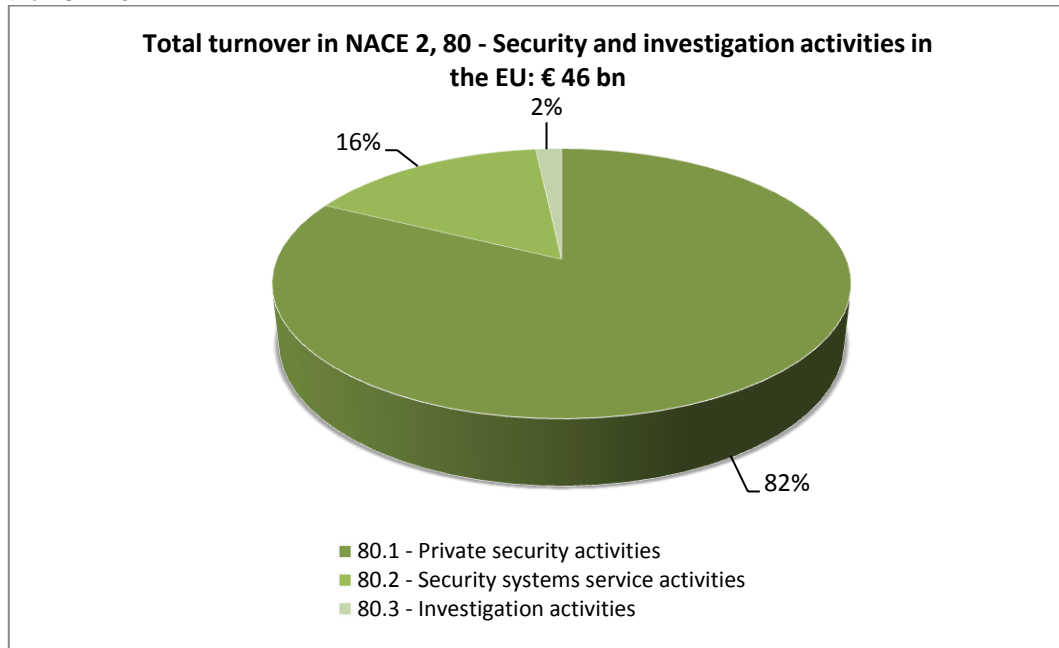
Source: Ecorys based on Eurostat SBS

*data gaps

Comparing turnover and employment data, it appears that NACE 2, 80.2 – *Security systems service activities* has a higher turnover/employee ratio in many countries than NACE 2, 80.1 – *Private security activities*. Also we can observe that Hungary, the Member State with the second highest number of enterprises, is only in 11th position in terms of turnover.

The EU total turnover under NACE 2, 80 – *Security and investigation activities* amounts to about € 46 billion in 2012.

Figure 3.9 Share (in %) of turnover under NACE 2, 80 - Security and investigation activities according to activity in the EU in 2012



Source: Ecorys based on Eurostat SBS

More than 80 % of turnover is generated under NACE 2, 80.1 – *Private security activities*, 16 % under NACE 2, 80.2 – *Security systems service activities* and only 2 % under NACE 2, 80.3 – *Investigation activities*.

3.2 Public security services sector

Public provision of security services comprises all services provided by public authorities that answer security threats (including all civil missions, excluding specifically military and defence missions). The distinction here is according to the civil or military nature of the mission (not the personnel), and the public or private nature of the provider (and the personnel). This distinction is not always perfectly clear cut. In particular there can be domains where “public service” tasks are delegated or sub-contracted to private operators; this differs over Member States... Also, the administrative organisation of public security providers can also differ according to Member States. These structural differences – summarised in the following table – make it difficult to compare figures from national sources.

Table 3.2 National differences in the structure of public security services provision

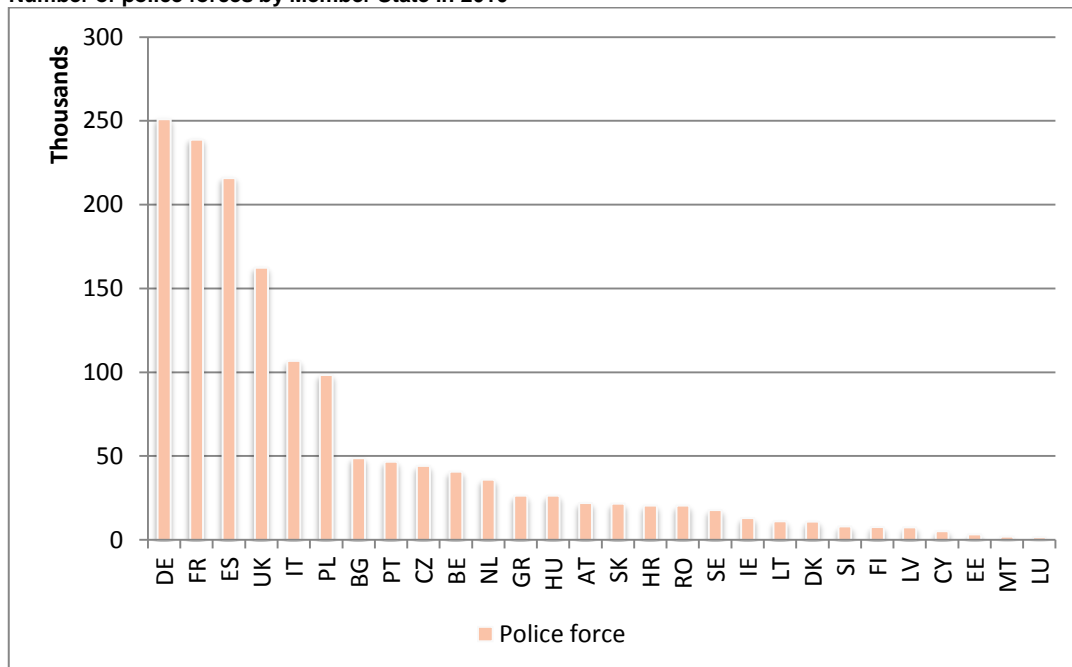
Organisational criteria	Organisational differences	Effect on public security service provision
State structure	Centralised Federal More or less regionalised	The corresponding public security services are more or less centralised
Administrative structure	Administrative organisation and role distribution differ	A given security function may be in charge of different Ministries or Departments
Role of the State	Difference in attitudes as to the allocation of security responsibilities between the State and other (private) entities	Approach to the delegation and sub-contracting of public service tasks to the private sector differ

Based on the segmentation of the sector (as described in chapter 2) and delineation of the main actors involved in the provision of public security services, in Phase 2, we have collected information and figures concerning the public provision of security services (e.g. police forces, border guards, fire fighters and other first responders in the case of emergencies/disasters) primarily in terms of employment (based on various sources: CoESS, Europol, Frontex etc.).

3.2.1 Police forces

For the EU we estimate the total police force to be about **1.5 million** persons. This number is based on estimates for the number of police forces per Member State using data available as per 2010 in the COESS (2011) “Facts and Figures”. The following figure provides an overview by Member State:

Figure 3.10 Number of police forces by Member State in 2010



Source: Ecorys based on CoESS

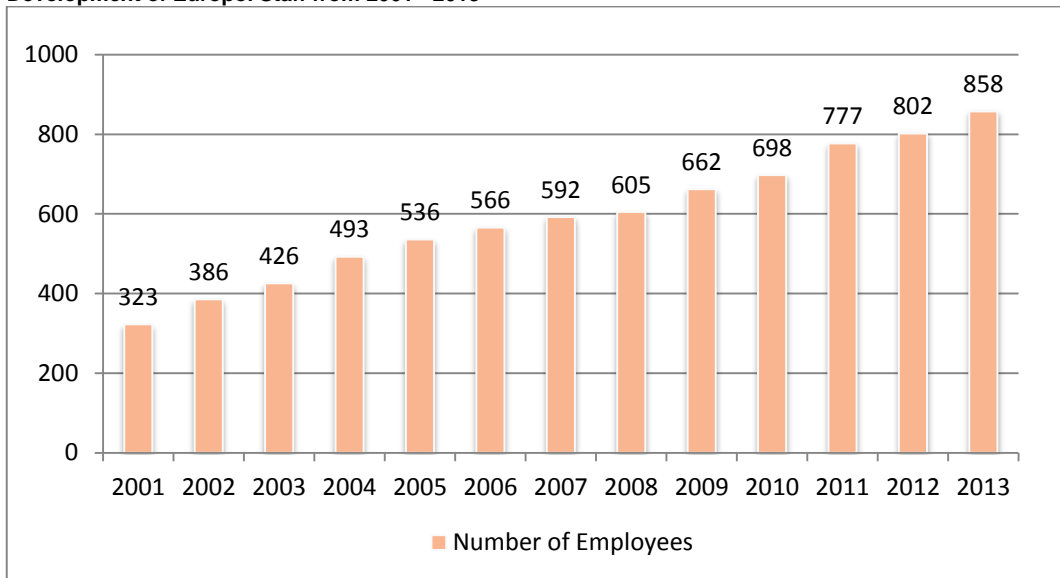
The country with the highest amount of policemen is Germany. According to data from the German national statistical office (DESTATIS) the number of policemen is even higher as there is a separation of federal and regional police; where the regional police amounts to about 250,000 an additional 40,000 would need to be added at federal level.

Overall however the amount of policemen reflects the size of countries although differences across countries can be noted. For example Bulgaria has the highest ratio of police forces per inhabitant while Romania has the lowest one. Other countries with high ratios are Cyprus and Spain. Countries with low ratios are the Nordic states and Italy.

Europol

Another type of police forces is Europol staff which includes staff with employment contracts with Europol, Liaison offices from Member States and third states and organisation, as well as Seconded National Experts, trainees and contractors. While we assume that staff in Liaison offices is already comprised in the total number of police forces shown above, the figures of directly employed staff within Europol adds up to the EU police forces. The following figure provides staff numbers of Europol for December 2013:

Figure 3.11 Development of Europol Staff from 2001 - 2013



Source: <https://www.europol.europa.eu/content/page/staff-statistics-159>

We can see that despite a more than doubling of its staff, Europol does not reflect a significant amount of police forces in relation to the total 1.5 million police forces in the EU. The use of these 858 staff members has however budgetary effects which may be of interest.

Table 3.3 Budget of Europol 2014

Staff	€54,353,589
Other administration expenditure	€8,201,000
Operational expenditure	€21,695,000
Total	€84,249,589

Source: https://www.europol.europa.eu/sites/default/files/publications/europol_budget_and_staff_establishment_plan_2014_0.pdf

Operational expenditures cover such expenses for strategic and operational activities including operational equipment, subsidies and operational training; operational information technology equipment, maintenance, service provision and licenses; telecommunications hardware and software; seconded national experts; EPCC and COSI.

Border guards

In almost all EU Member States border guards are organisationally part of the police.⁴⁵ It is therefore justified to assume that they are already included in the estimates on the total amounts of police forces. Another type of border guards is Frontex, which employs less than 300 people which to a large extent consist of external national experts or seconded staff from Europol and Interpol.⁴⁶

⁴⁵ http://ec.europa.eu/dgs/home-affairs/e-library/documents/policies/borders-and-visas/schengen/docs/handbook-annex_01_en.pdf

⁴⁶ http://www.frontex.europa.eu/more_about_frontex/

3.2.2 Firefighters

The organisational principle of firefighters differs largely across Member States. While in some countries there is a strong focus on professional firefighters, others heavily rely on volunteers. Moreover, among volunteers it is not always clear if all registered persons are actually operational. It is therefore quite difficult to ascertain the figure of fire fighters in the EU. The following table provides an overview of firefighters across the EU (where data was publically available):

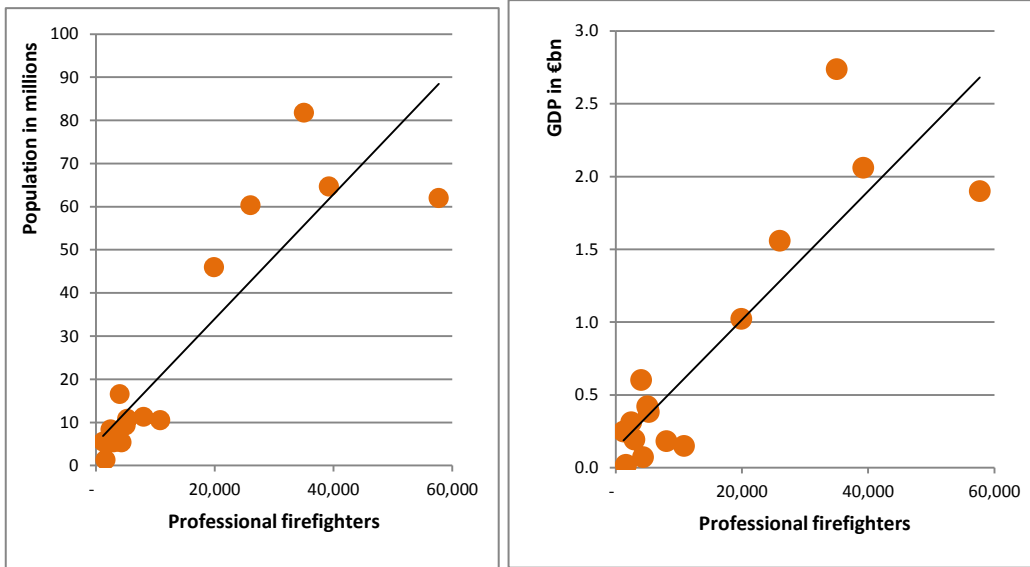
Table 3.4 Number of firefighters in the EU

Member State	Professional	Voluntary	Others	Source
AT	2,447	255,429	-	Österreichischer Bundesfeuerwehrverband: Statistik 2008
BE	5,250	16,690	-	http://www.epsu.org/a/6651
BG				
CY				
CZ	10,797	350,000	2,828	http://www.epsu.org/a/6651
DE	35,000	1,000,000	43,000	http://epsu.org/IMG/pdf/Firefighters-final.pdf
DK	1,217	2,952	5,469	http://epsu.org/IMG/pdf/Firefighters-final.pdf
EE	1,600	100	-	http://epsu.org/IMG/pdf/Firefighters-final.pdf
ES	19,886	3,437	3,745	http://www.epsu.org/a/6651
FI	2,940	19,400	700	http://epsu.org/IMG/pdf/Firefighters-final.pdf
FR	39,200	197,800	12,000	http://epsu.org/IMG/pdf/Firefighters-final.pdf
GR	8,000			http://www.fireservice.gr/pyr/site/home.csp
HR	24,000	60,000	1,745	http://epsu.org/IMG/pdf/Firefighters-final.pdf
HU				
IE				
IT	26,000	7,000		http://epsu.org/IMG/pdf/Firefighters-final.pdf
LT				
LU		9,000		
LV				
MT				
NL	4,000	21,000	1,500	http://epsu.org/IMG/pdf/Firefighters-final.pdf
PL				
PT	58,000	-	5,000	http://epsu.org/IMG/pdf/Firefighters-final.pdf
RO				
SE	5,000	9,000	100	http://epsu.org/IMG/pdf/Firefighters-final.pdf
SI				
SK	4,296	10,000	1,546	http://www.epsu.org/a/6651
UK	57,692			https://www.gov.uk/government/organisations/department-for-communities-and-local-government , http://www.scotland.gov.uk/Topics/Justice/policies/police-fire-rescue/fire , http://www.nifrs.org/about-nifrs/organisational-information-structure/
Total (where available)	305,325	1,961,808	77,633	

Source: Ecorys based on various sources

The differences in the system affect in particular the composition of professional vs. volunteers. This leads to certain outliers in the sample (in particular PT and HR). Plotting the relationship number of population and firefighters as well as GDP and firefighters for the available Member States (excluding PT and HR) shows a rather linear trend.

Figure 3.12 Professional firefighters and population/GDP for 15 EU Member States



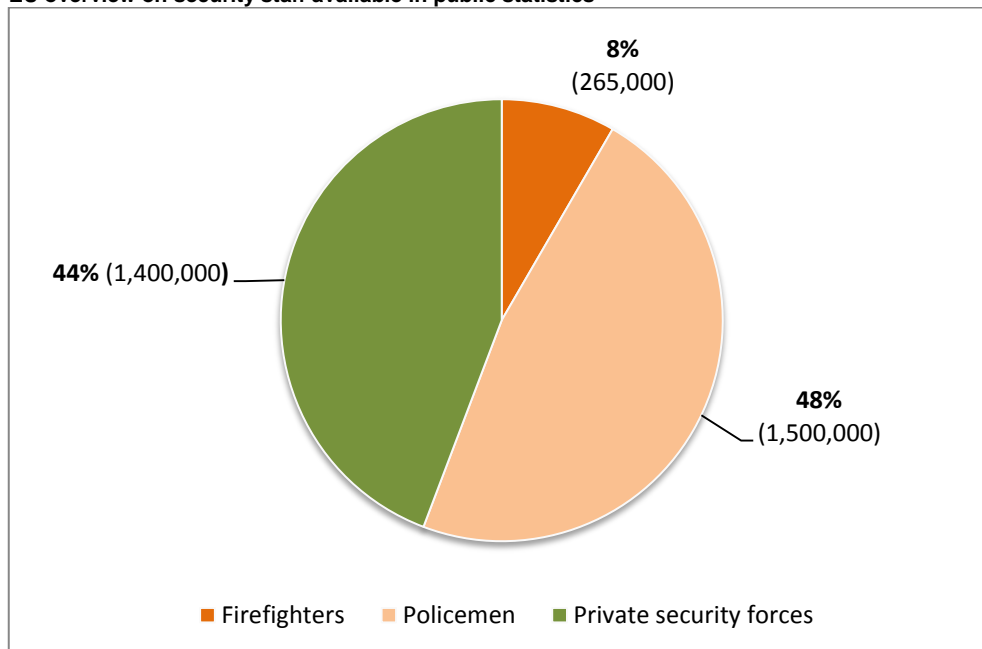
Source: Ecorys based on various sources

Extrapolating the number of firefighters to an EU level on the basis of these ratios leads to a total of some 245,000 – 285,000 professional firefighters in the EU.

3.3 EU overview

Using the insights gathered in the sections above on the private security services sector as well as the public security services sector allows for a preliminary overview and comparison of their size. The following figure shows the composition of the sector based on publically available statistics.

Figure 3.13 EU overview on security staff available in public statistics



Source: Ecorys based on various sources

Combining private security forces, policemen and professional firefighters more than 3 million persons are employed by the sector in the EU. Police forces cover about 48% of the total, private security forces 44% and firefighters 8%.

This amount does however not cover the broad range of persons employed by the private security market which is not falling under the definition of publically available statistics. Examples are other security products (such as locks, safes, electronic access control systems and alarm systems), cyber security providers and other services (such as consultancy, research and training).

Chapters 4 and 5 presenting our survey outcomes and extrapolations aim at tackling this knowledge gap.

4 Comparative analysis of survey results

4.1 Survey - introduction

A key element in mapping the European security sector and market was a security sector survey (SSS) of security companies in seven Member States (DE, EE, ES, FR, IT, PL, UK). The implementation of the survey itself has been sub-contracted to a professional survey company (GfK), with the exception of Germany where the survey was implemented by BIGS (as a follow-up round to previous surveys they conducted as part of an ongoing research activity). Survey questionnaires have been aligned and similar analyses have been carried out for all countries.

In preparation of the survey we developed a questionnaire and a contact list for the selected Member States. The preparation of the contact lists focussed primarily on identifying private companies active in the field of civil security, but also other categories (e.g. research institutes) were identified. We therefore used several sources including membership lists of security related associations, online directories and extensive data-mining on the internet using a wide range of over 100 search terms to identify relevant companies. Recognising that private security services are relatively well covered by existing data sources (e.g. Eurostat SBS and COESS) most attention was given to identifying companies active in other segments of the security sector. Nonetheless, since it was not always possible to establish beforehand whether a firm was active as a supplier of private security services, the contact lists also covered such companies, to a greater or lesser extent.⁴⁷ Public civil security services were not included in the survey.

Before launching the survey, the questionnaire was translated into the respective language and the supporting surveying tools programmed and the interviewers instructed. After a test phase, the field phase was conducted. All interviews were conducted via CATI (Computer Assisted Telephone Interviews). Before signing off the questionnaire it was submitted to the European Commission services for their approval.

To increase the acceptance of the survey and the willingness to answer, a letter from Ecorys and a letter of recommendation from the European Commission were provided to GfK and sent to the companies on demand. In these letters, the study and its objectives were explained and companies were requested to participate in the survey.

For the analysis of the survey we received SPSS/Excel outputs which allowed us to analyse the individual country outcomes (see annexed country reports), extrapolate them to the whole sector in the respective Member State and then extrapolate figures to the EU level.

The comparative country analysis presented in this report is based mainly on the survey findings, which have been validated through interviews conducted with national stakeholders from each of the selected Member States. Stakeholders' consultation provided a better understanding of the dataset, its drawbacks and omissions.

⁴⁷ Note: where companies active as private security service providers agreed to participate to the survey they were retained in the survey sample.

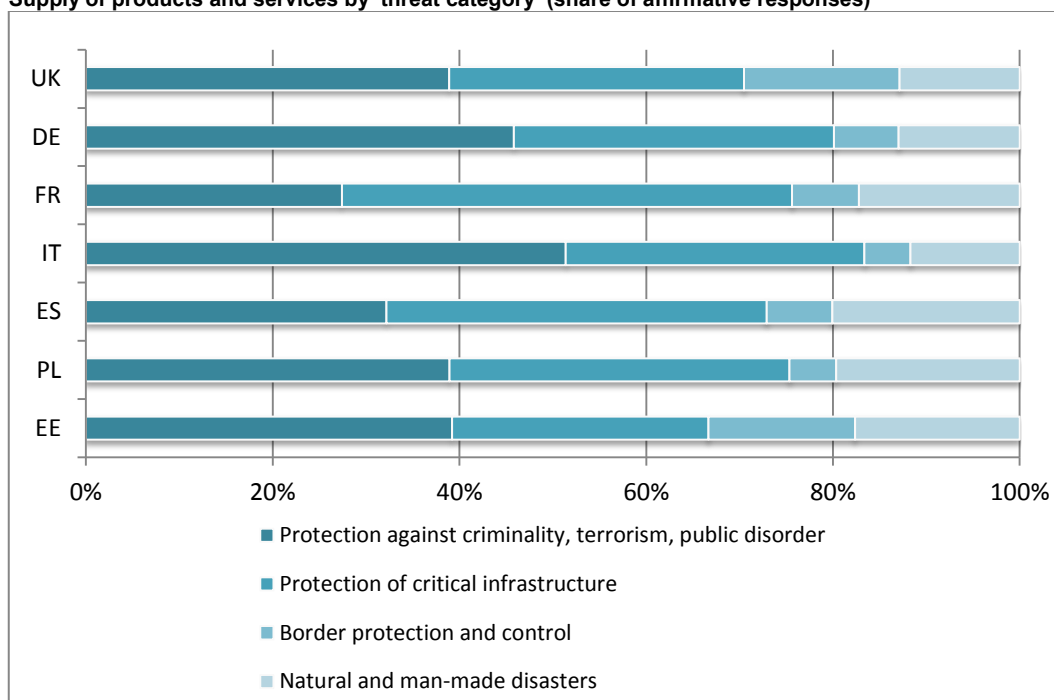
4.2 Comparative analysis

In presenting the results of the study we first address the threat/risk area, followed by a segmentation of the industry both from a product/service and market perspective. We then further analyse the firm structure and the growth performance of the sector also in view of their main competitors. The analysis in this section complements the separate analysis per country, which not only includes additional data but also comprises some key reflection from stakeholder interviews which were carried out. The country reports are presented in a separate annex.

4.2.1 Security “threat” categories

Figure shows the number of respondents that indicated being active in each area of security (‘threat categories’). Respondents could indicate multiple categories. Most companies supply products and services for ‘*protection against criminality, terrorism or public disorder*’ and the ‘*protection of critical infrastructure*’. Border protection and the supply of goods and services for natural and man-made disaster are relatively smaller threat categories. Notable is the importance of critical infrastructures in France and the UK (some 70%⁴⁸ of the companies supply goods and services to the threat category).

Figure 4.1 Supply of products and services by ‘threat category’ (share of affirmative responses)



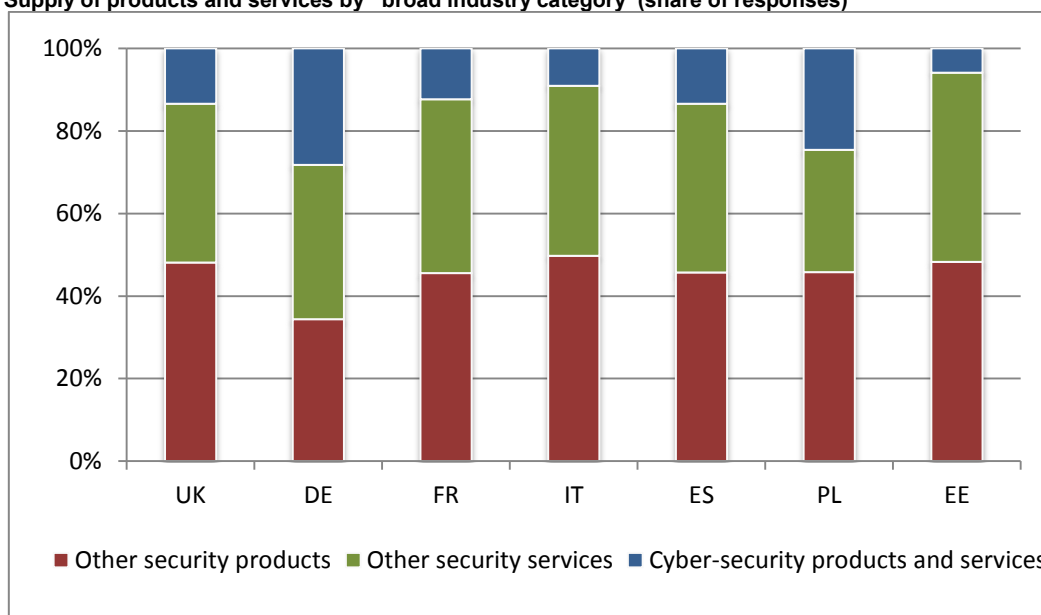
Source: Ecorys SSS

⁴⁸ This figure is higher than shown in the graph as multiple answers could be given.

4.2.2 Industry segmentation

In most countries that have been surveyed the “physical” security industry (see distinction chapter 2) is the most important industry category, although it should be noted that companies could indicate more than 1 category. Cybersecurity products and services are a relatively smaller category. Only in Germany and Poland the share of this category is larger than 25%. In most countries the majority of companies tend to focus their activities within one category, either supplying cybersecurity, or “physical” security products or services, although a mixture of physical security services and products occurs also regularly. Cyber security is a rather standalone activity which is only in a limited sense integrated in the supply of other security products and services.

Figure 4.2 Supply of products and services by ‘broad industry category’ (share of responses)



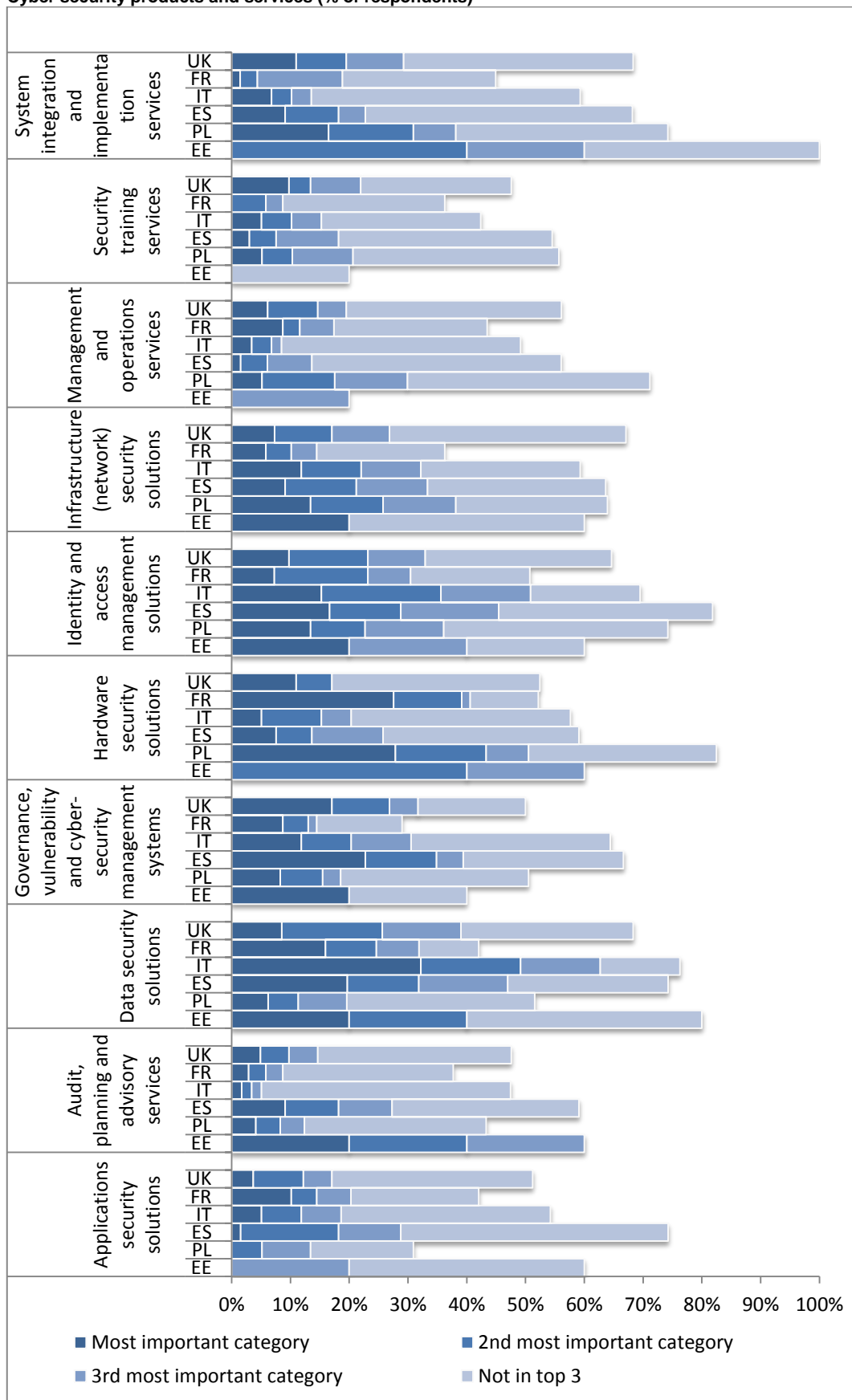
Source: Ecorys SSS

Cybersecurity

Though the sample of cybersecurity related companies is relatively small in most countries, the overall pattern of cyber security products and services is relatively balanced in most countries, with infrastructure and hardware, security management systems and “data security solutions clearly figuring as the most important areas.

In terms of business activity there are clear differences between countries, with Estonia and Poland figuring as main manufacturing countries, whereas software development is relatively important in France and Spain.

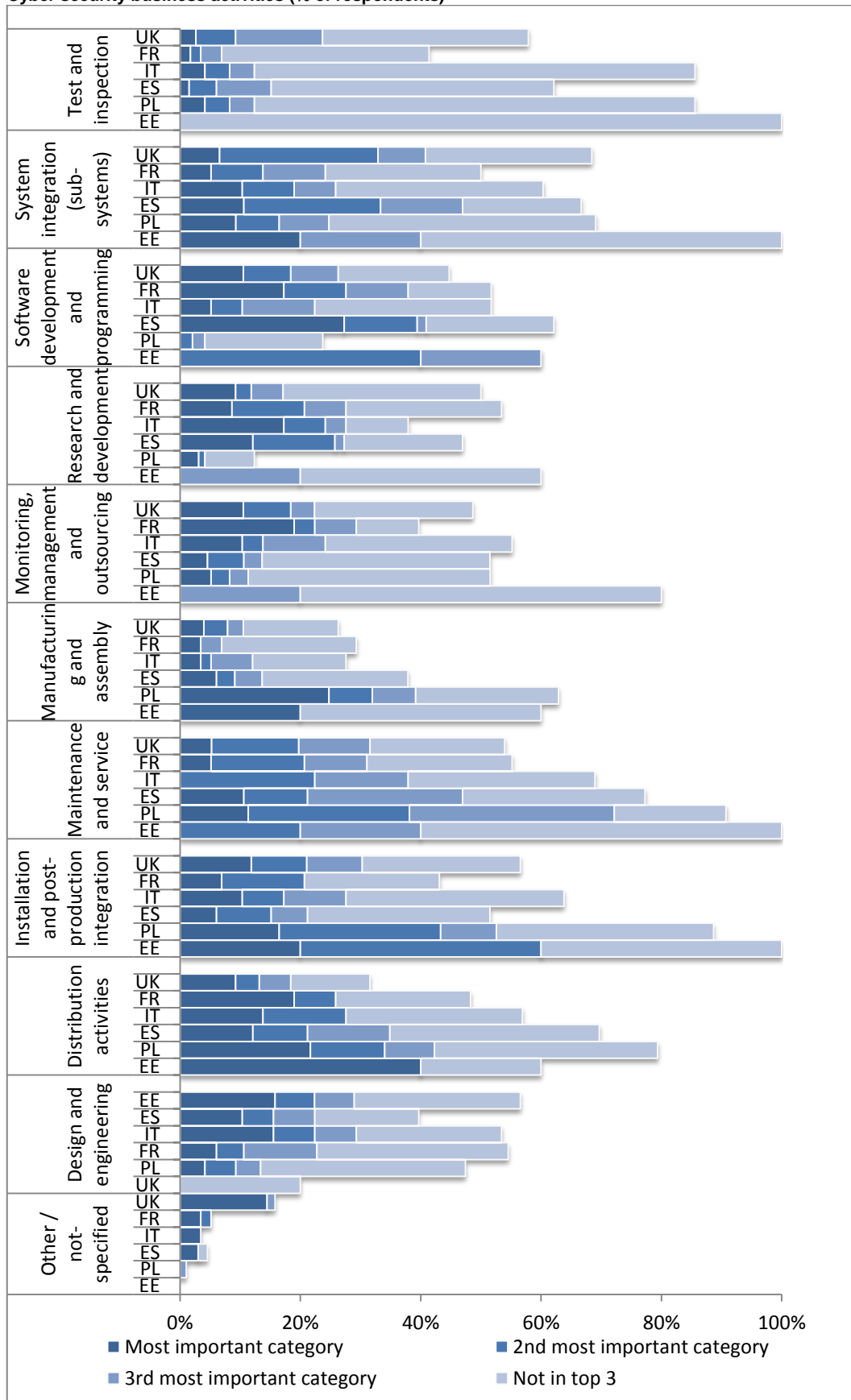
Figure 4.3 Cyber security products and services (% of respondents)⁴⁹



Source: Ecorys SSS

⁴⁹ Data for Germany are not available

Figure 4.4 Cyber security business activities (% of respondents)⁵⁰



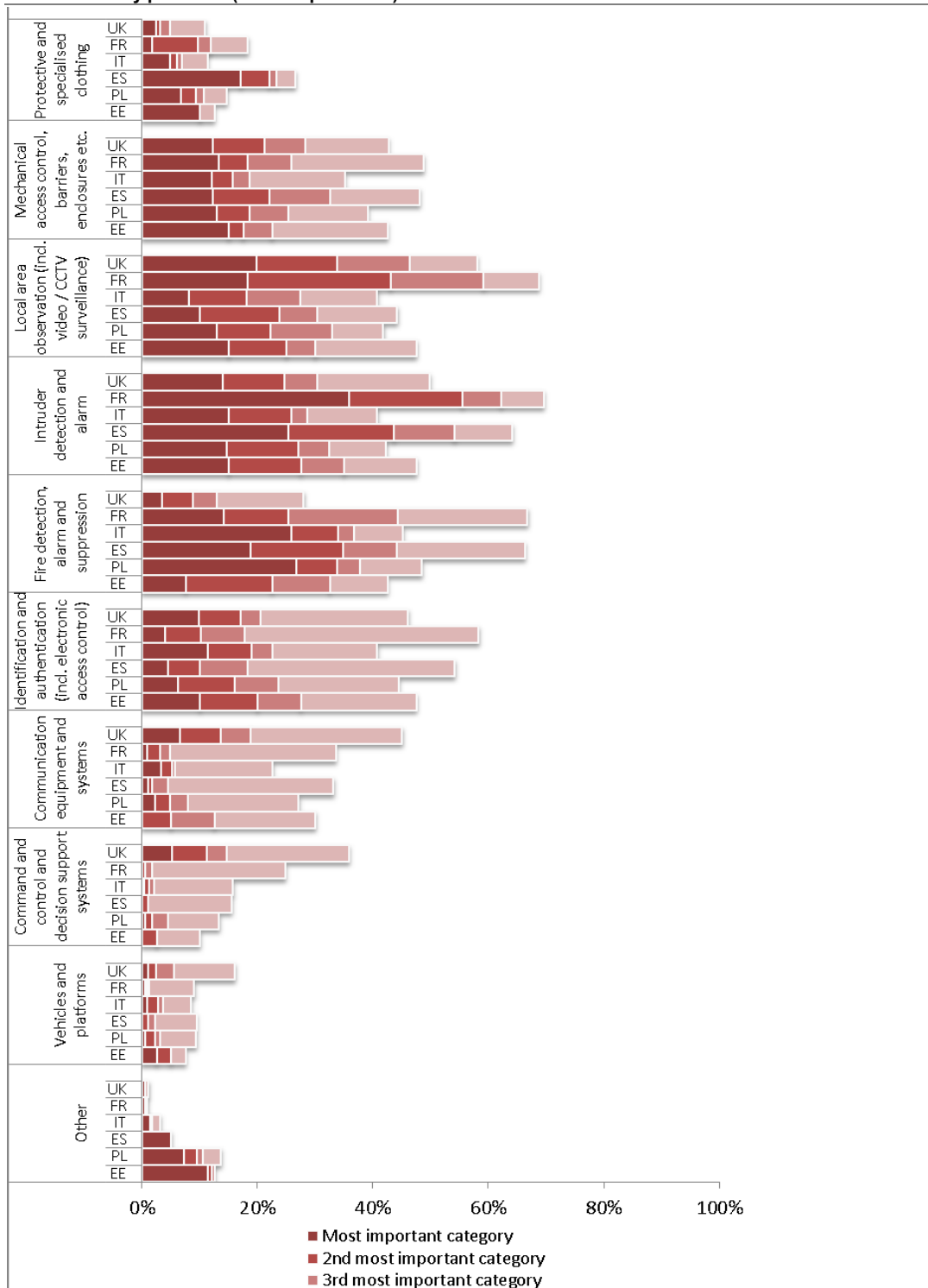
Source: Ecorys SSS

⁵⁰ Data for Germany are not available

Other, physical, security products

In terms of physical security products, traditional product groupings such as access control systems (including identification and authentication), and observation (CCTVs etc.) and alarm systems figure as the most important products. Also protective clothing is indicated as a relatively important product, in particular in Poland.

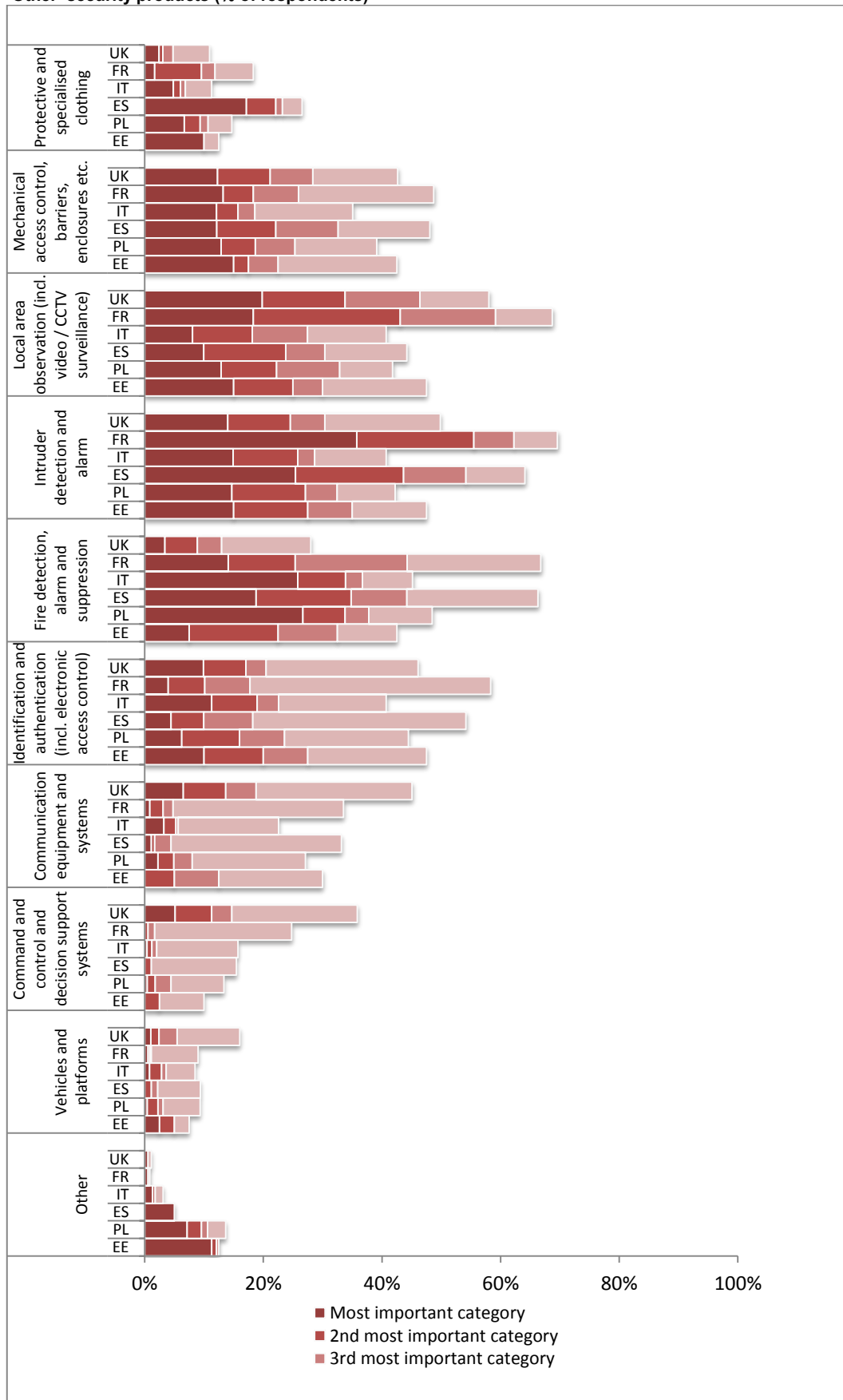
Figure 4.5 'Other' security products (% of respondents)⁵¹



Source: Ecorys SSS

⁵¹ Data for Germany are not available

Figure 4.6 'Other' security products (% of respondents)⁵²

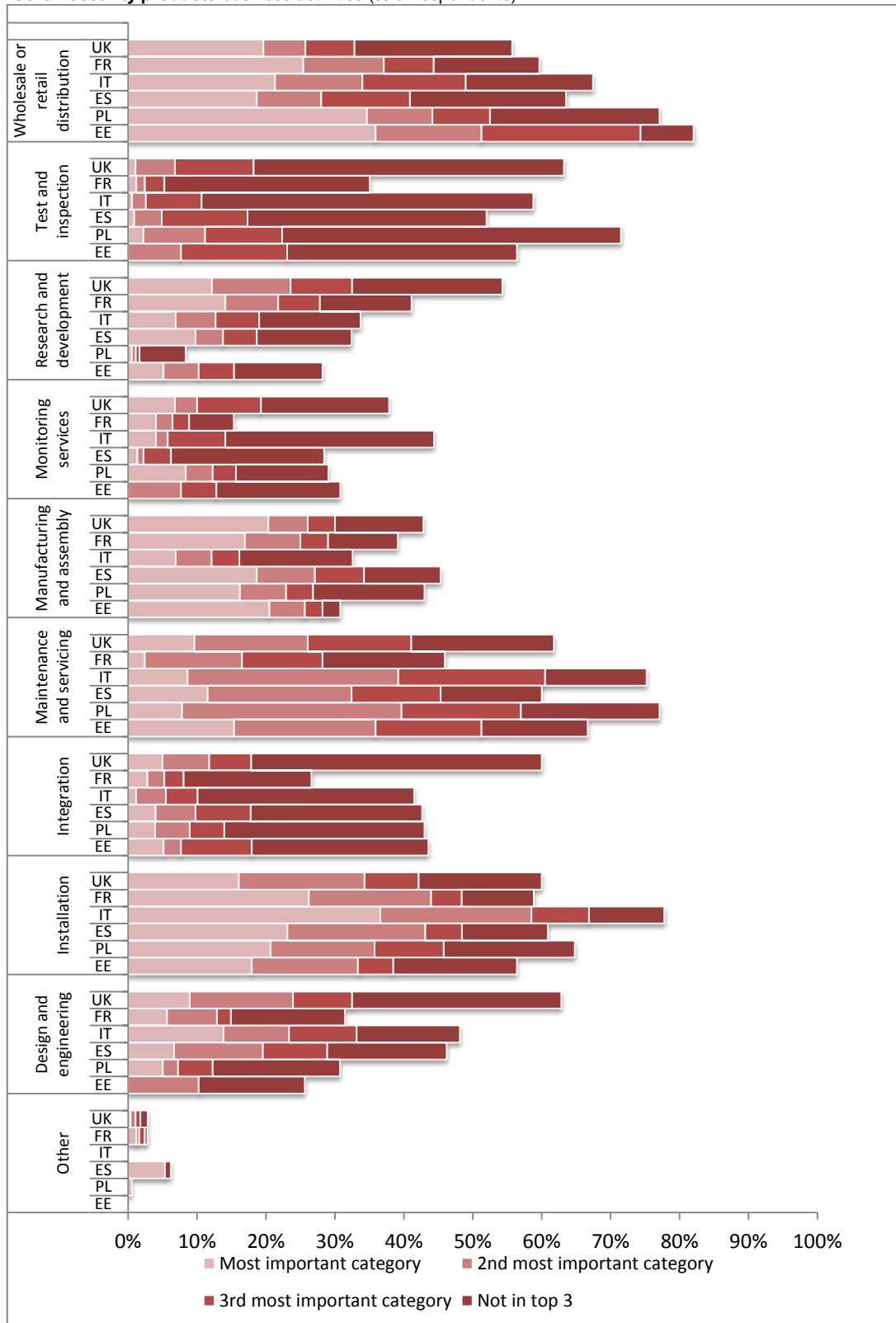


Source: Ecorys SSS

⁵² Data for Germany are not available

In most countries companies show a similar pattern of business activities that are being delivered. Common business activities are “Wholesale and distribution”, “Installation” and “Maintenance & servicing”, followed by “Manufacturing & assembly” and “Research & development”.

Figure 4.7 ‘Other’ security products business activities (% of respondents)⁵³



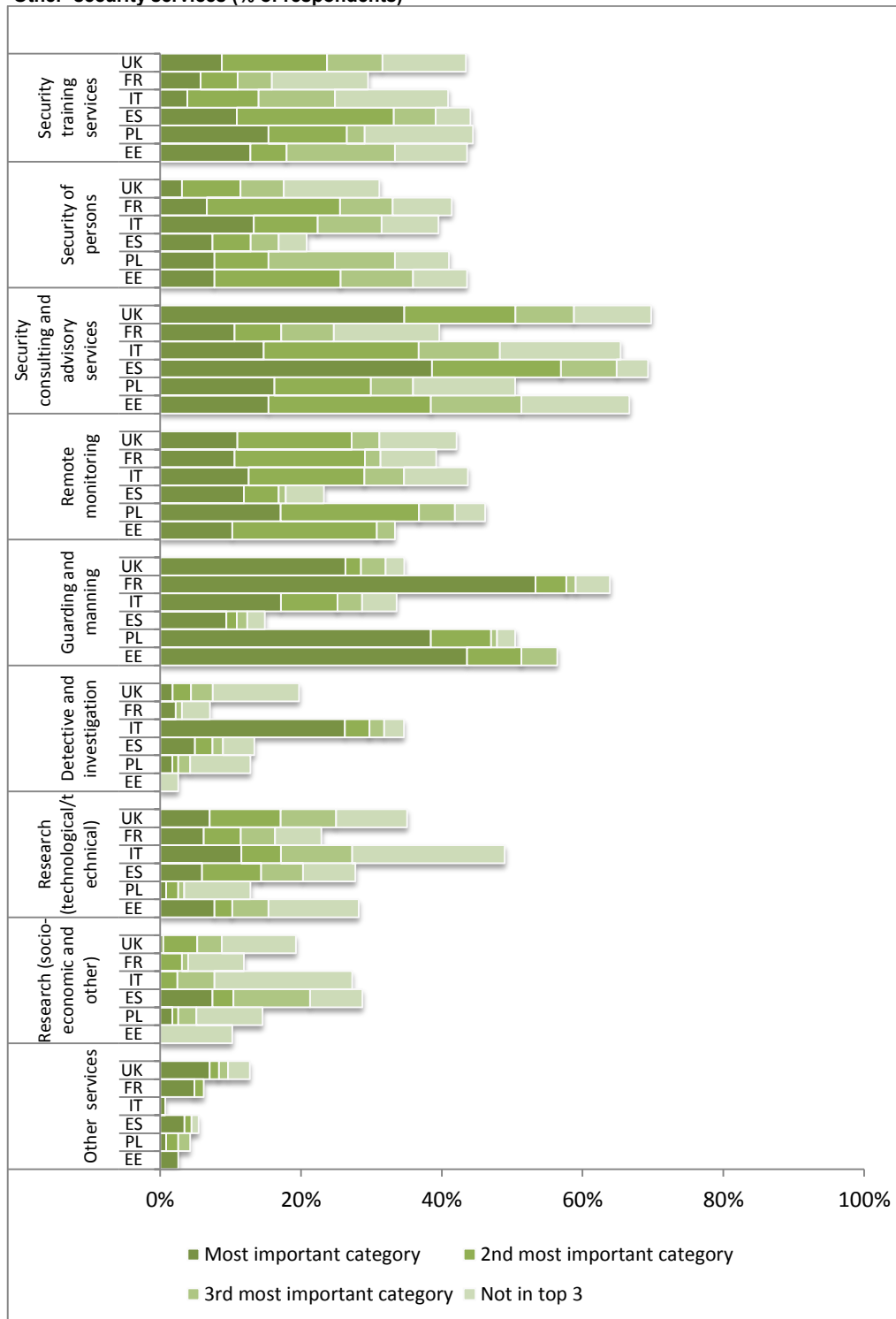
Source: Ecorys SSS

⁵³ Data for Germany are not available

Private security services

Most important security services are “guarding and manning” and “security consulting” in most countries that have been surveyed, although exceptions can be noted for individual countries. The low share of guarding and manning for Spain appears to be contradicted by figures on the private security business (both COESS and Eurostat) which indicates a more important role for these activities than reflected in the below graph.

Figure 4.8 ‘Other’ security services (% of respondents)⁵⁴



Source: Ecorys SSS

⁵⁴ Data for Germany are not available

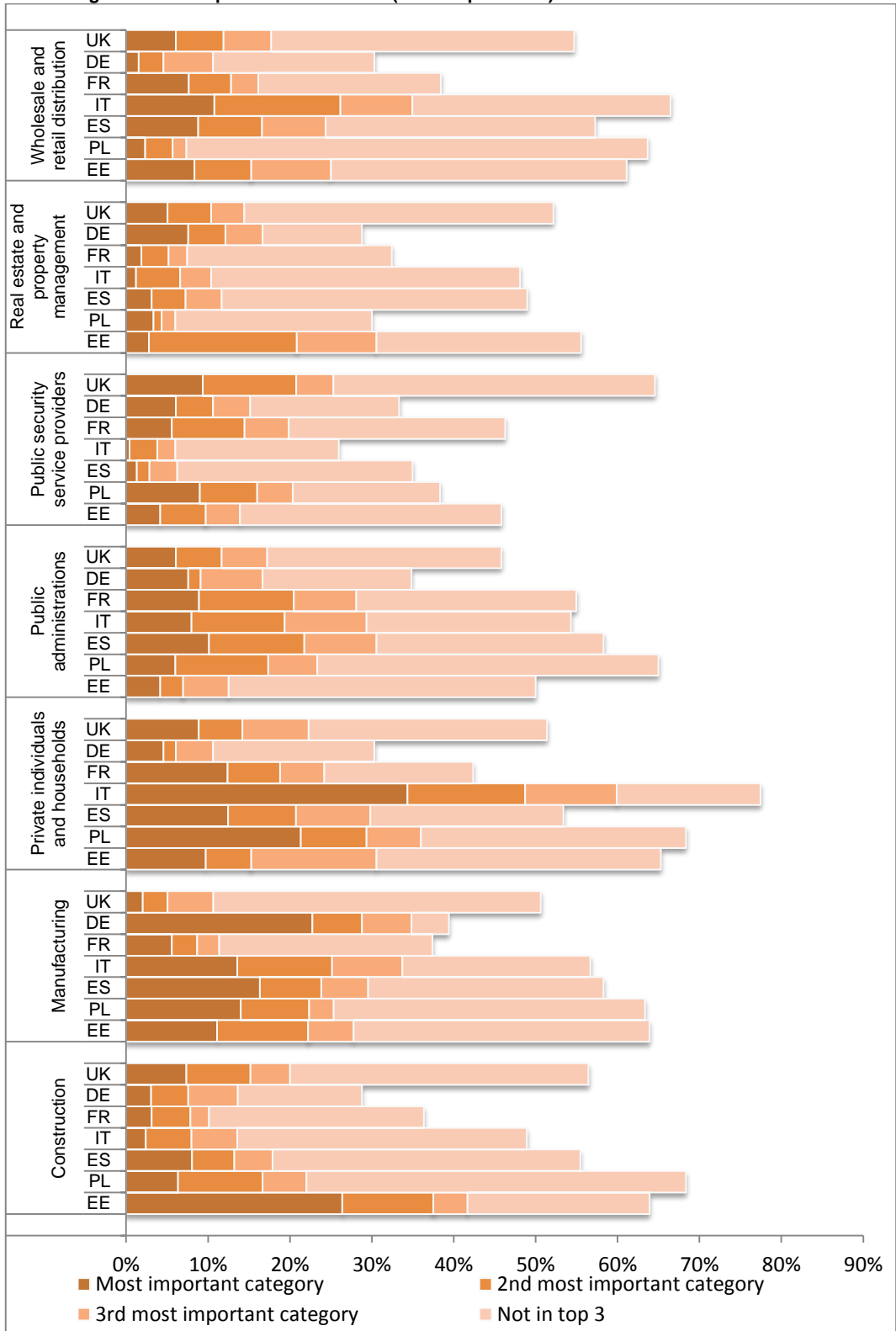
4.2.3 *Security market segmentation*

The below table presents the main market segments by end-user. In general, three major groups of end-users are distinguished across all countries although the rank of individual end-users might differ, partially reflecting the different economic structure of a country. These are:

- private individual and households;
- public administrations and security service providers;
- other economic sectors (commonly mentioned sectors are construction, hotels & restaurants, wholesale & retail, health & education, manufacturing, and real estate.

Although the samples for cybersecurity are relatively small, and hence results should be interpreted with some care, financial services and public administrations (and to lesser extent manufacturing) tend to figure as important end-users for this specific industry segment.

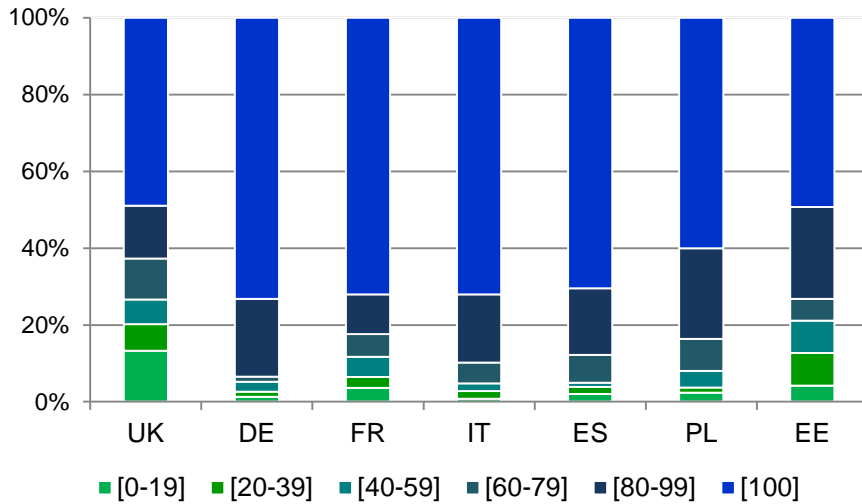
Figure 4.9 Market segmentation all products & services (% of respondents)



Source: Ecorys SSS

A further aspect is the extent to which companies serve different markets. In particular, the often mentioned blurred line between defence markets and civil markets is interesting. According to the figure below in most countries companies report to be primarily focused on civilian markets although a stronger interaction within companies between civilian and defence markets can be observed in the UK and Estonia.

Figure 4.10 Share of activities related to the civilian security sector (as opposed to defense)

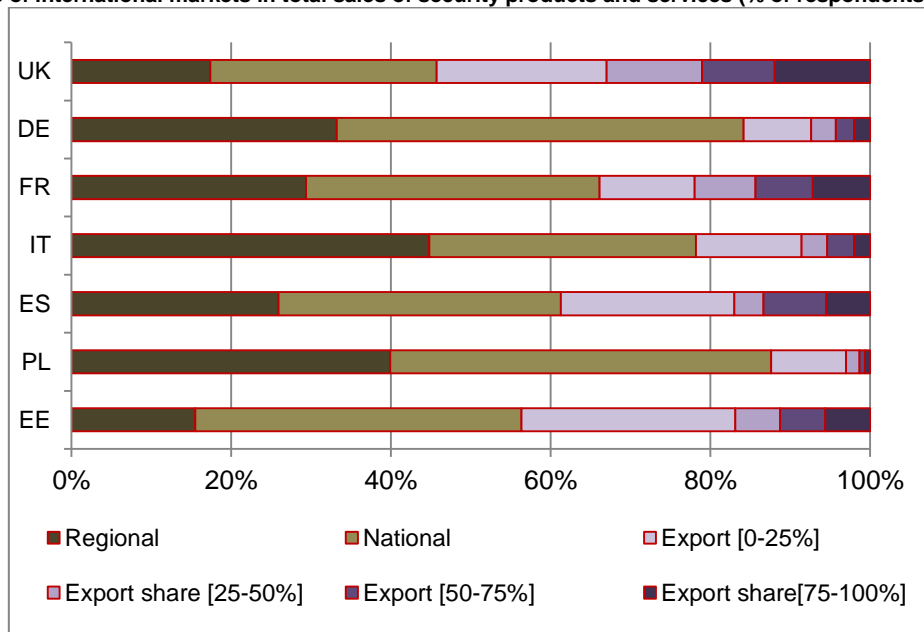


Source: Ecorys SSS

Export orientation

Large part of the security industry is oriented at regional or national markets. To some extent this is due to the type of products and services that are offered. For example, private security services are more domestically oriented markets per definition. In fact, in most countries (with the exception of Spain and Italy) export orientation is stronger for (physical) security products, than for security services (see annex). UK, Estonia and Spain appear to have the strongest export share in total sales, followed by France and Germany. Poland and Italy have a relatively low export orientation.

Figure 4.11 Share of international markets in total sales of security products and services (% of respondents)



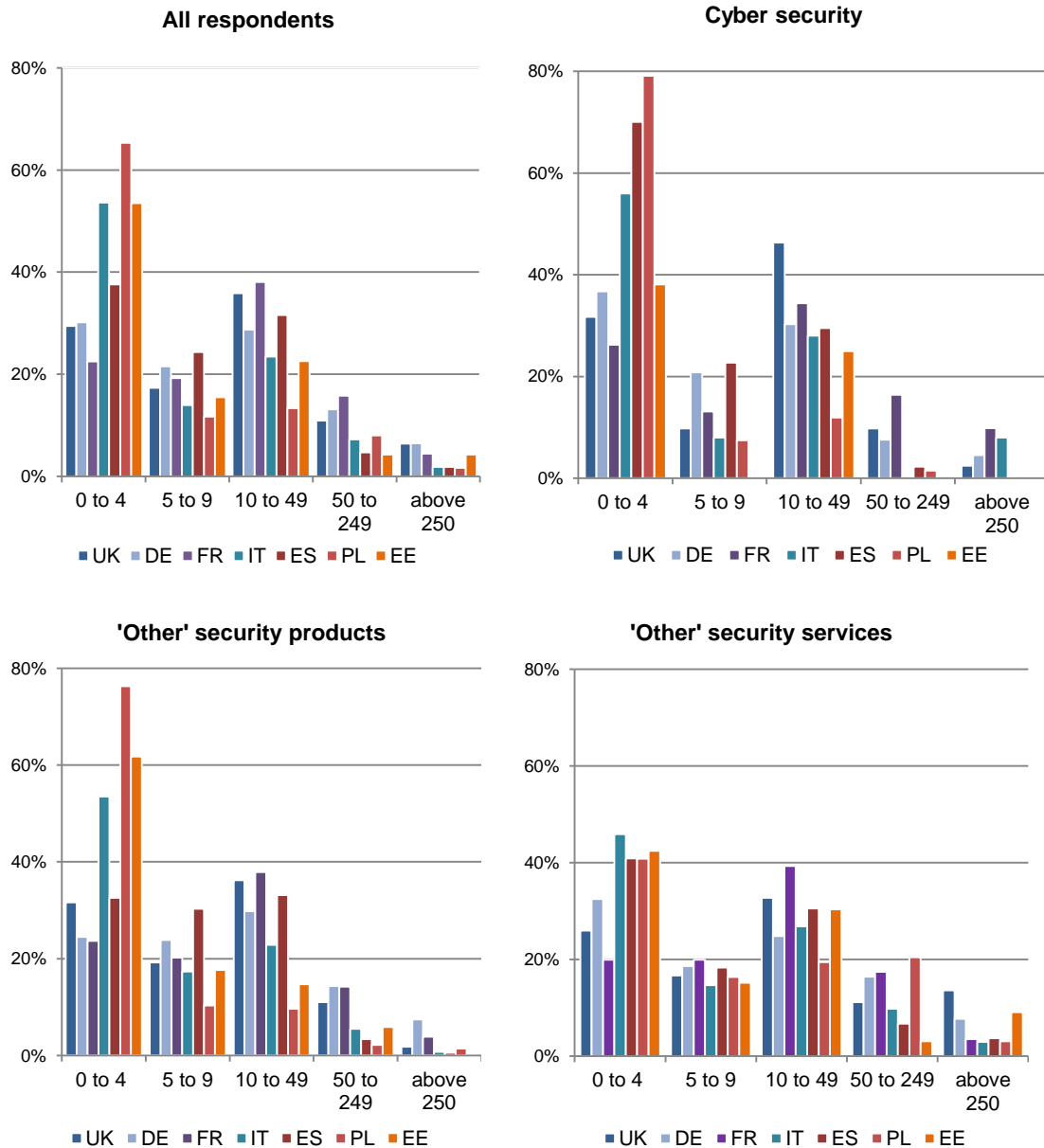
Source: Ecorys SSS

4.2.4 Firm structure and size

Employment

The security industry is characterised by a high percentage of small and medium sized enterprises. In particular the number of micro-enterprises (employing up to 4 persons) is high represented. This is even stronger in Italy, Poland and Estonia. In relative perspective, the company size in the category “other” security services tends to be larger on average also due to the more labour intensive character of this category (also in terms of turnover this pattern can be observed).

Figure 4.12 Distribution of number of employees working in security by main broad industry category (% of respondents in broad industry category)

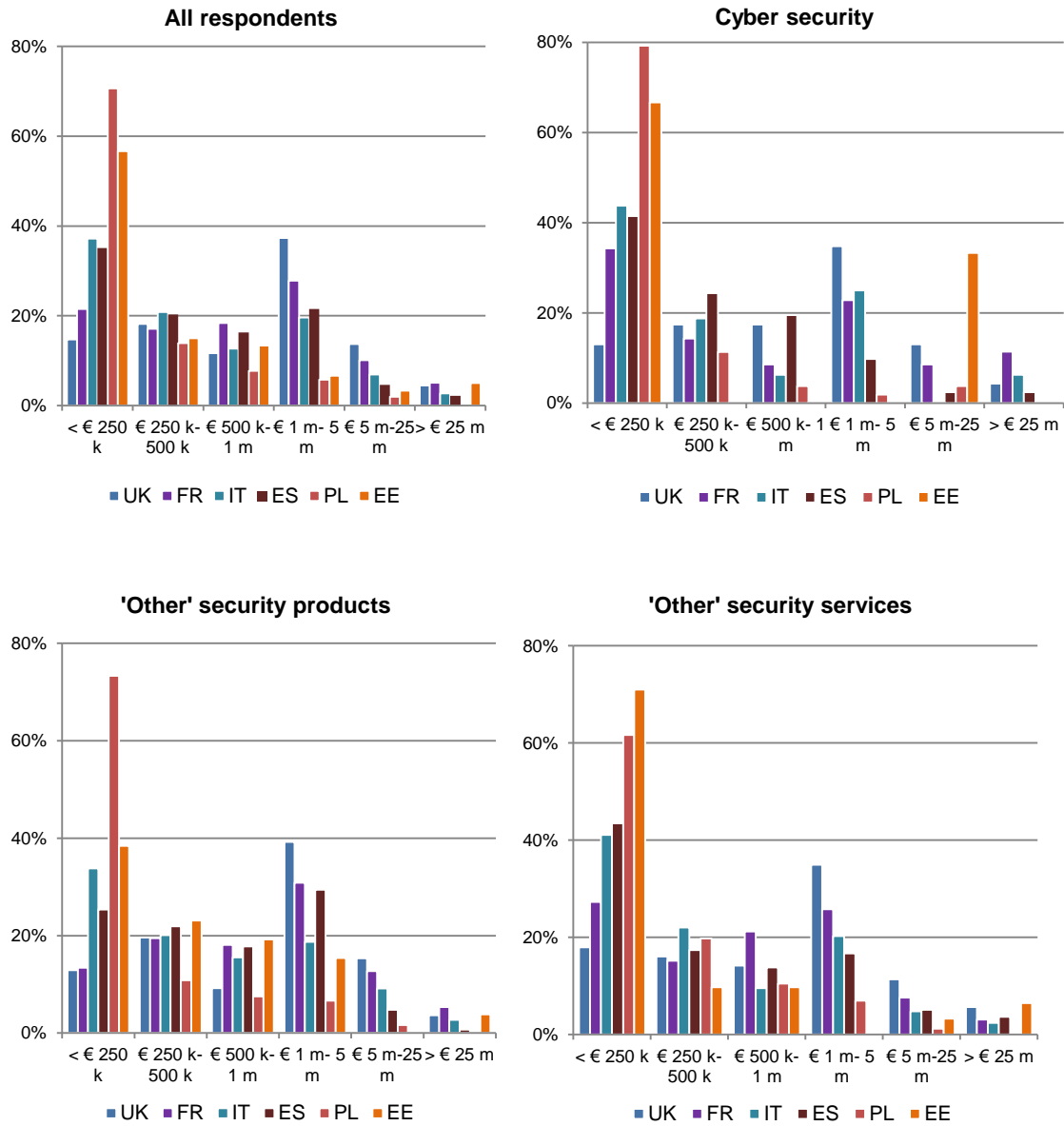


Source: Ecorys SSS

Turnover

The distribution of turnover shows a pattern to employment figures. Again a high representation of smaller and medium sized companies can be observed. As with employment it should be noted that in terms of market share of total turnover, obviously the impact of the larger companies is much more noticeable. When expressed in market shares, the large companies (though lower in number) clearly dominate the market.

Figure 4.13 Distribution of turnover from sales of security products and services by main broad industry category (% of respondents in broad industry category)



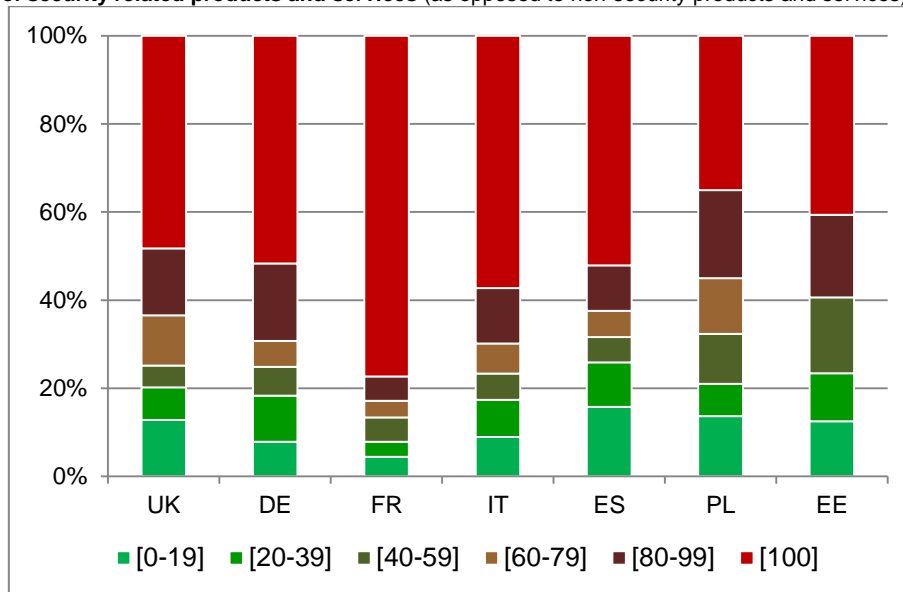
Source: Ecorys SSS

Security as a specialisation

Specialisation of companies can be expressed in different ways. From a supply perspective it was already noted earlier that most companies either supply physical security products, physical security services or cybersecurity & services. Whereas a combination of security services and products can sometimes be observed, cybersecurity remains a relatively stand-alone type of activity which is not often combined with other security services and products.

A similar pattern can be observed at a general security sector level where most security companies tend to focus on security products and services and only to a limited extent also produce non-security products and services. In this sense security is a 'stand-alone' activity.

Figure 4.14 Share of security related products and services (as opposed to non-security products and services)



Source: Ecorys SSS

4.2.5 Turnover growth

Assessing past turnover growth, it can be observed that the security industry in general is a growth industry with most companies reporting growth over the last 5 years. From a country perspective, in particular companies in the UK have shown a very strong growth. The overall figures show substantial positive growth; for Italy and Spain, the impact of the economic crisis was strongest felt in Spain and Italy at these figures however are low or even negative⁵⁵, supposedly a consequence of the economic crisis.

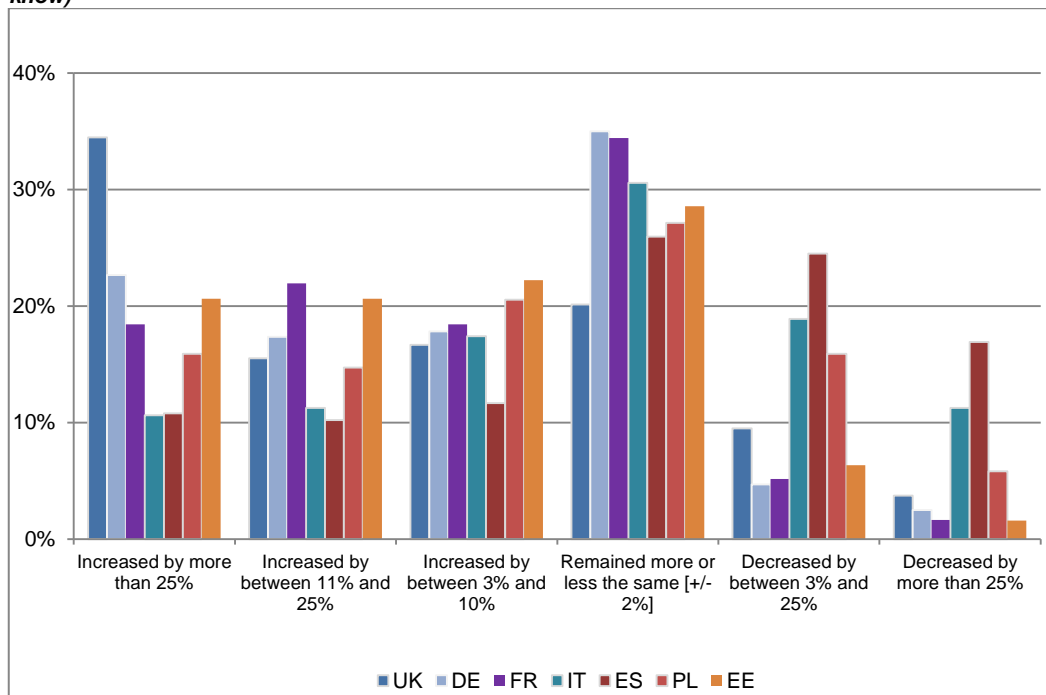
⁵⁵ Figures for past turnover growth were computed as weighted average using as weights scheme the % of respondents for each response category

Table 4.1 Reported growth over the last 5 years

	All respondents	Cyber security	Other security products	Other security services
UK	11%	18%	9%	11%
Germany	9%	8%	10%	10%
France	9%	10%	8%	10%
Italy	1%	10%	1%	0%
Spain	-2%	5%	-2%	-3%
Poland	5%	7%	5%	4%
Estonia	9%	11%	14%	4%
Total	6%	10%	6%	5%

Source: Ecorys SSS

Figure 4.15 Distribution of turnover growth over the past 5 years (% of respondents, *excluding no answer / don't know*)



Source: Ecorys SSS

In comparison, cybersecurity has shown the strongest growth.

Also for the upcoming 5 years the majority of companies expects to see this growth pattern continue⁵⁶.

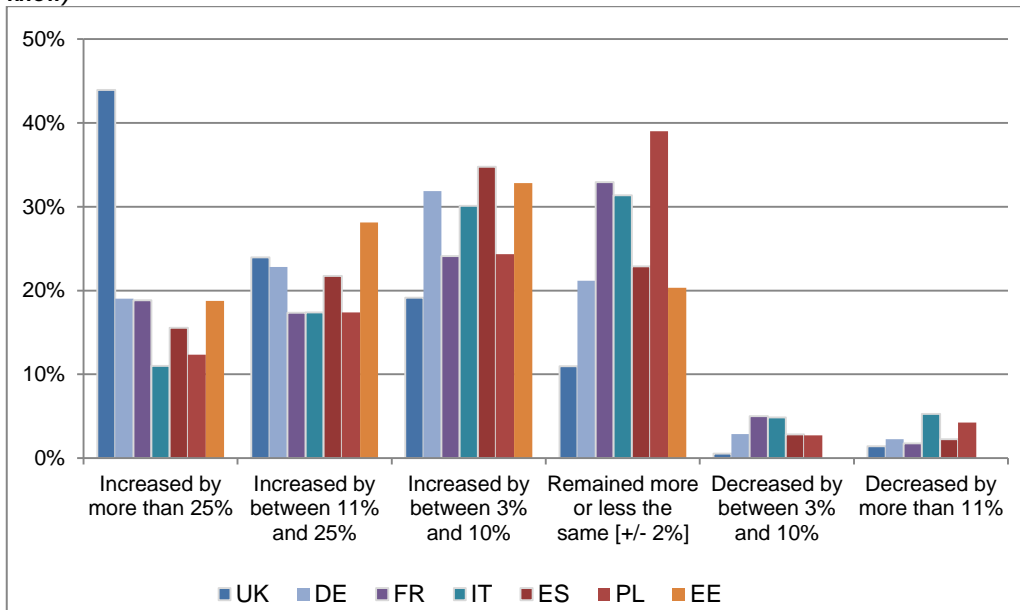
⁵⁶ Figures for future turnover growth were computed as weighted average using as weights scheme the % of respondents for each response category

Table 4.2 Expected growth over the next 5 years

	All respondents	Cyber security	Other security products	Other security services
UK	16%	19%	16%	16%
Germany	11%	12%	10%	11%
France	9%	13%	8%	9%
Italy	7%	13%	7%	6%
Spain	10%	14%	10%	8%
Poland	7%	8%	7%	7%
Estonia	12%	15%	15%	9%
Total	10%	14%	11%	10%

Source: Ecorys SSS

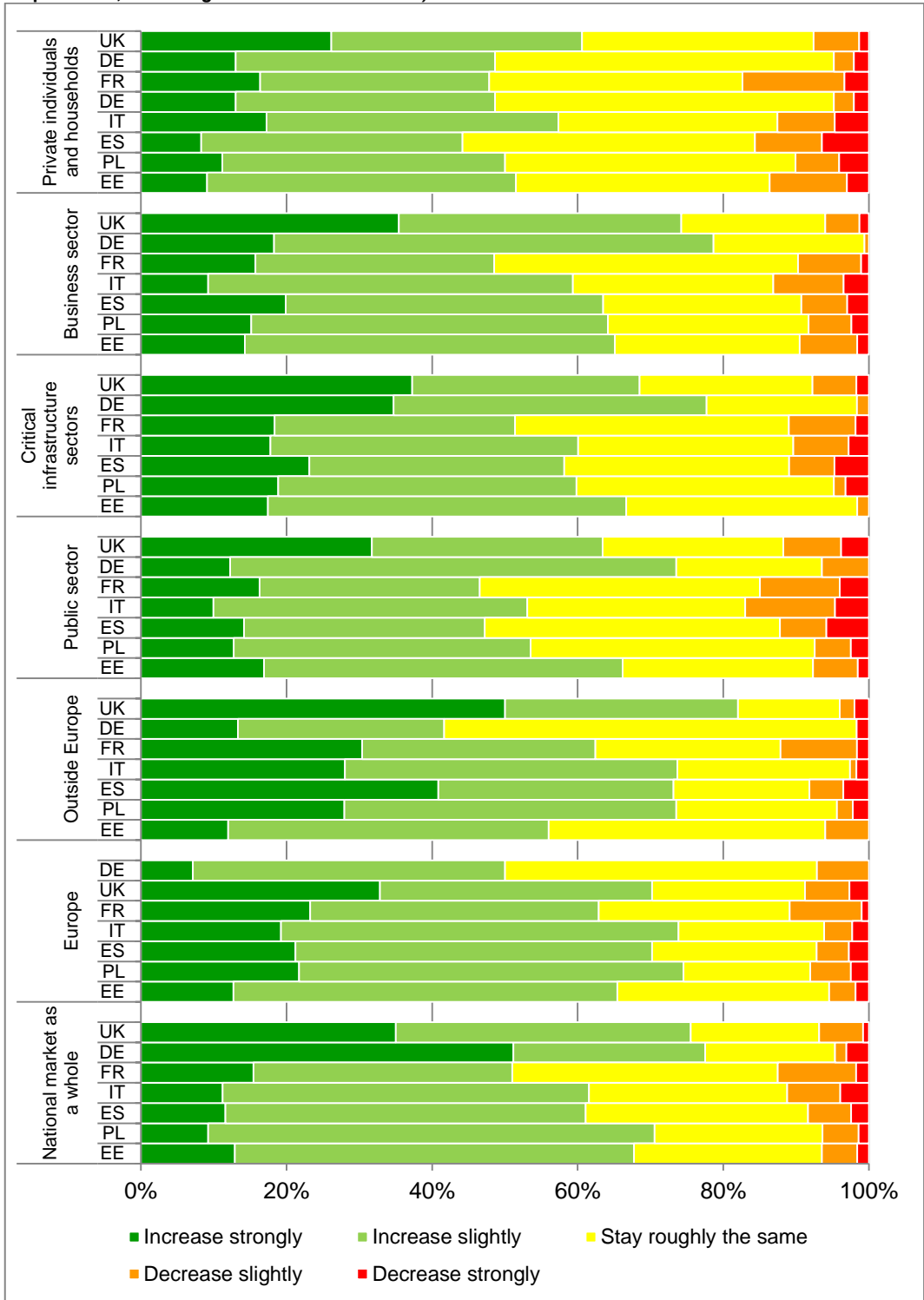
Figure 4.16 Distribution of turnover growth expectations for next 5 (% of respondents, excluding no answer / don't know)



Source: Ecorys SSS

Further differentiated by geographical markets, companies in most countries expect Europe and countries outside Europe to represent the largest growth markets. In terms of client groups market demand for security products and services for critical infrastructure is expected to show the largest demand growth.

Figure 4.17 Distribution of demand growth expectations by customer groups and geographical area (% of respondents, excluding no answer / don't know)

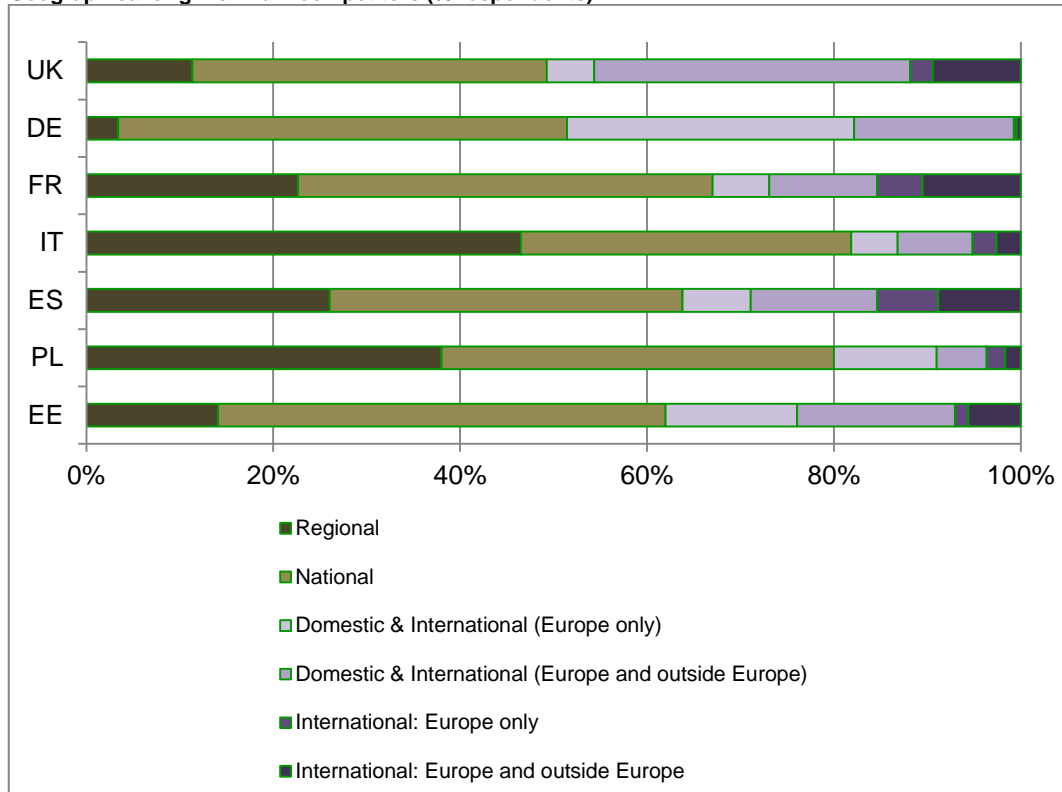


Source: Ecorys SSS

4.2.6 Competition

In all surveyed Member States, most competitors are found in national and regional markets, and to a lesser extent from other companies in Europe. This is expected to be related to the markets that are served by most companies, which tend to be pre-dominantly regional, national and European markets. For countries that have a stronger export orientation (e.g. UK), international competition is also felt stronger.

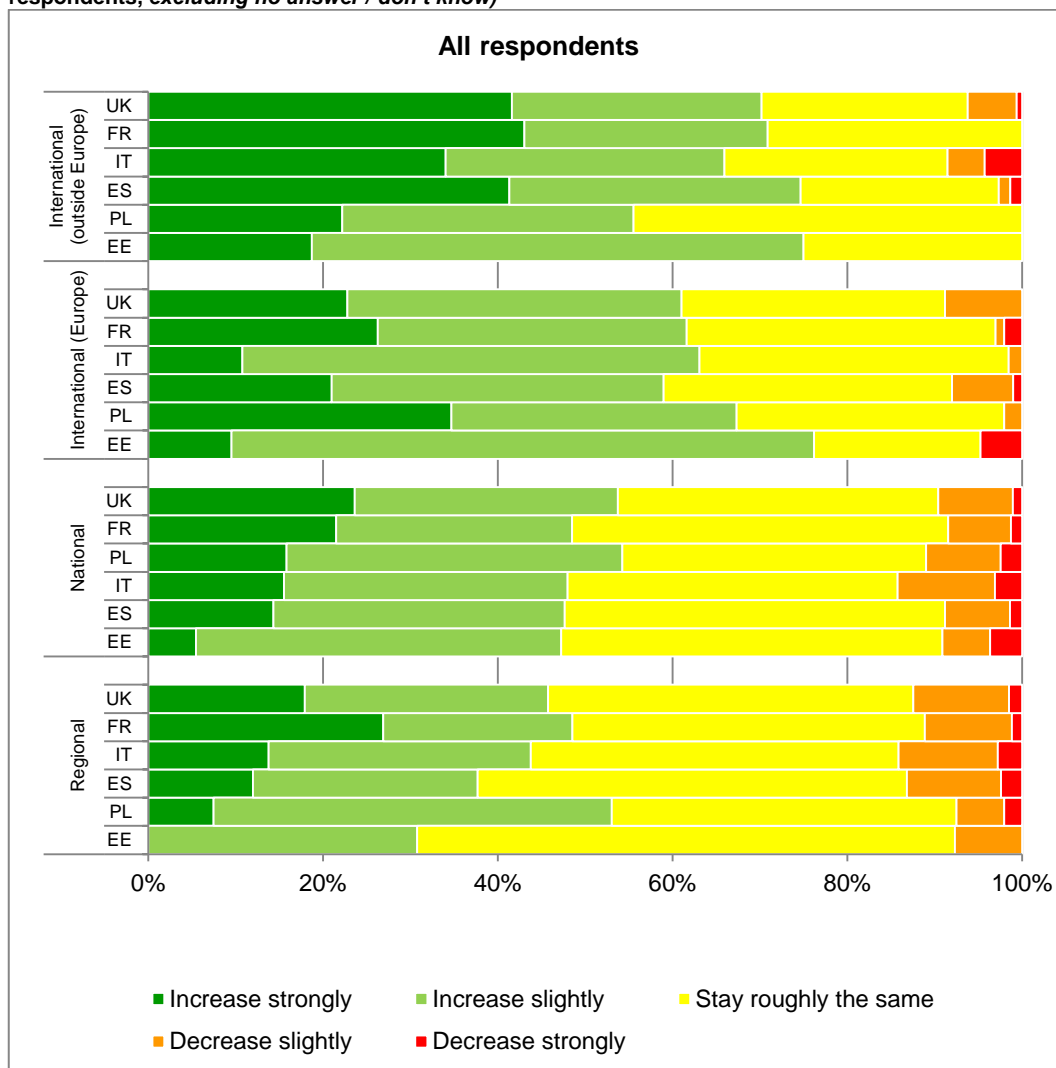
Figure 4.18 Geographical origin of main competitors (% respondents)



Source: Ecorys SSS

For the future, most companies expect growing competition, which is increasingly coming from outside Europe. In particular cyber security expects a strong growth in international competition. Also for the other broad industry categories competition from outside Europe is expected to increase strongest, but at a more moderate level.

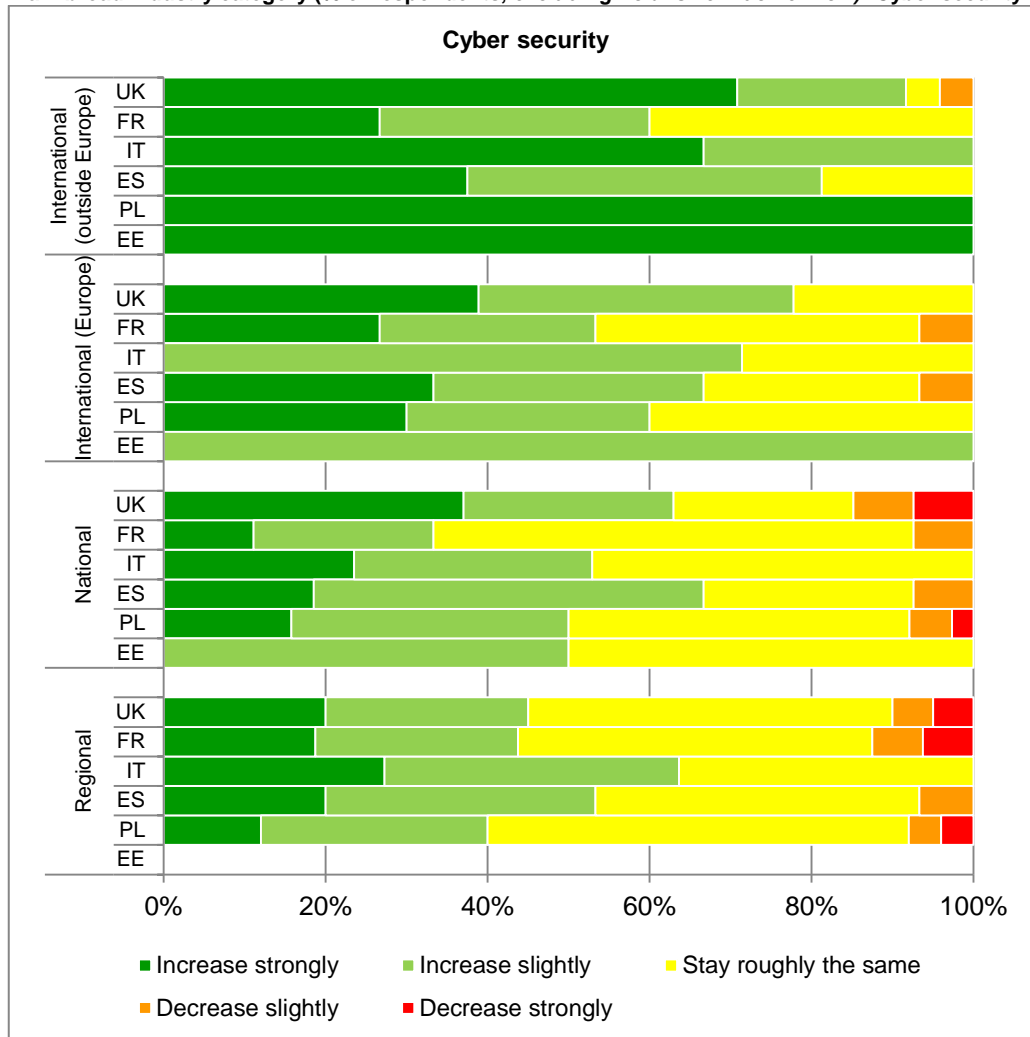
Figure 4.19 Distribution of expectations of change in competition by geographical origin of competitors (% of respondents, excluding no answer / don't know)⁵⁷



Source: Ecorys SSS

⁵⁷ Data for Germany are not available

Figure 4.20 Distribution of expectations of change in competition by geographical origin of competitors and by main broad industry category (% of respondents, excluding no answer / don't know): Cyber security⁵⁸



Source: Ecorys SSS

⁵⁸ Data for Germany are not available

5 Estimation of national aggregate employment and turnover and extrapolation to EU level

This chapter describes the approach (and outcomes) for calculating aggregate estimates of the size of the security industry – in terms of turnover and employment – in the Member States covered by security sector surveys and for the extrapolation of these results to provide an overall estimate of the size the EU security industry. Section 5.1 describes the estimation methodology for deriving national aggregate values, while Section 5.2 and Section 5.3 describe and compare the main results at the national level. Section 5.4 provides details of the extrapolation to EU level.

5.1 Methodology for estimation of national level aggregate turnover and employment

5.1.1 Basic approach

The basic approach used to derive estimates of the aggregate size of the security sector in terms of employment and turnover consists of two main steps:

1. Calculate estimates of the average size of firms (e.g. in terms of employees and turnover per firm) using the collected survey data;
2. Calculate aggregate estimates (i.e. total employment and turnover within a country) by multiplying the survey sample-based estimates of the average size of firms by estimates of the total number of security firms (i.e. an estimate of the population of security firms within a country).

The following sub-sections outline the methods used in each of these steps.

Estimation of average firm size

Regarding the calculation of average firm size, two approaches have been used:

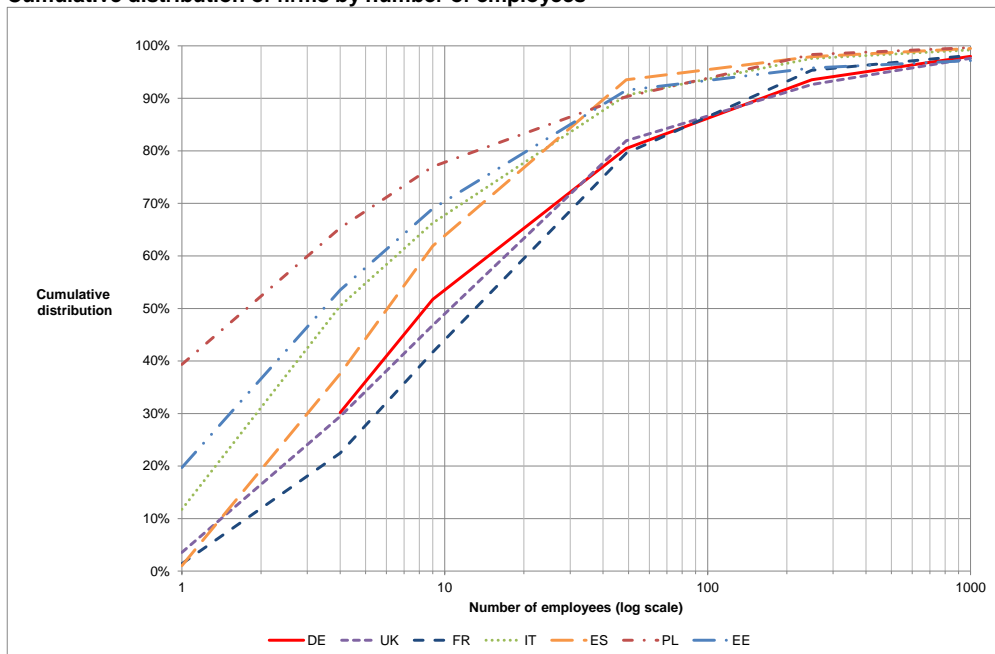
- **Simple (normal) arithmetic mean.** The first approach is to use the arithmetic mean values from the survey sample (i.e. the total number of employees or total value of turnover divided by the number of firms in the survey);
- **Log-normal arithmetic mean.** The second approach is to calculate alternative estimators under the assumption that the distribution of firms by size (i.e. employment or turnover) is log-normal⁵⁹. This approach represents an attempt to correct for the fact that, can be clearly be observed in our survey findings, the distribution of firms by size is highly skewed with a high proportion of small firms (i.e. few employees and/or low turnover) and relatively few large firms (i.e. with many employees and/or high turnover); see Figure 5.1 and Figure 5.2⁶⁰.

⁵⁹ A log-normal (or Pareto) distribution is reasonably well accepted as providing an empirical approximation for the size distribution of firms, where the distribution is skewed. The observation that the distribution of firm size can be approximated by a log-normal distribution is originally attributed to Gibrat (1931) who proposed his 'Law of proportionate effect' according to which the size distribution of firms becomes positively skewed and approaches a lognormal distribution over time. [Gibrat (1931), "*Les Inégalités économiques*", Paris, France, 1931]

⁶⁰ See also Section 4.2.4.

In general, the estimation of average employment and turnover per firm using the simple (normal) arithmetic mean provides higher values than under the assumption of a log-normal distribution.⁶¹ Essentially we use the two approaches to provide an upper and lower level estimator of average employment and turnover per firm. Correspondingly, when aggregating up to provide national level estimates, these estimators are used to provide an upper and lower bound for the expected value of total employment and turnover.

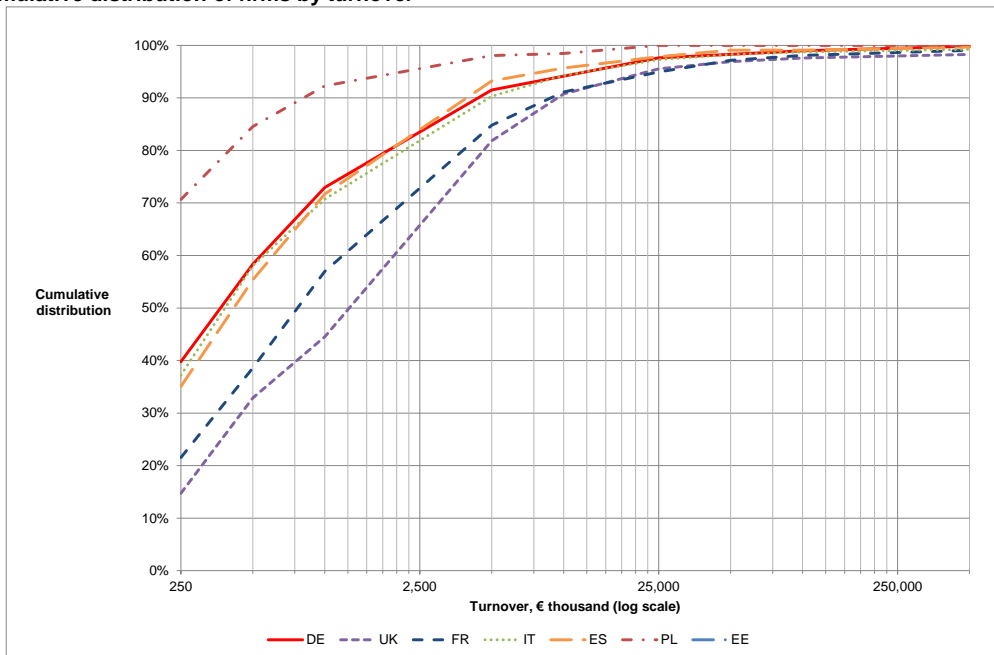
Figure 5.1 Cumulative distribution of firms by number of employees



Source: Ecorys SSS and BIGS SSS

⁶¹ Essentially, using the arithmetic mean value corresponds to assuming that the value of employment and turnover of the total population of firms will be directly proportional to the (inverse) share of surveyed firms within that population. This implies, for example, if the survey covers one quarter of the total population of firms, total employment and turnover of the population of firms as a whole will be 4 times that observed in the survey. By contrast, given a skewed distribution, the assumption of a log normal distribution typically has the practical effect of diminishing the influence of ('outlier') firms at the top end of the size distribution on the calculation of average firm size; hence, estimated average firm size is typically lower than the simple (normal) arithmetic mean. On the one hand, if the frequency of larger firms in the survey sample reflects their frequency of occurrence in the population as a whole, the simple arithmetic mean firm size provides a reasonable basis for aggregating to the total population size. On the other hand, if larger firms are over-represented in the survey sample then using the simple arithmetic mean firm size will result in an overestimation when aggregating to the total population size. Hence, using the log-normal based estimate of average firms size can be expected to provide a more representative measure for aggregating to the total population size.

Figure 5.2: Cumulative distribution of firms by turnover



Source: Ecorys SSS and BIGS SSS

Estimation of the population of security industry firms

To provide initial estimates of the population of firms active in the security industry, the following starting assumptions have been made:

1. The list of 'security companies' (i.e. the company list) established as the basis for the survey is assumed to constitute the broad population of potentially relevant companies within the country;
2. The incidence level⁶² of the survey is assumed to be applicable for the broad population of potentially relevant companies. In other words, the proportion of screening failures relative to the total number of successfully contacted companies (i.e. both surveyed companies and contacted companies that did not meet the screening criteria) broad population of potentially relevant companies is assumed to be the same for the survey sample as for broad population of potentially relevant companies as a whole;
3. The distribution of surveyed companies – notably, in terms of distribution by turnover-size and employment-size class – is assumed to match the distribution of companies within the security industry as a whole.

The initial estimates of the population of firms (and corresponding initial country estimates of security employment and turnover) have been subject to review with national stakeholders. In addition, adjustments have been made on the basis of the overall pattern of survey-based average values and aggregate estimates across countries. The estimated population sizes (after review), which are subsequently applied in the calculation of aggregate estimates of security employment and turnover are shown in **Table 5.1**.

⁶² The incidence level is measured by the ratio of the number of successfully surveyed companies to the total number of successfully contacted firms (i.e. the sum of successfully surveyed companies and contacted firms that fail to meet the screening criteria): Incidence = number of surveyed companies / [number of surveyed companies + number of screening failures].

Table 5.1 Sample size and firm ‘population’ estimates

	DE	UK	FR	IT	ES	PL	EE
Identified firms for survey (company list)	10,906	4,900	4,435	4,497	4,245	4,596	665
Survey sample size	702	421	494	501	386	300	71
Screening failures	n.a.	214	405	100	204	204	39
Incidence rate	n.a.	66%	55%	83%	65%	60%	65%
Initial estimated number of security firms (population size) based on country incidence rate	n.a.	3,249	2,437	3,749	2,777	2,736	429
Estimated number of security firms (population size) after review	5,790	3,500	3,350	3,700	2,650	2,650	300
<i>Of which (main broad industry category):</i>							
- Cyber security products and services		400	250	200	350	500	50
- Other security products		1,700	1,600	2,000	1,200	1,250	150
- Other security services		1,400	1,500	1,500	1,100	900	100

Source: Ecorys SSS and BIGS SSS

5.1.2 Other underlying assumptions

The following sub-sections outline the assumptions and methods used to arrive at estimates of employment and turnover at the level of individual firms.

Employment estimates

To derive estimates of employment, the following underlying assumptions are used:

1. Employment estimates are derived using the mid-point of each employment interval (i.e. employment-class size)⁶³, with the exception of the top employment interval;
2. For the top employment interval (i.e. ‘1,000 or more employees’):
 - a. **Simple (normal) arithmetic mean:** each firm’s employment is set at the maximum of either (i) the lower bound employment level (i.e. 1,000 employees) or (ii) an estimated number of employees calculated under the assumption that turnover per employee of the top employment interval is equivalent to the average turnover per employee of firms with less than 1000 employees⁶⁴; with an upper bound set at 6,000 employees. Exceptionally, for Germany, employment is set at the lower bound employment level (i.e. 1,000 employees);
 - b. **Log-normal arithmetic mean:** each firm’s employment is set at 3,000;
3. Irrespective of their declared employment–size class, all firms indicating that they are in the top turnover interval (cf. ‘More than € 500 million’) are assumed to be in the top employment–size class (cf. 1,000 or more employees’).

Turnover estimates

To derive estimates of turnover, the following underlying assumptions are used:

1. Turnover estimates are derived using the mid-point of each turnover interval (i.e. turnover-class size)⁶⁵, with the exception of the turnover interval;
2. For the top turnover interval (i.e. ‘More than € 500 million’), turnover is set at the lower bound turnover level (i.e. € 500 million’).

⁶³ In other words, firms are assumed to be equally distributed within the employment interval.

⁶⁴ Firms with zero employees are excluded from the calculation.

⁶⁵ In other words, firms are assumed to be equally distributed within the turnover interval.

Estimation of turnover for non-declaring respondents

Obtaining information on turnover is often a delicate issue with firm's frequently unable or unwilling to provide information on the value of their turnover. For all surveyed countries, except Germany which has a larger underlying survey sample, an attempt has been made to correct for non-declaration of turnover by survey respondents. The basic approach used to correct for non-declaration of turnover is to assume that the turnover of non-declaring firms corresponds to the average turnover of firms belonging to the same employment-size class⁶⁶.

5.1.3 Sub-groups and variants

The following sub-sections outline the methods used to: (i) derive estimates for the breakdown of employment and turnover by main broad industry category; and (ii) to adjust for possible defence-related components within firms' declared turnover and employment

Estimation of turnover and employment by main broad industry category (sub-groups)

To provide an indication of the breakdown of aggregate turnover and employment by main broad industry category (i.e. '*cyber security products and services*', '*other security products*' and '*other security services*'), the methodology outlined above for whole survey sample is applied separately for the three sub-samples of firms based on their indicated main broad category of security activity. In this regard, the obtained estimates of aggregate turnover and employment for each broad industry category reflect firms' own selection of their main broad industry category and are not adjusted to take into account the possibility that firms may be active in more than one broad industry category.

To provide initial estimates of the population of firms active in each broad industry category, the following underlying assumptions are used:

1. The distribution of firms by broad industry categories observed in the survey sample is assumed to be representative of the distribution of firms in the 'relevant population' of firms;
2. The 'extrapolation multiplier' estimated for the survey sample as a whole is assumed to be applicable for each of the sub-samples of companies based on their indicated main broad category of security activity.

As for the overall estimates of the population of security firms, adjustments have been made on the basis of the overall pattern of survey-based average values and aggregate estimates across countries.

It should be noted that the survey sample contains relatively few firms that indicate that their main broad area of security activity is in '*cyber security products and services*' (see Section 4.2.2) and that, consequently, the estimation of aggregate turnover and employment for cyber security is based on a small underlying sample of surveyed companies. Accordingly, appropriate caution should be exercised when evaluating the aggregate estimates of turnover and employment for '*cyber security products and services*'.

Adjustment for possible defence-related turnover and employment (variant)

Although the survey has been designed to exclude firms that supply security-related products and services exclusively to the defence sector, firms that are active in both civil and defence markets are included. Firms are requested to indicate the level of their employment (i.e. '*number of employees working in the field of security*') and turnover (i.e. '*turnover from the sale of security*')

⁶⁶ For the top employment-size class of '*1000 or more employees*' a more ad hoc approach has been used, that also involves firstly attributing non-declaring firms to the top turnover class '*More than € 500 million*' before estimating their turnover level based on corresponds average turnover of firms.

products and services') without any specific separation between 'civil' and 'defence-related' activities. This leaves open the possibility that declared turnover and employment levels may encompass a part that is attributable to defence-related activities.

As a variant on the basic aggregation and extrapolation approach outlined above, estimates have been made that include an additional adjustment to take account of possible defence-related turnover and employment. Essentially, this involves adjusting individual firm's employment and turnover data based on the declared proportion of their business activities that relate to the supply of security-related products and services to civilian markets (conversely, this implies reducing their turnover and employment by the proportion of 'non-civilian' related business activities).

Practically, the adjustment of individual firms' employment and turnover data is implemented as the initial step in the estimation of aggregate turnover and employment for the survey sample. Thereafter, the method for calculation of aggregate turnover and employment for the survey sample and the extrapolation to provide aggregate (national) turnover and employment estimates is the same as outlined in the previous sub-sections.

The following (additional) underlying assumptions are used in the calculation of 'defence-adjusted' aggregate turnover and employment for the survey sample:

1. The proportion of 'civilian-related' activities is estimated using the mid-point of each civilian-share interval (i.e. civilian-share-size class), with the exception of 'Civilian only (100%)' for which the proportion is set to 1 (i.e. 100%);
2. The civilian-share applies equally to both employment and turnover, which implies *de facto* that each individual firm's turnover per employee is the same for both civilian and defence-related activities⁶⁷.

5.2 Comparison of survey-based employment and turnover estimates

5.2.1 Employment (average number of employees per firm)

Table 5.2 summarises the survey-based estimates of the overall average number of employees per firm by country, while Figure 5.3 shows the range between the estimates (for all firms) obtained from the two approaches used to calculate average values (see Section 5.1.1).⁶⁸ Figure 5.4 shows the corresponding estimates broken down by broad industry category. The size of the spread of the range between the estimates is to a large extent attributable to the impact of the largest firms on the simple arithmetic mean estimates of average employment⁶⁹.

Notwithstanding that the surveys indicate a high proportion of small firms for all countries, the data suggest that average firm size in terms of number of employees is highest in the UK and France; particularly for the UK, this finding is driven by the relatively high average number of employees in the 'other' security services sector. Overall, average firm size appears to be lower for 'other' security products relative to 'other services and cyber security products and services'⁷⁰.

⁶⁷ Note, this does not mean that average turnover per employee at an aggregate level is the same for both civilian and defence-related activities.

⁶⁸ See Sections 5.1.2 and 5.1.3 for a description of the underlying assumptions and variants.

⁶⁹ In the case of the UK, for example, the large spread largely reflects the influence of a handful of firms in survey sample that are each estimated to have (at least) 6,000 employees.

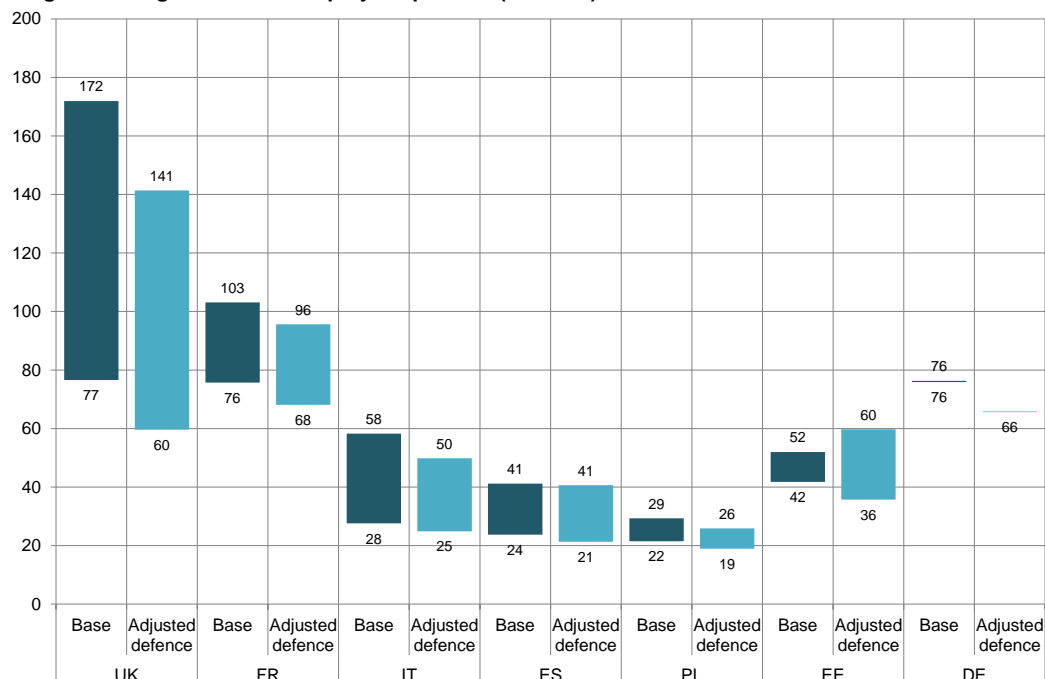
⁷⁰ As noted previously, the results for cyber security products and services need to be treated cautiously due to the relatively small sample sizes. It should also be mentioned that France and Italy are the only countries where the survey includes cyber security firms that indicate being in the top turnover interval (i.e. 'More than € 500 million').

Table 5.2 Estimates of average number of employees per firm

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Simple (normal) mean values							
Firms with turnover < € 500 million	88	69	35	31	29	52	75
Firms with turnover > € 500 million	6,000	4,337	3,960	3,929	-	-	1,000
All firms	172	103	58	41	29	52	76
Log-normal mean values							
All firms	77	76	28	24	22	42	76
Adjusted for defence							
Simple (normal) mean values							
Firms with turnover < € 500 million	77	60	30	28	26	60	66
Firms with turnover > € 500 million	4,613	4,452	3,326	4,928			500
All firms	141	96	50	41	26	60	66
Log-normal mean values							
All firms	60	68	25	21	19	36	n.a.

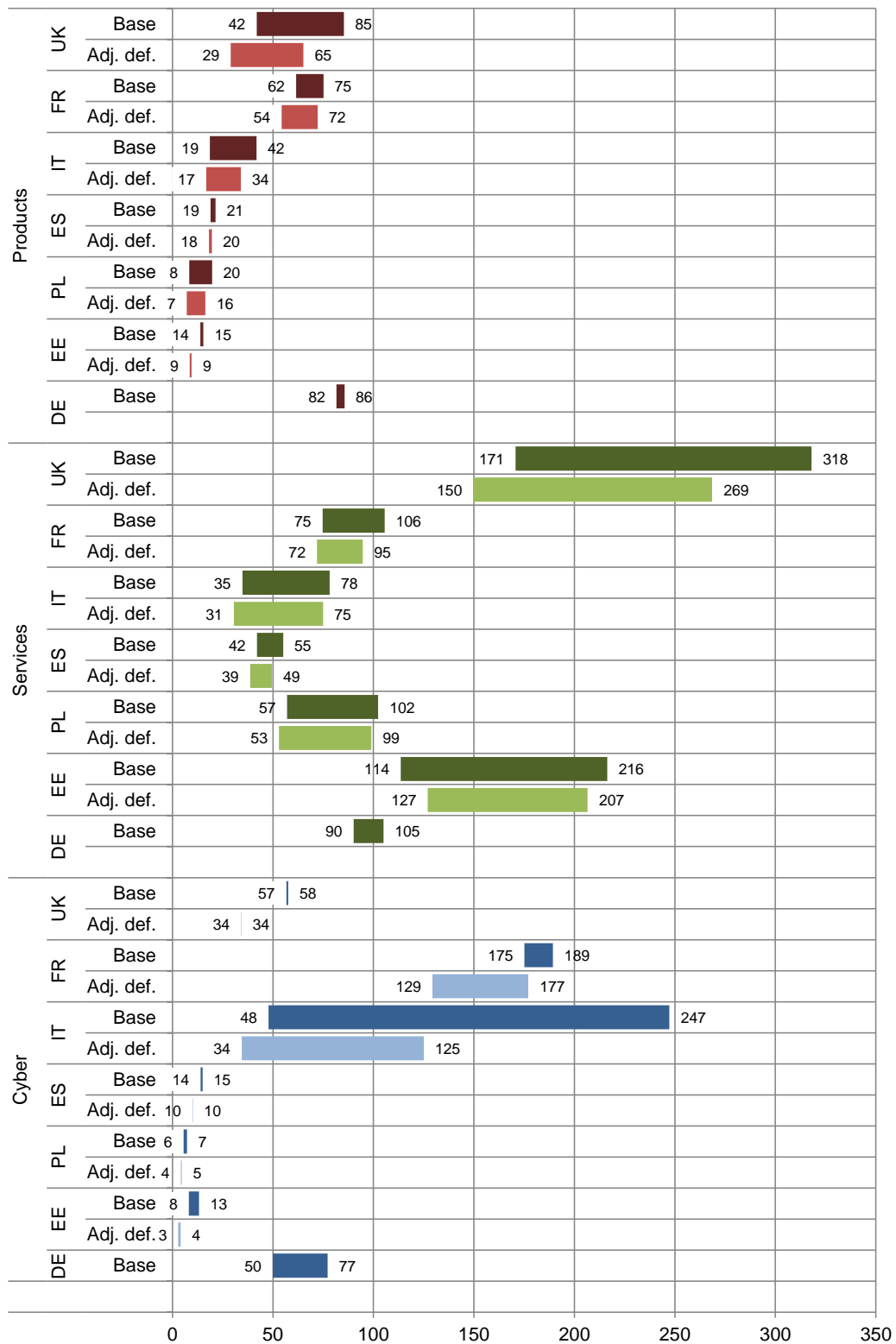
Source: Ecorys SSS and BIGS SSS

Figure 5.3 Range of average number of employees per firm (All firms)



Source: Ecorys SSS and BIGS SSS

Figure 5.4 Range of average number of employees by broad industry category



Source: Ecorys SSS and BIGS SSS

5.2.2 Turnover (average turnover per firm)

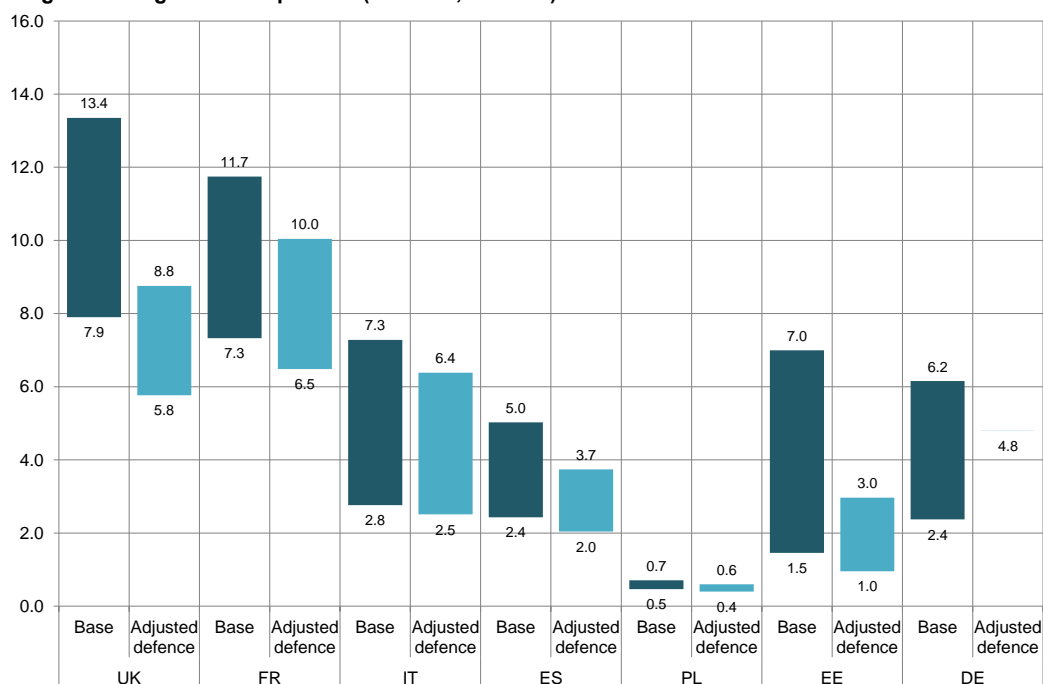
In terms of the turnover per firm, the survey results again indicate that average firm size is largest in the UK and France, followed by Germany and Italy. It is noticeable that impact of the adjustment for possible defence-related turnover is more pronounced for the UK than for the other larger Member State; notwithstanding the small sample size, it also appears important for Estonia.

Table 5.3 Estimates of average turnover per firm (€ million)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Simple (normal) mean values							
Firms with turnover < € 500 million	6.3	7.8	4.3	3.7	0.7	7.0	5.1
Firms with turnover > € 500 million	500.0	500.0	500.0	500.0	-	-	500.0
All firms	13.4	11.7	7.3	5.0	0.7	7.0	6.0
Log-normal mean values							
All firms	7.9	7.3	2.8	2.4	0.5	1.5	2.4
Adjusted for defence							
Simple (normal) mean values							
Firms with turnover < € 500 million	4.7	6.4	3.8	2.6	0.6	3.0	4.4
Firms with turnover > € 500 million	287.5	456.3	433.3	450.0	-	-	250.0
All firms	8.8	10.0	6.4	3.7	0.6	3.0	4.8
Log-normal mean values							
All firms	5.8	6.5	2.5	2.0	0.4	1.0	n.a.

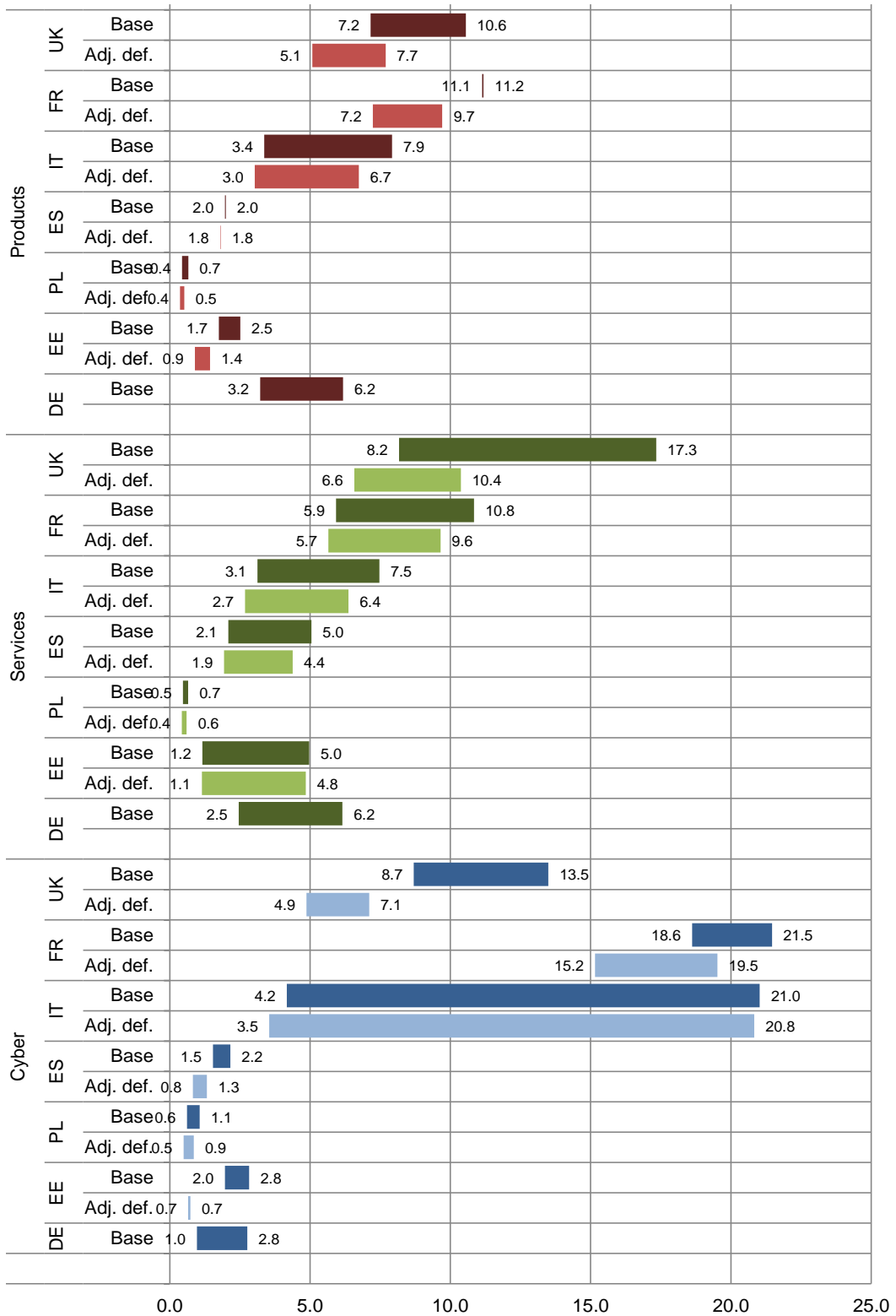
Source: Ecorys SSS and BIGS SSS

Figure 5.5 Range of average turnover per firm (€ million, all firms)



Source: Ecorys SSS and BIGS SSS

Figure 5.6 Range of average turnover per firm by broad industry category (€ million)



Source: Ecorys SSS and BIGS SSS

5.2.3 Turnover per employee

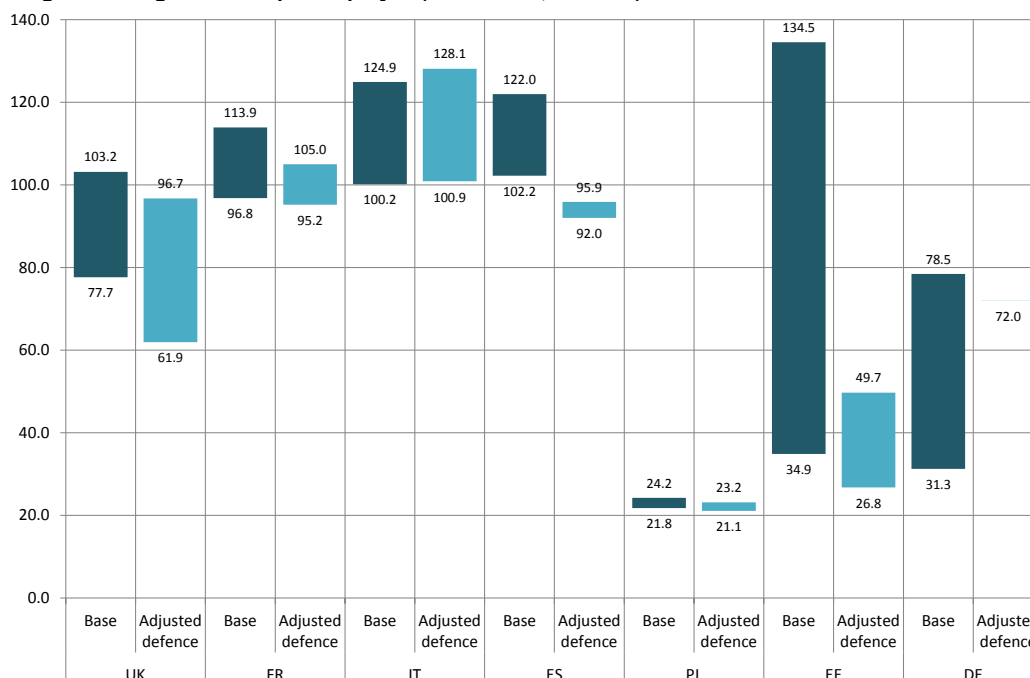
The estimates of average number of employees per firm and average turnover per firm shown in the preceding sub-sections have been used to calculate an estimate of average turnover per employee. For France, Italy and Spain, the data suggest average turnover per employee in the region of € 100 to € 120 thousand. While the estimate for the UK is somewhere slightly below this level. Somewhat surprisingly, estimates of average turnover per employee are lower for Germany than for these four other countries. For Poland and Estonia (after adjustment for defence) the average turnover per employee estimates are significantly lower (circa € 20 to € 35 thousand). When looking at the pattern across broad industry categories, as might be expected, average turnover per employee is lowest for 'other' security services.

Table 5.4 Estimates of turnover per employee (€ thousand)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Simple (normal) mean values							
Firms with turnover < € 500 million	72	113	124	120	24	135	69
Firms with turnover > € 500 million	83	115	126	127	-	-	500
All firms	78	114	125	122	24	135	78
Log-normal mean values							
All firms	103	97	100	102	22	35	31
Adjusted for defence							
Simple (normal) mean values							
Firms with turnover < € 500 million	62	107	127	92	23	50	67
Firms with turnover > € 500 million	62	102	130	91	-	-	500
All firms	62	105	128	92	23	50	72
Log-normal mean values							
All firms	97	95	101	96	21	27	n.a.

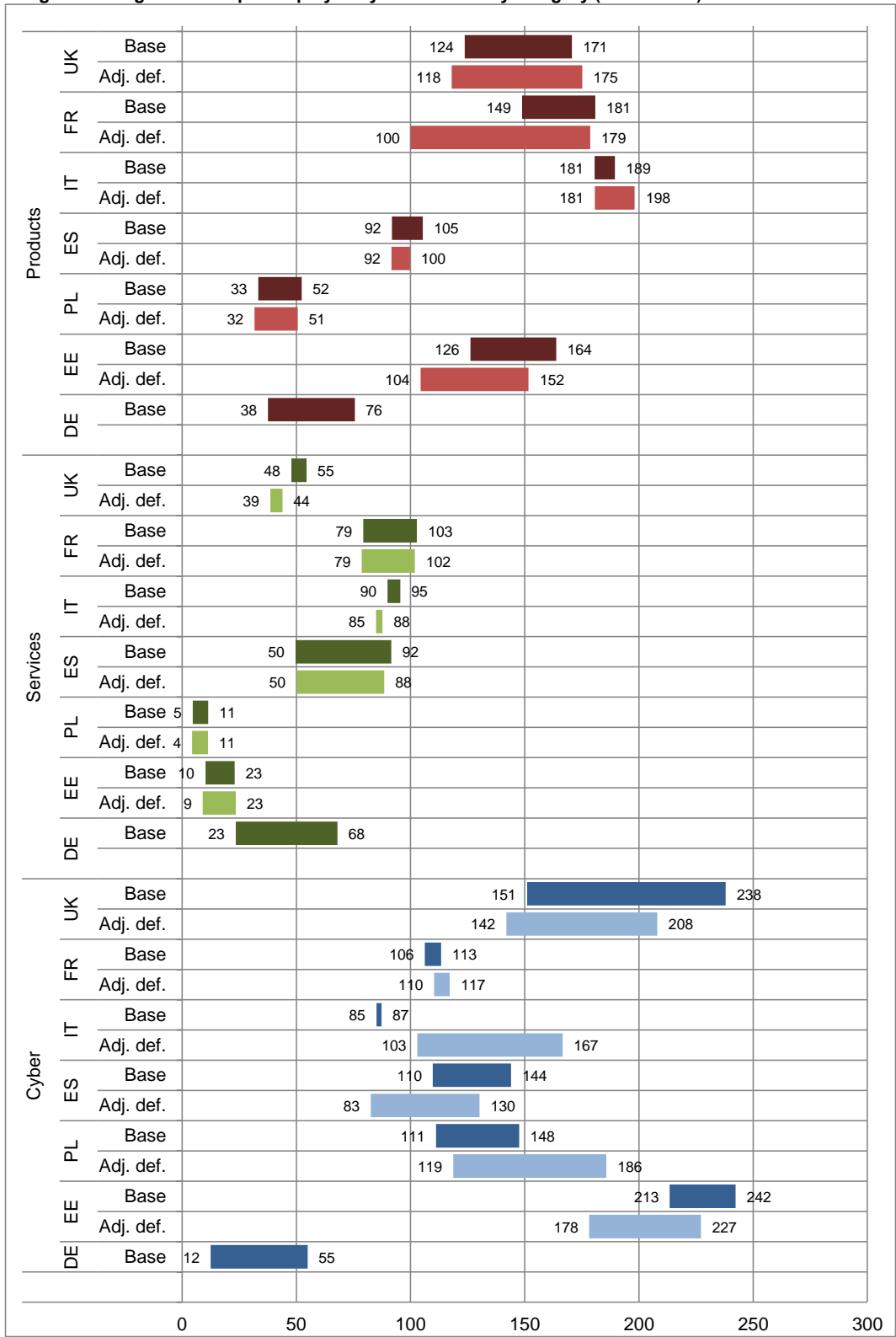
Source: Ecorys SSS and BIGS SSS

Figure 5.7 Range of average turnover per employee (€ thousand, all firms)



Source: Ecorys SSS and BIGS SSS

Figure 5.8 Range of average turnover per employee by broad industry category (€ thousand)



Source: Ecorys SSS and BIGS SSS

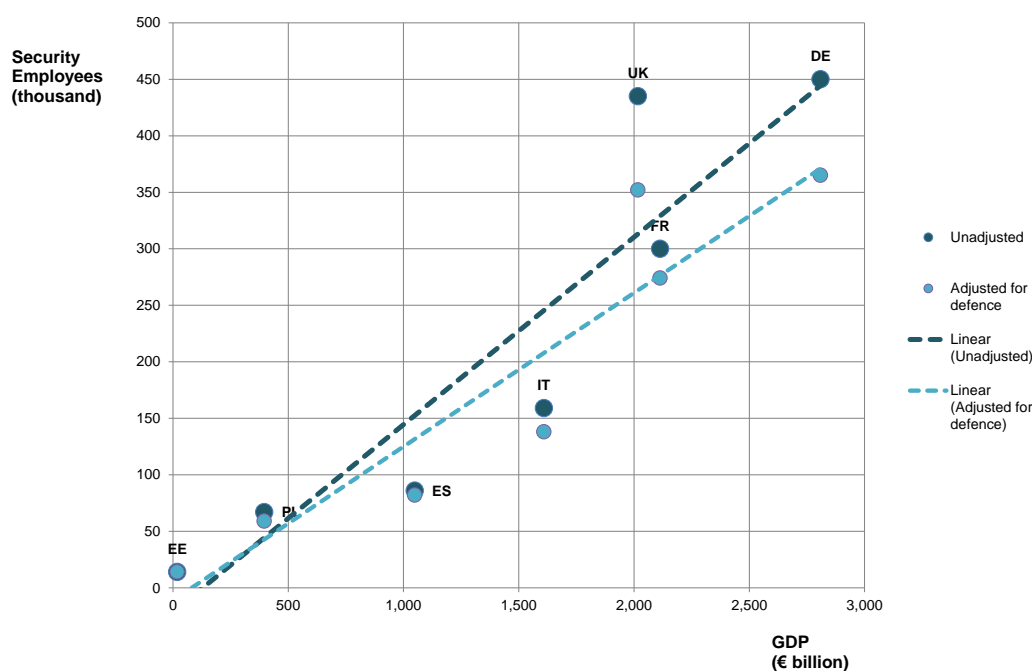
5.3 Estimates of aggregate national employment and turnover

5.3.1 Aggregate national employment and turnover (all security)

The approach used to estimating the aggregate size of the security sector is based on the estimated average size of firms (in terms of employment and turnover) described in the previous sub-sections. To arrive at aggregate measures, the average values of employment and turnover per firm estimated using the sample of surveyed firms are multiplied by estimates of the total number of security firms (i.e. an estimate of the population of security firms within a Member State) shown earlier in **Table 5.1**. The different measures of average employment and turnover per firm are used to provide 'lower' and 'upper' estimates of total turnover and employment.

Figure 5.9 and Figure 5.10 show the mid-point estimates of total security employment and turnover plotted against GDP; both the baseline (unadjusted) estimates and the estimates made after adjusting for possible defence-related turnover and employment. The underlying data for these estimates are shown in Table 5.5 and Table 5.6. The basic pattern revealed by these figures points to a strong positive correlation between the size of the security sector and GDP.⁷¹ In terms of employment, security employment in the UK appears to be above the underlying trend relative to GDP. For turnover, the UK and France both appear to be above the underlying trend. For the sample as a whole, the mid-point estimates indicate that aggregate security industry turnover is approximately equivalent in size to between 1.1 and 1.3% of GDP.⁷²

Figure 5.9 Estimates of total security employment (employees) by Member State against GDP at current prices

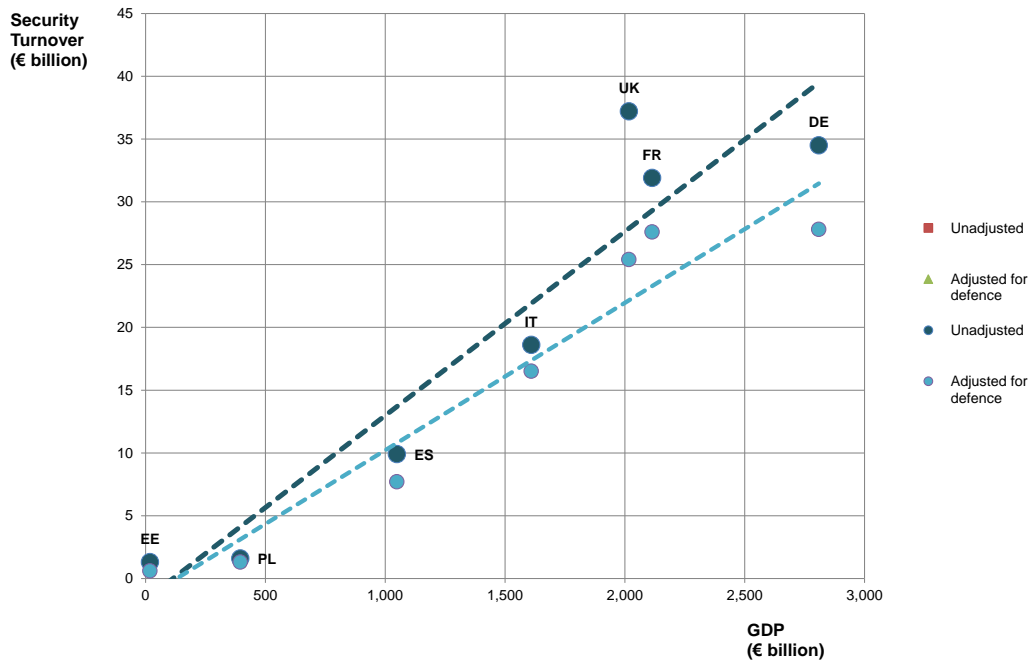


Source: Ecorys SSS and BIGS SSS

⁷¹ The correlation coefficient between employment and GDP is over 0.92 and for turnover the coefficient is over 0.95.

⁷² This is not to say that the contribution of the security industry amounts to 1.1%-1.3% of GDP.

Figure 5.10 Estimates of total security turnover by Member State against GDP at current prices



Source: Ecorys SSS and BIGS SSS

Table 5.5 All security: estimates of total employment by country (thousand employees)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	268	254	102	63	57	13	-
Upper estimate	602	346	216	109	78	16	-
Mid-point estimate	435	300	159	86	67	14	450
Adjusted for defence							
Lower estimate	209	228	92	56	50	11	-
Upper estimate	495	320	184	108	69	18	-
Mid-point estimate	352	274	138	82	59	14	365

Source: Ecorys SSS and BIGS SSS

Table 5.6 All security: estimates of total turnover by country (€ billion)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	27.6	24.3	10.2	6.4	1.2	0.4	-
Upper estimate	46.8	39.4	27.0	13.4	1.9	2.1	-
Mid-point estimate	37.2	32.0	18.6	9.9	1.6	1.3	34.5
Adjusted for defence							
Lower estimate	20.1	21.5	9.2	5.4	1.0	0.2	-
Upper estimate	30.7	33.7	23.7	10.0	1.6	0.9	-
Mid-point estimate	25.4	27.7	16.5	7.7	1.3	0.6	27.8

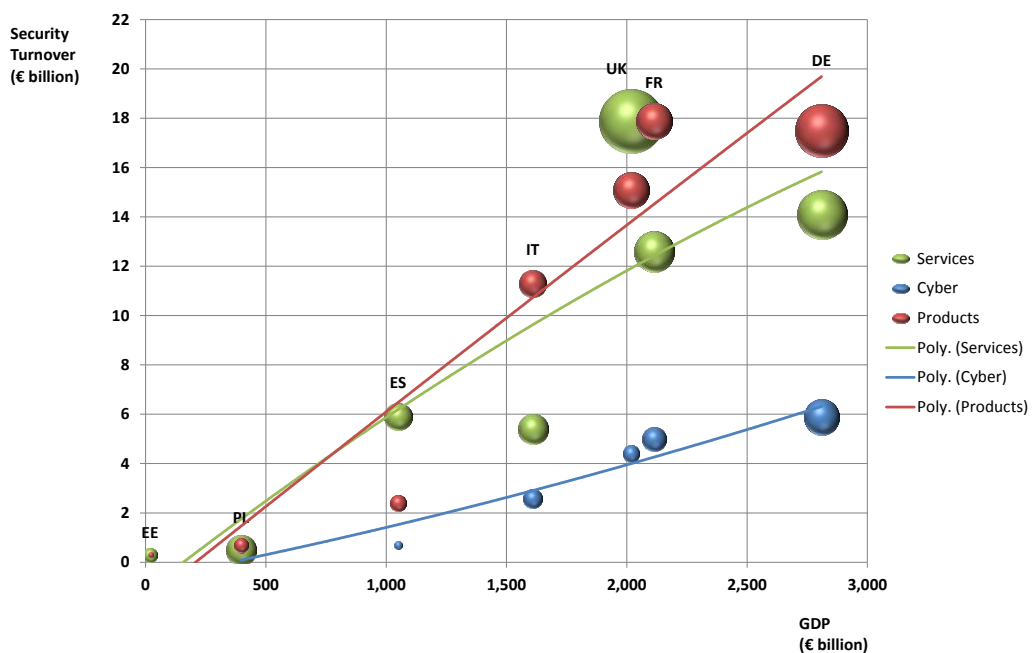
Source: Ecorys SSS and BIGS SSS

5.3.2 Aggregate national employment and turnover by broad industry category

Figure 5.11 and Figure 5.12 show plots of 'mid-point' estimates of security turnover relative to GDP broken down by main broad industry category; Figure shows the baseline estimates, while Figure 48 is adjusted for possible defence related activity. The underlying data for these estimates are shown in Table 5.7 to Table 5.12, while Table 5.13 and Table 5.14 show aggregate estimates calculated from the sum of the estimates for each broad industry categories. It should be noted that the sum of the estimates for the broad industry categories does not match the aggregate figures estimated from the whole sample of firms described in the previous sub-section.

As previously, the general strong correlation between aggregate turnover of security firms and the overall size of the economy (i.e. GDP) can be observed. In general, the adjusted turnover estimates (i.e. after correction for possible defence activities) show a slightly stronger correlation with GDP than their unadjusted counterparts.

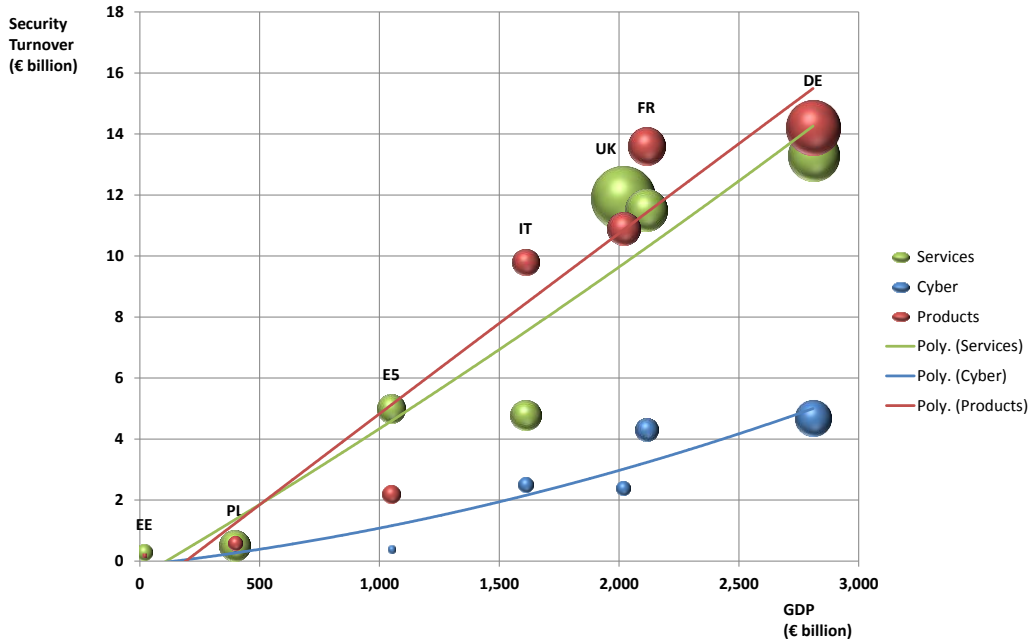
Figure 5.11 Estimates of total security turnover by MS and broad industry category against GDP at current prices (unadjusted)⁷³



Source: Ecorys SSS and BIGS SSS

⁷³ Bubble size based on number of employees

Figure 5.12 Estimates of total security turnover by MS and broad industry category against GDP at current prices (adjusted for possible defence-related activity)⁷⁴



Source: Ecorys SSS and BIGS SSS

Table 5.7 ‘Other’ security products: estimates of total employment by country (thousand employees)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	71	99	37	23	10	2	-
Upper estimate	145	120	84	26	25	2	-
Mid-point estimate	108	109	60	24	18	2	230
Adjusted for defence							
Lower estimate	49	87	34	22	9	1	-
Upper estimate	111	116	68	24	21	2	-
Mid-point estimate	80	101	51	23	15	1	214

Source: Ecorys SSS and BIGS SSS

Table 5.8 ‘Other’ security products: estimates of total turnover by country (€ billion)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	12.1	17.7	6.7	2.3	0.5	0.2	-
Upper estimate	18.0	17.9	15.9	2.5	0.9	0.4	-
Mid-point estimate	15.1	17.8	11.3	2.4	0.7	0.3	17.5
Adjusted for defence							
Lower estimate	8.6	11.5	6.0	2.1	0.4	0.1	-
Upper estimate	13.1	15.5	13.5	2.2	0.7	0.3	-
Mid-point estimate	10.9	13.5	9.8	2.2	0.6	0.2	14.2

Source: Ecorys SSS and BIGS SSS

⁷⁴ Bubble size based on number of employees

Table 5.9 'Other' security services: estimates of total employment by country (thousand employees)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	239	112	63	38	51	11	-
Upper estimate	445	158	83	86	92	22	-
Mid-point estimate	342	135	73	62	72	17	207
Adjusted for defence							
Lower estimate	210	108	58	34	48	13	-
Upper estimate	376	142	74	83	89	21	-
Mid-point estimate	293	125	66	58	68	17	185

Source: Ecorys SSS and BIGS SSS

Table 5.10 'Other' security services: estimates of total turnover by country (€ billion)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	11.4	8.8	3.1	3.4	0.4	0.1	-
Upper estimate	24.3	16.3	7.6	8.3	0.6	0.5	-
Mid-point estimate	17.9	12.6	5.4	5.9	0.5	0.3	14.1
Adjusted for defence							
Lower estimate	9.2	8.4	2.9	2.9	0.3	0.1	-
Upper estimate	14.6	14.5	6.6	7.1	0.6	0.5	-
Mid-point estimate	11.9	11.5	4.8	5.0	0.5	0.3	13.3

Source: Ecorys SSS and BIGS SSS

Table 5.11 Cyber security products and services: estimates of total employment by country (thousand employees)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	23	44	10	5	3		-
Upper estimate	23	47	50	5	4		-
Mid-point estimate	23	46	30	5	3		107
Adjusted for defence							
Lower estimate	14	32	7	3	2		-
Upper estimate	14	44	25	4	2		-
Mid-point estimate	14	38	16	4	2		95

Source: Ecorys SSS and BIGS SSS

Table 5.12 Cyber security products and services: estimates of total turnover by country (€ billion)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates							
Lower estimate	3.4	4.5	0.8	0.5	0.3		-
Upper estimate	5.4	5.4	4.3	0.8	0.6		-
Mid-point estimate	4.4	5.0	2.6	0.7	0.5		5.9
Adjusted for defence							
Lower estimate	1.9	3.7	0.7	0.2	0.2		-
Upper estimate	2.9	4.9	4.2	0.5	0.5		-
Mid-point estimate	2.4	4.3	2.5	0.4	0.4		4.7

Source: Ecorys SSS and BIGS SSS

Table 5.13 All security (sum of broad industry categories): estimates of total employment by country (thousand employees)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates (mid-point)							
'Other' security products	108	109	60	24	18	2	230
'Other' security services	342	135	73	62	72	17	207
Cyber security products and services	23	46	30	5	3		107
Total	473	290	163	91	93	19	544
Adjusted for defence (mid-point)							
'Other' security products	80	101	51	23	15	1	214
'Other' security services	293	125	66	58	68	17	185
Cyber security products and services	14	38	16	4	2		95
Total	387	264	133	85	85	18	494

Source: Ecorys SSS and BIGS SSS

Table 5.14 All security (sum of broad industry categories): estimates of total turnover by country (€ billion)

	UK	FR	IT	ES	PL	EE	DE
Baseline estimates (mid-point)							
'Other' security products	15.1	17.8	11.3	2.4	0.7	0.3	17.5
'Other' security services	17.9	12.6	5.4	5.9	0.5	0.3	14.1
Cyber security products and services	4.4	5.0	2.6	0.7	0.5		5.9
Total	37.4	35.4	19.3	9.0	1.7	0.6	37.5
Adjusted for defence (mid-point)							
'Other' security products	10.9	13.5	9.8	2.2	0.6	10.9	14.2
'Other' security services	11.9	11.5	4.8	5.0	0.5	11.9	13.3
Cyber security products and services	2.4	4.3	2.5	0.4	0.4	2.4	4.7
Total	25.2	29.3	17.1	7.6	1.5	25.2	32.2

Source: Ecorys SSS and BIGS SSS

5.4 Estimated total size of the EU security industry

Based on the preceding analysis we make the simplifying assumption that employment and turnover in the security industry is proportional to GDP. The countries covered by the survey account for approximately three-quarters (74%) of total EU GDP and this percentage is used to 'extrapolate' the survey based estimates of total employment and turnover for the seven covered countries to arrive at aggregate figures for the EU as a whole. As is the case in the preceding section 'lower', 'upper' and 'mid-point' estimates are provided; see Table 5.15.

Overall, the 'mid-point' estimates indicate that the security industry in the EU has a total turnover in the region of € 191 billion and employs about 2.3 million people. The 'other' security products are the largest broad segment of the security industry in terms of turnover, while 'other' security services are the largest employment segment. Although there is a wide margin around these 'headline' figures, the findings suggest that the overall size of the security industry in the EU is significantly larger than has been suggested by previous estimates. Further adjustments can be made for companies offering both civil security and defense products. The summarizing table below thus shows employment and turnover estimates for all security firms including a division between products, services and cyber security products and services as well as a second estimate adjusting for defence services and products offered by the same companies.

Table 5.15 Estimates of total security industry employment and turnover

	Employment (thousand)		Turnover (€ billion)	
	Baseline	Adjusted for defence	Baseline	Adjusted for defence
A Security (sum of I+II+III)				
Lower	1,880	1,650	154	123
Upper	2,650	2,310	227	181
Mid-point	2,260	1,990	191	153
I - 'Other' Security Products				
Lower	640	560	77	58
Upper	850	750	99	80
Mid-point	740	660	88	69
II 'Other' Security Services				
Lower	980	880	56	50
Upper	1,480	1,310	97	77
Mid-point	1,230	1,100	77	64
III Cyber Security Products and Services				
Lower	260	210	21	15
Upper	320	250	31	24
Mid-point	290	230	26	20

Source: Ecorys SSS and BIGS SSS

Combining survey results with findings from statistics

The extrapolated survey results for 'other security services' can be compared with the data available from statistics. As indicated earlier the total number of people employed in private security services as covered by Eurostat is 1.4 million. This is only partially covered by the survey since, as it was known that statistical data was available from other sources, private manning and guarding firms were only partially covered by the survey company listings. On this basis, the survey estimates for the service categories of "guarding and manning", "remote monitoring", "security of persons", "detection and investigation" and "other (manned services)" can thus be complemented by Eurostat estimates. We assess that the survey-based estimates would need to be increased by 0.7 million persons (employees) and by an additional € 5 billion in turnover.

In addition employment in public, first responders services need to be added to arrive at the full number of people employed in the security sector. This adds a further 1.7 million persons.

Combining both survey results and publicly available data indicates that **total EU estimates** for the security industry in the EU generates **turnover of close to € 200 billion**, and creates **employment for 4.7 million persons**.

6 Estimation of the breakdown of turnover and employment by products and services, business activities and markets

This chapter describes the approach (and outcomes) for estimating the breakdown of turnover and employment to different products and services, together with the breakdown for different business activities and market segments.

6.1 Methodologies for estimation of the breakdown of turnover and employment

Respondents to the security sector survey were requested to indicate the total level of employment and turnover attributable to security related activities but were not requested to provide a breakdown according to different product and service types (or according to business activities or markets). Accordingly, it is not possible to directly infer the breakdown of turnover and employment relating to different products and services (or business activities and markets) from the survey data.

Respondents were, however, requested to indicate their main broad industry categories (i.e. cyber security products and services, 'other' security products, and 'other' security services) and, within each category, to rank their 3 most important products and/or services among all the products and/or services they supply. Similarly, respondents were requested to rank the 3 most important business activities within each category, while they were also requested to indicate their 3 most important market segments; although for market segments there is no distinction between different broad industry categories. Findings from the ranking of products and services and business activities by broad industry category are described in Section 4.2.2, while information on market segmentation is described in Section 4.2.3.

The aforementioned information on main broad industry categories and on the ranking of products and/or services, business activities and markets has been used as the basis for deriving estimates of the breakdown of employment and turnover. The method used is described in the following sub-sections.

It should be noted that the approach used depends critically on the assumptions made about the relative importance for individual firms of different broad industry categories and different products and/or services therein (or business activities and market segments).⁷⁵

⁷⁵ For example, we give a 'value' of 2 for a firm's main broad industry category and a 'value' of 1 'secondary' broad industry categories; Implicitly this assumes that the firm's activities in its main broad industry category are twice as important as any activities for a 'secondary' category (or categories, where a firm is active in all three broad industry categories). Similarly, the 'values' given to differently ranked products or services (or business activities and market segments) reflect implicit assumptions on their relative importance within the firm's overall offer of products and services (or their business activities and market segments).

6.1.1 Estimation of the breakdown of turnover and employment by product and service type

The approach for estimating the breakdown of turnover (or employment) by products and services consists of the following basic steps:

1. **Step 1: estimation of the share (weight) of individual products and services in a firm's total supply.** This is done by combining the information on a firm's main broad industry categories with the information on the firm's ranking of the importance of different types of products and services that it offers. Thus we derive an indicator of the relative importance of an individual product/service in the total offer of products/services by the firm. To do this, a value of 2 is given to the firm's main broad industry category and, if the firm is active in more than one broad industry category, a value of 1 is given to its 'secondary' broad industry category.⁷⁶ Similarly, the value attached to individual products and services is based on the firm's ranking of their importance.⁷⁷ The overall 'score' for each individual product or service is given by multiplying its specific value by the value of the broad industry category to which it belongs. Finally, the weight of the individual product or service is calculated by dividing its overall 'score' by the sum of all scores for the products/services offered by the firm. These weight are applied to the total turnover (or employment) of the firm to estimate the turnover attributable to each product/service in the firm's total turnover (or employment);
2. **Step 2: estimation of the share of individual products and services within a country.** Having derived estimates of the turnover (or employment) attributable to each product/service for individual firms, these estimates can be used to derive estimates at an aggregate (country) level. A key issue is, however, the appropriate weighting to give to individual firms' estimates of product/service turnover (or employment) in the calculation of aggregate shares (or values) at the country level. Two approaches have been adopted:
 - a. **Linear firm weights:** the first approach is to use weights based on the share of each individual firm's turnover (or employment) in the estimated total turnover (or employment) for the survey sample as a whole;
 - b. **Log firm weights:** the second approach is to use weights calculated using log turnover, so an individual firm's weigh reflects the share of the log of its turnover in the sum of log turnover of all firms in the sample;In the first approach, the overall share of individual products or services in total turnover (or employment) will reflect the underlying composition of the survey sample; in particular, in so far as the estimated shares of individual products/services will be driven by the product/service portfolio of larger firms in the sample. Using weights based on the log of turnover (or employment) effectively increases the contribution of smaller firms relative to larger firms in the estimation product/service shares at the aggregate level⁷⁸;
3. **Step 3: estimation of aggregate 'EU-level' turnover (or employment) of individual products and services.**⁷⁹ Estimates of the breakdown of aggregate turnover (or employment) by products and services for each country is made by applying the shares for individual products and services estimated under Step 2 to the estimates of total turnover (or employment) for the country (see Section 5 for description of the approach for estimating aggregate turnover and employment). To derive aggregates across countries, the country-level estimates of

⁷⁶ Implicitly this assumes that a firm's main broad industry category is twice as important as any activities for a 'secondary' broad industry category (or categories, where a firm is active in all three broad industry categories).

⁷⁷ The values used are 5 for the 'most important' product/service, 3 for the 2nd ranked product/service, 2 for the 3rd ranked product/service, and 1 for all products and services offered by the firm but not ranked in the top three. Products/services not offered by the firm have a value of zero.

⁷⁸ The motivation for using a log-based weighting approach corresponds largely to that of using a log-normal approach to estimating average firm size (see Section 5.1.1). For aggregation purposes, using logs essentially reduces the influence of (the product/service portfolio) of the few largest firms in the sample, in favour of raising the relative influence of more numerous but smaller firms in shaping the estimation of the share of individual products and service in total turnover (or employment) at the aggregate level.

⁷⁹ It should be noted that there is insufficient data in the German survey to estimate product and service shares. Therefore the aggregate 'EU' estimates of product and service shares are based on estimates for the other 6 survey countries only.

turnover (or employment) for individual products or services are weighted on the basis of the share of the country in the total aggregate turnover (or employment), for the relevant broad industry category, calculated across the countries for which product/service shares have been calculated.

A more formal description of Step 1 and Step 2 of the estimation method is provided in the following Box.

Method for estimating the breakdown of turnover (or employment) by products and services

STEP 1: Estimation of the share (weight) of individual products and/or services in a firm's total supply

Let c_{ij} represent an indicator variable for a firm's main broad industry category, where:

$c_{ij} = 2$ if category j is the main broad industry category of firm i ; and

$c_{ij} = 1$ otherwise (i.e. if category j is not the main broad industry category of firm i)

Let p_{ijk} represent an indicator variable for a firm's ranking of its supply of products/services within category j , where:

$p_{ijk} = 5$ if product k is firm i 's main product within category j ;

$p_{ijk} = 3$ if product k is the firm i 's 2nd most important product within category j ;

$p_{ijk} = 2$ if product k is the firm i 's 3rd most important product within category j ;

$p_{ijk} = 1$ if product k is supplied by firm i but not ranked in its top 3 products within category j ;

$p_{ijk} = 0$ otherwise (i.e. if product k is not supplied by firm i)

Let v_{ijk} represent an overall indicator of relative importance of each product/service, where for product k ($k \in j$):

$v_{ijk} = c_{ij} p_{ijk}$

Then, the estimated weight (w_{ijk}) of each product/service in the overall supply of products/services by firm i is calculated as:

$$w_{ijk} = \frac{v_{ijk}}{\sum_j \sum_{k \in j} v_{ijk}}$$

Where the sum of weights for all products/services supplied by firm i equals 1 (i.e. $\sum_j \sum_{k \in j} w_{ijk} = 1$)

These weights can then be applied to the turnover (or employment) of a firm to estimate the share of each product/service in the firm's total turnover (or employment), such that the estimated turnover (or employment) of firm i from the supply of product k ($\hat{\tau}_{ijk}$) is given by

$\hat{\tau}_{ijk} = w_{ijk} \tau_i$

Where τ_i is the total turnover (or employment) of firm i .

STEP 2: Estimation of the share of individual products and/or services within a country

Approach 2a: linear weights

Let W_{jk}^s represent an indicator of the share of product/service k in the total supply of security products and services by firms in country s . W_{jk}^s can be estimated as the sum of individual firms' product weights (w_{ijk}), themselves weighted by each firm's share in the total turnover of all firms (in country s), calculated as follows:

$$W_{jk}^s = \sum_i w_{ijk} \left(\frac{\tau_i}{\sum_i^s \tau_i} \right)$$

Alternatively, to estimate the share of product/service k in the total supply of products and services within broad industry category j ($k \in j$), this can be calculated by dividing W_{jk}^s by the sum of corresponding shares for all products/services within broad industry category j , as follows:

$$W_k^{sj} = \frac{W_{jk}^s}{\sum_{(k \in j)} W_{jk}^s}$$

Approach 2b: log weights

The above estimation of product shares can be strongly influenced by the product/service portfolio of the largest firms in the survey sample. To reduce the influence of the largest firms, an alternative approach is to use the log of turnover ($\ln \tau_i$) to weight individual firms, thus the calculation becomes:

$$\tilde{W}_{jk}^s = \sum_i w_{ijk} \left(\frac{\ln \tau_i}{\sum_i^s \ln \tau_i} \right)$$

And the share of a product/service within its broad industry category becomes:

$$\tilde{W}_k^{sj} = \frac{\tilde{W}_{jk}^s}{\sum_{(k \in j)} \tilde{W}_{jk}^s}$$

6.1.2 Estimation of the breakdown of turnover and employment by business activity

Concerning the breakdown of turnover (or employment) by business activity, respondents are only requested to provide a breakdown of activity types with respect to the supply of cyber products and services and the supply of 'other' security products (i.e. there is no equivalent breakdown for business activities relating to the supply of 'other' security services).

The basic approach used to estimate the share (weight) of individual business activities in total business activities (for cyber security and 'other' security products) is similar to that used for the breakdown of products and services (see previous sub-section), consisting of the following basic steps:

1. **Step 1: estimation of the share (weight) of individual business activities in a firm's total supply.** For individual business activities, an indicator of relative importance is established based on the firm's ranking of their importance.⁸⁰ However, rather than using an indicator variable for a firm's main broad industry category (c_{ij} as described in the previous sub-section), the weighting scheme makes use of the estimated product/services weights (w_{ijk} as calculated in the previous sub-section), which are aggregated to provide an estimated share at the level of broad industry categories. This approach ensures that the total estimated share of turnover (or employment) attributed to a firm's business activities for a given broad industry category matches the estimated share of a firm's turnover (or employment) attributed to products/services within the same broad industry category;
2. **Step 2:** (estimation of the share of business activities within a country) and **Step 3** (estimation of aggregate 'EU-level' turnover (or employment) for individual business activities), follow the same approach as that defined for products and services (as described in the previous sub-section).

A more formal description of Step 1 and Step 2 of the estimation method is provided in the following Box.

⁸⁰ The values used are 5 for the 'most important' business activity within a broad industry category, 3 for the 2nd ranked business activity, 2 for the 3rd ranked business activity, and 1 for all business activities undertaken by the firm but not ranked in the top three. Business activities not undertaken by the firm have a value of zero.

Method for estimating the breakdown of turnover (or employment) by business activity

STEP 1: Estimation of the share (weight) of individual business activities in a firm's total activities

Let w_i^j represent the sum of estimated product/service weights (w_{ijk}) of firm i for products/services within broad industry category j (as calculated above), such that:

$$w_i^j = \sum_{k (k \in j)} w_{ijk}$$

Where broad industry category j refers to either cyber security products and services or 'other' security products.

Let q_{ijl} represent an indicator variable for a firm's ranking of its business activities within category j , where:

$q_{ijl} = 5$ if activity l is firm i 's main business activities within category j ;

$q_{ijl} = 3$ if activity l is the firm i 's 2nd most important business activities within category j ;

$q_{ijl} = 2$ if activity l is the firm i 's 3rd most important business activities within category j ;

$q_{ijl} = 1$ if activity l is undertaken by firm i but not ranked in its top 3 business activities within category j ;

$q_{ijl} = 0$ otherwise (i.e. if activity l is not undertaken by firm i)

Then, the estimated weight (w_{ijl}) of each business activity in the overall business activities undertaken by firm i is calculated as:

$$w_{ijl} = w_i^j \left(\frac{q_{ijl}}{\sum_{l (l \in j)} q_{ijl}} \right)$$

These weights can then be applied to the turnover (or employment) of a firm to estimate the share of each business activity in the firm's total turnover (or employment), such that the estimated turnover (or employment) of firm i from business activity l ($\hat{\tau}_{ijl}$) is given by:

$$\hat{\tau}_{ijl} = w_{ijl} \tau_i$$

Where τ_i is the total turnover (or employment) of firm i .

STEP 2: Estimation of the share of individual business activities within a country

Approach 2a: linear weights

Let W_{jl}^s represent an indicator of the share of business activity l in the total supply of security products and services by firms in country s . W_{jl}^s can be estimated as the sum of individual firms' product weights (w_{ijl}), themselves weighted by each firm's share in the total turnover (or employment) of all firms (in country s), calculated as follows:

$$W_{jl}^s = \sum_i w_{ijl} \left(\frac{\tau_i}{\sum_i^s \tau_i} \right)$$

Alternatively, to estimate the share of business activity l in the total business activities for broad industry category j ($l \in j$), where j refers to either cyber security products and services or 'other' security products, can be calculated by dividing W_{jl}^s by the sum of corresponding shares for all business activities within broad industry category j , as follows:

$$W_{jl}^{sj} = \frac{W_{jl}^s}{\sum_{l (l \in j)} W_{jl}^s}$$

Approach 2b: log weights

The above estimation of product shares can be strongly influenced by the business activity portfolio of the largest firms in the survey sample. To reduce the influence of the largest firms, an alternative approach is to use the log of turnover ($\ln \tau_i$) – or employment – to weight individual firms, thus the calculation becomes:

$$\tilde{W}_{jl}^s = \sum_i w_{ijl} \left(\frac{\ln \tau_i}{\sum_i^s \ln \tau_i} \right)$$

And the share of a business activity within its broad industry category becomes:

$$\tilde{W}_{jl}^{sj} = \frac{\tilde{W}_{jl}^s}{\sum_{l (l \in j)} \tilde{W}_{jl}^s}$$

6.1.3 Estimation of the breakdown of turnover and employment by market segment

For the breakdown of turnover (or employment) by market segment, respondents are only requested to provide an indication of the market segments in which they are active and corresponding ranking (top 3) for their overall supply of security products and services, without distinguishing between broad industry categories (or different products and services therein).

The basic approach used to estimate the share (weight) of individual market segments in total turnover (or employment) consisting of the following basic steps:

1. **Step 1: estimation of the share (weight) of individual market segments in a firm's total turnover (or employment).** For individual market segments, an indicator of relative importance is given depending on the firm's ranking of their importance.⁸¹ Weights for individual market segments are estimated by dividing the segment's indicator of relative importance by the sum of indicators for all market segments identified by the firm. This weight is applied to the firm's turnover (or employment) to estimate the value of the firm's turnover (or employment) attributable to the market segment;
2. **Step 2** (estimation of the share of individual market segments within a country) and **Step 3** (estimation of aggregate 'EU-level' turnover (or employment) for individual market segments), follow the same approach as that defined for products and services (as described previously).

⁸¹ The values used are 5 for the 'most important' business activity within a broad industry category, 3 for the 2nd ranked business activity, 2 for the 3rd ranked business activity, and 1 for all business activities undertaken by the firm but not ranked in the top three. Business activities not undertaken by the firm have a value of zero.

Method for estimating the breakdown of turnover (or employment) by market segment

STEP 1: Estimation of the share (weight) of individual market segments in a firm's total supply of products and services

Let r_{im} represent an indicator variable for a firm's ranking of market segment m , where:

- $r_{im} = 5$ if market segment m is firm i 's main market segment;
- $r_{im} = 3$ if market segment m is firm i 's 2nd most important market segment;
- $r_{im} = 2$ if market segment m is firm i 's 3rd most important market segment;
- $r_{im} = 1$ if market segment m is served by firm i but not ranked in its top 3 market segments;
- $r_{im} = 0$ otherwise (i.e. if market segment m is not served by firm i)

Then, the estimated weight (w_{im}) of each market segment in the overall supply of products and services by firm i is calculated as:

$$w_{im} = \frac{r_{im}}{\sum_m r_{im}}$$

These weights can then be applied to the turnover (or employment) of a firm to estimate the share of each market segment in the firm's total turnover (or employment), such that the estimated turnover (or employment) of firm i from market segment m ($\hat{\tau}_{im}$) is given by:

$$\hat{\tau}_{im} = w_{im} \tau_i$$

Where τ_i is the total turnover (or employment) of firm i .

STEP 2: Estimation of the share of individual market segments within a country

Approach 2a: linear weights

Let W_m^s represent an indicator of the share of market segment m in the total market for security products and services in country s . W_m^s can be estimated as the sum of individual firms' market segment weights (w_{im}), themselves weighted by each firm's share in the total turnover (or employment) of all firms (in country s), calculated as follows:

$$W_m^s = \sum_i^s w_{im} \left(\frac{\tau_i}{\sum_i^s \tau_i} \right)$$

Alternatively, to estimate the share of market segment m in the total market for products/services of broad industry category j can be calculated by additionally multiplying each firms' market segment weights (w_{im}) by the share of category j in the firms total supply of products and services. Thus, the share of market segment m in the total market for products/services of broad industry category j for country s is calculated as follows:

$$W_m^{sj} = \sum_i^s w_i^j w_{im} \left(\frac{\tau_i}{\sum_i^s \tau_i} \right)$$

Where $w_i^j = \sum_{k \in j} w_{ijk}$

Approach 2b: log weights

The above estimation of product shares can be strongly influenced by the market segment portfolio of the largest firms in the survey sample. To reduce the influence of the largest firms, an alternative approach is to use the log of turnover – or employment - ($\ln \tau_i$) to weight individual firms, thus the calculation becomes:

$$\tilde{W}_m^s = \sum_i^s w_{im} \left(\frac{\ln \tau_i}{\sum_i^s \ln \tau_i} \right)$$

And the share of a market segment within its broad industry category becomes:

$$\tilde{W}_m^{sj} = \sum_i^s w_i^j w_{im} \left(\frac{\ln \tau_i}{\sum_i^s \ln \tau_i} \right)$$

6.2 Estimates of the breakdown of turnover and employment by security products and services, business activities and markets

Following the methodologies described above, the following sub-sections describe the main findings on the breakdown of turnover (and employment) for the main broad industry categories. In terms of the general interpretation of the results, it is important to recognise that the estimated breakdowns come from a ‘mechanical’ application of estimation methodologies to the underlying survey data and not from a detailed analysis of the production of security products and services and corresponding markets. Accordingly, the estimated breakdowns should be considered only to be ‘indicative’ of the relative importance of different products and services, business activities and market segments.

For the purpose of presenting findings, the following sub-sections focus on the estimated breakdown of turnover. Given the common estimation methodologies that have been applied, the revealed patterns in the breakdown of turnover and employment are broadly similar; full data for both turnover and employment are given in Table 6.1 to Table 6.16, which are provided at the end of the Chapter. For the ‘within country’ breakdowns, firm-level estimates have been aggregated using a ‘log weights’ approach (see the description of the methodology described above). To derive country-level and EU-level turnover (and employment) breakdown estimates, ‘mid-point’ aggregate estimates of turnover (and employment) have been used; see Chapter 5 for a description of the ‘mid-point’ estimates. Finally, it should be noted that no adjustment has been made for possible defence-related turnover or employment.⁸²

6.2.1 ‘Other’ security products

Figure 6.1 to Figure 6.3 show graphically the estimated breakdown of ‘other’ security products by, respectively, product type, business activities and market segment.⁸³

In terms of the overall pattern of turnover by product type (Figure 6.1), there is a broad similarity across countries; though noticeably the turnover share of ‘*fire detection, alarm and suppression*’ is relatively small in the UK⁸⁴, while ‘*intruder detection and alarm*’ has a high share in Italy and ‘*identification and authentication*’ has a high share in France. Looking at the overall aggregate (‘All (6)’) breakdown, the dominance of more traditional – and to an extent, volume market – products stands out; taken together ‘*fire detection, alarm and suppression*’, ‘*intruder detection and alarm*’, ‘*local area observation (including CCTV)*’ and ‘*mechanical access control and barriers*’ have a combined estimated share of 53% of total turnover; if applied to the EU aggregate turnover estimate⁸⁵, this would imply a combined estimated turnover value of over € 45 billion.

The breakdown of turnover by business activity (Figure 6.2) offers some additional insight for evaluation of the ‘headline’ turnover estimates. In particular, the estimates suggest that at an aggregate level (i.e. ‘All (6)’), ‘*wholesale and retail distribution*’ activities could account for 20% of total turnover associated to the supply of ‘other’ security products, with ‘*installation*’ and ‘*maintenance and servicing*’ accounting for a further 30% of total turnover; in other words, taken together these activities may account for half of total turnover associated to the supply of other security products. This can be compared to a combined share of around 40% for the activities of

⁸² See section 5.1.3 for details of the adjustment for defence related activities.

⁸³ The underlying data are shown in Table 6.1 to Table 6.3; corresponding data for the breakdown of employment are shown in Table 6.4 to Table 6.6.

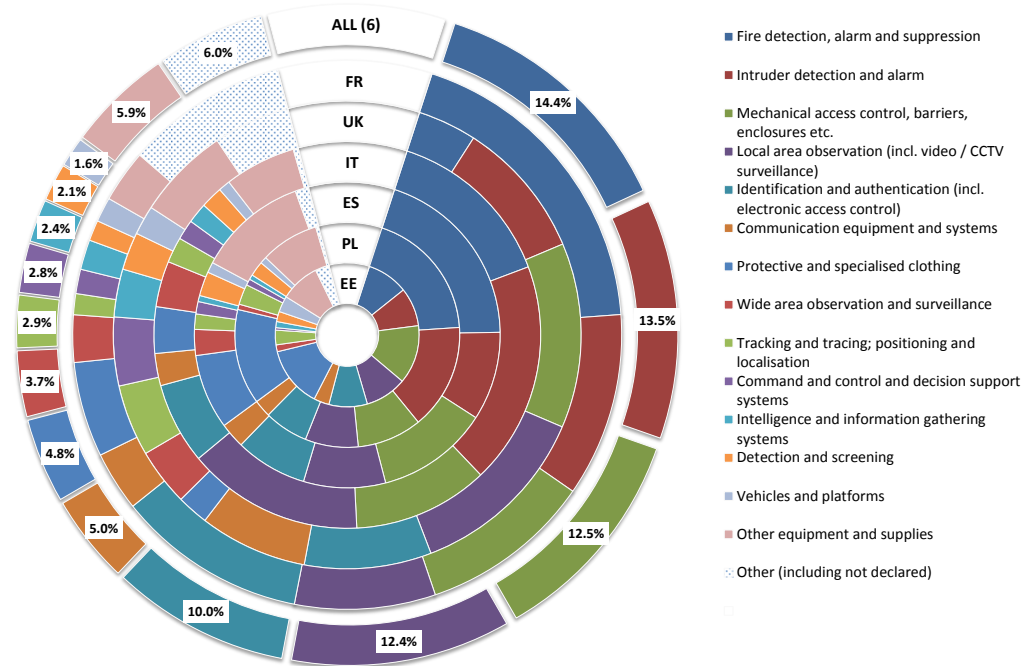
⁸⁴ This is thought to reflect difference in the composition of the underlying identification of companies used for the survey rather than a structural difference in the composition of the sector for the UK.

⁸⁵ The ‘mid-point’ estimate of EU turnover for ‘other’ security products is € 88 billion.

'research and development', 'design and engineering', 'manufacturing and assembly' and 'integration' which, if applied to the EU aggregate turnover estimate⁸⁶, this would imply a combined estimated turnover value for product development and production-related activities of around € 34 billion.

Concerning the breakdown by market segment (Figure 6.3), there are again some broad similarities across countries; although with some specificities, such as the high estimated turnover shares of 'other security services' and 'public administrations' in France, 'defence' in the UK, or 'private individuals and households' in Italy. Looking at the overall picture, that at an aggregate level (i.e. 'All (6)'), the importance of the public sector is apparent; even without defence (5.8%), the combined estimated share of 'public administrations' and 'public security services providers' comes to around 15%, on top which could possibly be added parts of 'health and education', 'transport' etc.

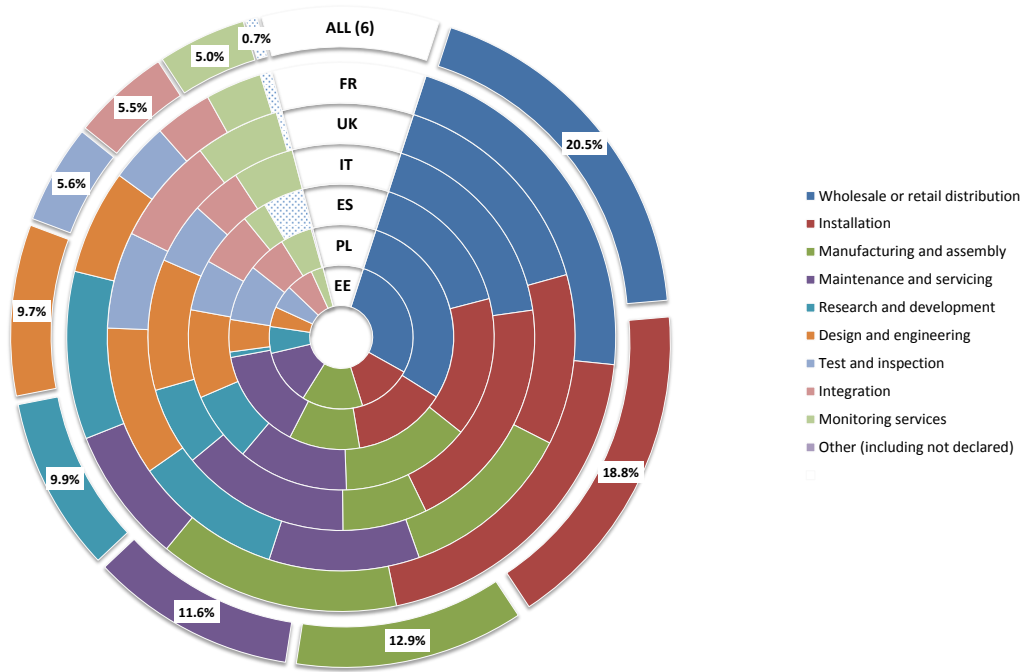
Figure 6.1 'Other' security products: breakdown of turnover by product category



Source: Ecorys SSS

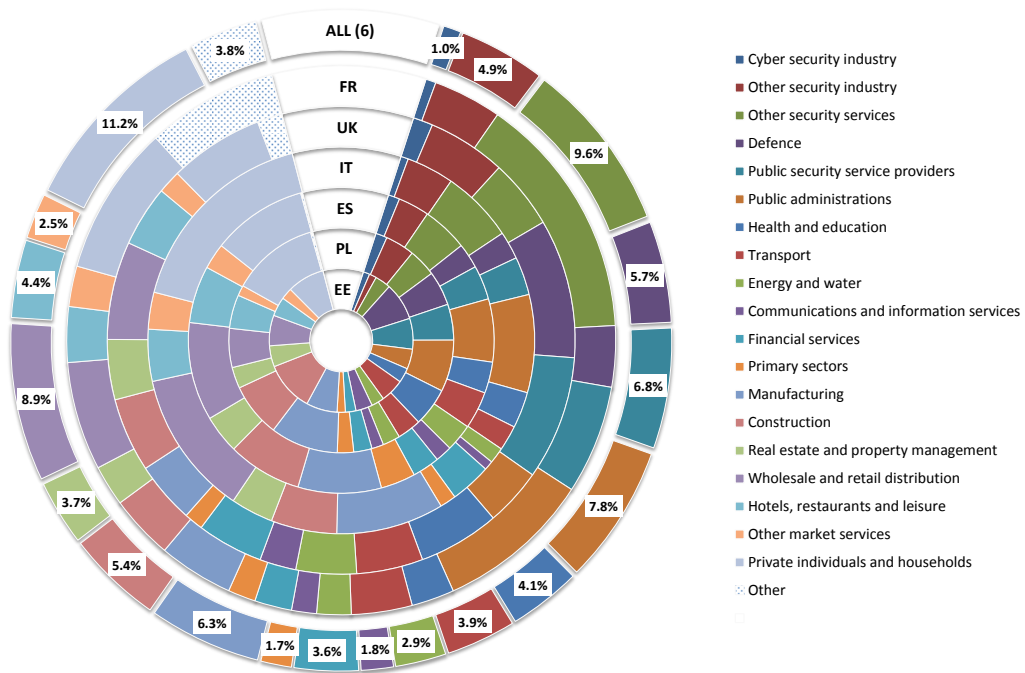
⁸⁶ The 'mid-point' estimate of EU turnover for 'other' security products is € 88 billion.

Figure 6.2 'Other' security products: breakdown of turnover by business activity



Source: Ecorys SSS

Figure 6.3 'Other' security products: breakdown of turnover by market segment



Source: Ecorys SSS

6.2.2 'Other' security services

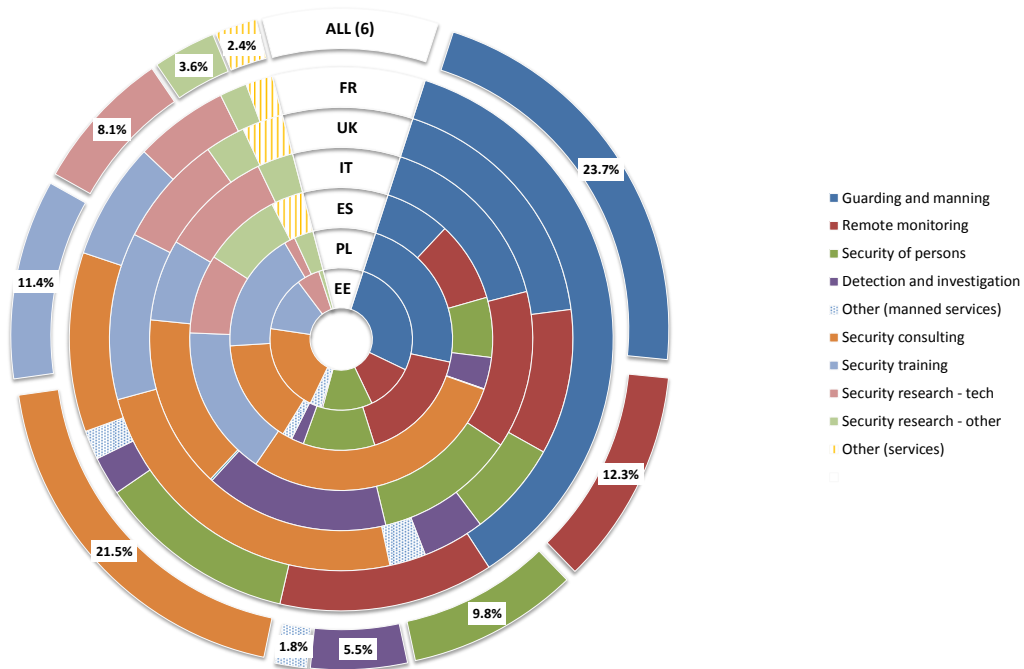
Figure 6.4 and Figure 6.5 show graphically the estimated breakdown of 'other' security services by, respectively, service type and market segment; there is no breakdown of 'other' security services by business activity⁸⁷.

⁸⁷ The underlying data are shown in Table 6.7 and Table 6.8; corresponding data for the breakdown of employment are shown in Table 6.9 and Table 6.10.

Concerning the estimated breakdown of turnover by service type (Figure 6.4), at an aggregate level (i.e. 'All (6)'), the largest turnover shares are for 'guarding and manning' and 'security consulting', which each have a share above 20%. These shares are a reflection, at least partially, of some divergent patterns in the underlying national estimates; notably the high estimated share of 'guarding and manning' in France (40%) and the high estimated shares of 'security consulting' in the UK (27%) and Spain (32%). Taken together, those 'manpower-based' security services that are typically most closely associated to the private security services sector, namely "guarding and manning", 'security of persons' and 'remote monitoring' have a combined estimated aggregate share of around 46%. By way of comparison, if applied to the EU aggregate turnover estimate for 'other' security services⁸⁸, the share of 46% for would imply a combined estimated turnover value for the private security services sector of around € 35 billion. This figure can be compared to Eurostat-based estimate of EU private security services turnover of around € 39 billion or COESS based estimate which indicate an EU turnover of the private security industry in the region of € 32 billion.

Concerning the breakdown by market segment (Figure 6.5), the marked similarities with the pattern displayed for 'other' security products and services (Figure 6.3) is noticeable.⁸⁹ This suggests that the breakdown of demand by market segment for 'other' security products and 'other' security services is actually more similar than might be imagined. To some extent, the similarities might reflect the relative weight of different market segments in overall economic activity. It may also be indicative of possible complementarity between demand for ('other') security products and ('other') security services.

Figure 6.4 'Other' security services: breakdown of turnover by service type

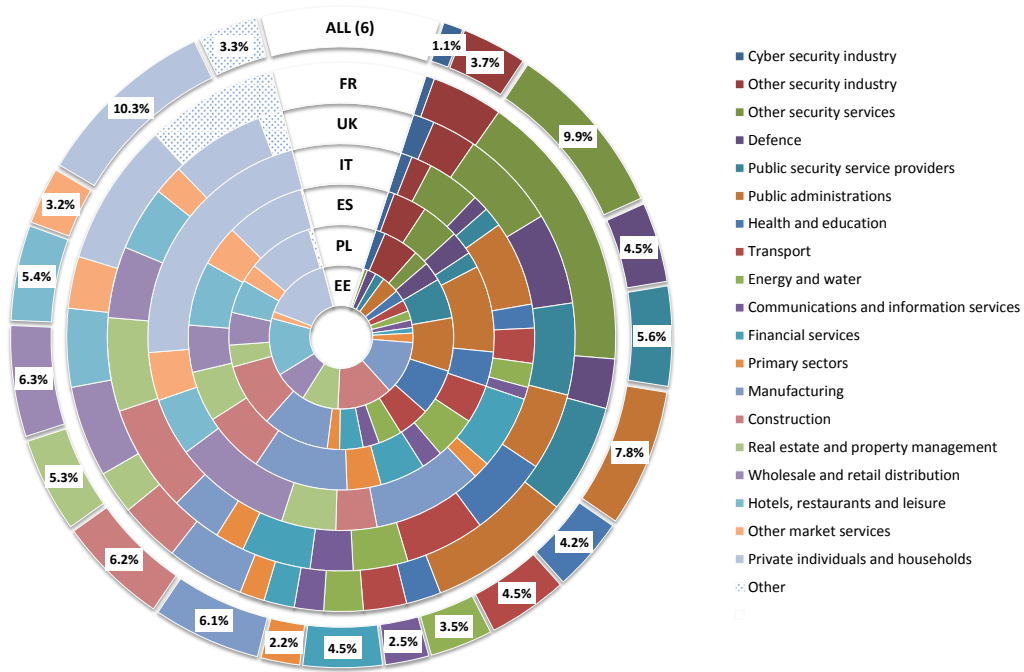


Source: Ecorys SSS

⁸⁸ The 'mid-point' estimate of EU turnover for 'other' security services is € 77 billion.

⁸⁹ Since most firms are typically active in only one broad industry category, this finding is unrelated to the fact that survey respondent are only requested to provide an indication of the market segments in which they are active and corresponding ranking (top 3) without distinguishing between broad industry categories (or different products and services therein). The similarities observed across 'other' security products and 'other' security services reflect common patterns in terms of the frequency with which firms (from the different broad industry categories) identify themselves as having customers in the different market segments and in the importance they attach to individual market segments (i.e. top 3 ranking).

Figure 6.5 'Other' security services: breakdown of turnover by market segment



Source: Ecorys SSS

6.2.3 Cyber security services and products

Figure 6.6 to Figure 6.8 show graphically the estimated breakdown of cyber security services and products by, respectively, service/product type, business activities and market segment.⁹⁰ With respect to cyber security services in products it should be recalled that the sample size (number of firms) for cyber security is small compared to the other main broad industry categories and so additional caution is required in assessing findings. Data for Estonia is not presented due to the very small number of observations for cyber security.

Concerning the breakdown by product and service categories (Figure 6.6), the overall pattern across countries appears to quite similar across countries, with some odd exceptions such as the relatively estimate of the proportion of 'hardware security solutions' in total turnover for France. The three product/service types with the highest aggregate (i.e. 'All (6)') turnover shares are 'data security solutions', 'hardware security solutions' and 'identity and access management solutions'. Overall, however, there appears to be a relatively even spread of turnover across product/service types.

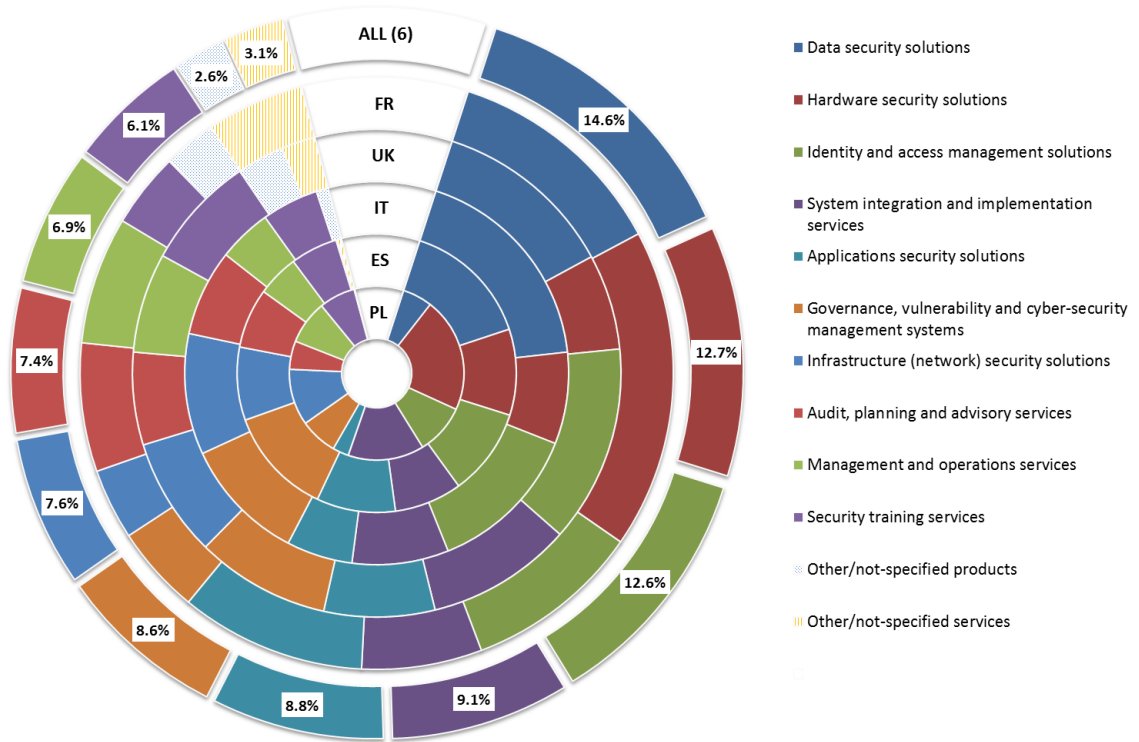
The broadly similar patterns across countries can also be observed for the breakdown of turnover by business activities (Figure 6.7). 'Software development' is estimated to have the highest turnover share but it can be seen that the estimated shares for France and Spain are noticeably higher than for the other countries.

With respect to the breakdown by market segment, there are again similarities with the patterns seen for 'other' security products and 'other' security services. Features that stand out are the much larger turnover share estimated for the 'financial services' sector (9.2% for cyber, compared to 3.6% for 'other' products and 4.5% for 'other' services), for which the UK appears to be an important

⁹⁰ The underlying data are shown in Table 6.11 to Table 6.13; corresponding data for the breakdown of employment are shown in Table 6.14 to Table 6.16.

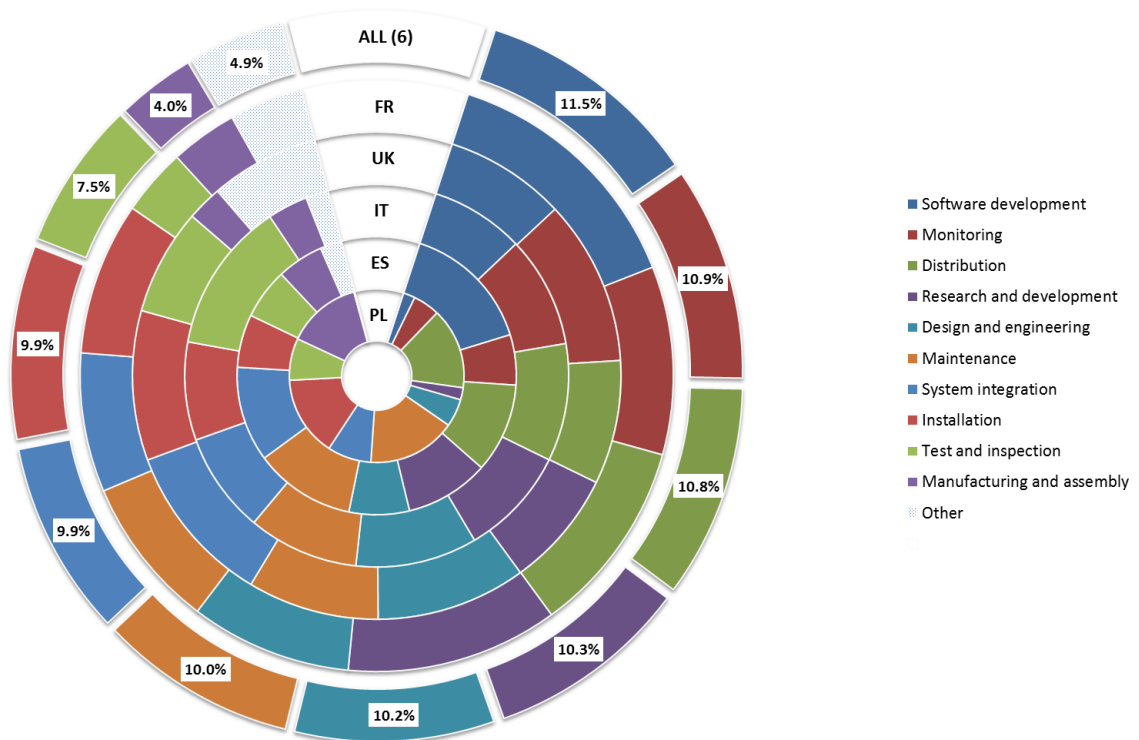
driver. Similarly, there is also a noticeably higher estimated share for 'communication and information services'.

Figure 6.6 Cyber security: breakdown of turnover by product and service category



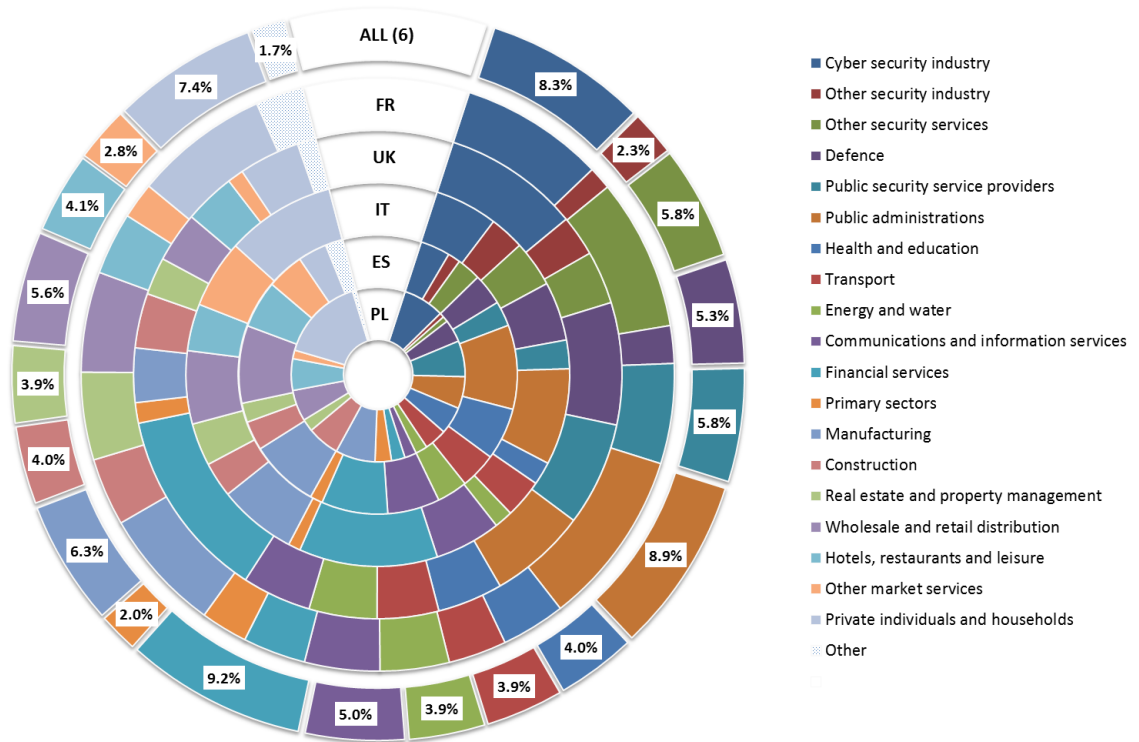
Source: Ecorys SSS

Figure 6.7 Cyber security: breakdown of turnover by business activity



Source: Ecorys SSS

Figure 6.8 Cyber security: breakdown of turnover by market segment



Source: Ecorys SSS

Table 6.1 'Other' security products: estimates (log based weights) of turnover by product category (€ million and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Fire detection, alarm and suppression	680 (4.5%)	3,680 (20.7%)	1,770 (15.7%)	520 (21.7%)	150 (20.8%)	30 (10.2%)	12,700 (14.4%)
Intruder detection and alarm	1,590 (10.5%)	2,120 (11.9%)	2,310 (20.5%)	250 (10.3%)	120 (16.7%)	30 (9.6%)	11,900 (13.5%)
Mechanical access control, barriers, enclosures etc.	2,120 (14.1%)	1,990 (11.2%)	1,410 (12.5%)	310 (13.0%)	70 (10.2%)	40 (14.5%)	11,000 (12.5%)
Local area observation (incl. video / CCTV surveillance)	2,120 (14.0%)	1,620 (9.1%)	1,830 (16.2%)	230 (9.5%)	60 (8.4%)	30 (10.3%)	10,900 (12.4%)
Identification and authentication (incl. electronic access control)	1,460 (9.7%)	2,190 (12.3%)	850 (7.5%)	200 (8.4%)	50 (7.0%)	30 (9.5%)	8,800 (10.0%)
Communication equipment and systems	1,240 (8.2%)	690 (3.9%)	330 (3.0%)	70 (2.9%)	20 (2.8%)	10 (3.8%)	4,400 (5.0%)
Protective and specialised clothing	360 (2.4%)	1,100 (6.2%)	480 (4.3%)	210 (8.7%)	110 (15.1%)	50 (15.0%)	4,200 (4.8%)
Wide area observation and surveillance	660 (4.3%)	550 (3.1%)	480 (4.2%)	70 (3.0%)	10 (0.9%)	10 (1.7%)	3,300 (3.7%)
Tracking and tracing; positioning and localisation	820 (5.4%)	240 (1.4%)	270 (2.4%)	40 (1.8%)	20 (3.2%)	10 (3.6%)	2,600 (2.9%)
Command and control and decision support systems	790 (5.2%)	280 (1.6%)	210 (1.8%)	30 (1.4%)	10 (1.0%)	0 (0.6%)	2,500 (2.8%)
Intelligence and information gathering systems	550 (3.6%)	340 (1.9%)	210 (1.9%)	20 (0.7%)	10 (0.8%)	0 (1.5%)	2,100 (2.4%)
Detection and screening	430 (2.9%)	240 (1.3%)	230 (2.0%)	70 (2.8%)	20 (2.4%)	10 (2.5%)	1,800 (2.1%)
Vehicles and platforms	340 (2.2%)	280 (1.6%)	120 (1.1%)	30 (1.2%)	10 (1.1%)	10 (4.0%)	1,400 (1.6%)
Other equipment and supplies	1,070 (7.1%)	610 (3.4%)	740 (6.6%)	310 (12.8%)	60 (9.2%)	30 (9.8%)	5,200 (5.9%)
Other (including not declared)	880 (5.8%)	1,870 (10.5%)	50 (0.5%)	40 (1.6%)	0 (0.5%)	10 (3.4%)	5,300 (6.0%)
Total	15,100 (100.0%)	17,800 (100.0%)	11,300 (100.0%)	2,400 (100.0%)	700 (100.0%)	300 (100.0%)	88,000 (100.0%)

Source: Ecorys SSS

Table 6.2 'Other' security products: estimates (log based weights) of turnover by business activity (€ million and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Wholesale or retail distribution	2,610 (17.3%)	4,230 (23.8%)	2,210 (19.6%)	420 (17.6%)	220 (31.8%)	90 (30.9%)	18,000 (20.5%)
Installation	1,960 (13.0%)	3,950 (22.2%)	2,490 (22.0%)	390 (16.2%)	100 (14.8%)	40 (13.3%)	16,500 (18.8%)
Manufacturing and assembly	2,010 (13.3%)	2,780 (15.6%)	880 (7.8%)	360 (15.1%)	80 (11.2%)	50 (15.0%)	11,400 (12.9%)
Maintenance and servicing	1,730 (11.4%)	1,570 (8.8%)	1,760 (15.5%)	310 (12.8%)	110 (16.0%)	40 (13.7%)	10,200 (11.6%)
Research and development	1,710 (11.3%)	1,930 (10.9%)	820 (7.2%)	200 (8.1%)	10 (0.9%)	20 (6.6%)	8,700 (9.9%)
Design and engineering	1,710 (11.3%)	1,210 (6.8%)	1,360 (12.1%)	250 (10.3%)	40 (5.1%)	10 (4.9%)	8,500 (9.7%)
Integration	1,110 (7.4%)	690 (3.9%)	640 (5.6%)	140 (5.9%)	60 (8.9%)	20 (5.8%)	4,900 (5.6%)
Test and inspection	1,230 (8.1%)	660 (3.7%)	520 (4.6%)	150 (6.4%)	40 (6.0%)	20 (6.7%)	4,800 (5.5%)
Monitoring services	970 (6.4%)	650 (3.6%)	640 (5.6%)	70 (2.8%)	40 (5.0%)	10 (3.0%)	4,400 (5.0%)
Other (including not declared)	70 (0.4%)	130 (0.7%)	0 (0.0%)	110 (4.7%)	0 (0.2%)	0 (0.0%)	600 (0.7%)
Total	15,100 (100.0%)	17,800 (100.0%)	11,300 (100.0%)	2,400 (100.0%)	700 (100.0%)	300 (100.0%)	88,000 (100.0%)

Source: Ecorys SSS

Table 6.3 'Other' security products: estimates (log based weights) of turnover by market segment (€ million and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Cyber security industry	230 (1.5%)	120 (0.7%)	80 (0.7%)	30 (1.3%)	10 (1.8%)	0 (1.6%)	900 (1.0%)
Other security industry	900 (6.0%)	790 (4.5%)	490 (4.4%)	90 (3.6%)	30 (4.6%)	10 (1.8%)	4,300 (4.9%)
Other security services	800 (5.3%)	2,840 (15.9%)	750 (6.7%)	130 (5.3%)	30 (4.4%)	10 (3.9%)	8,500 (9.6%)
Defence	1,600 (10.6%)	710 (4.0%)	290 (2.6%)	70 (2.9%)	40 (5.4%)	30 (9.3%)	5,000 (5.7%)
Public security service providers	1,420 (9.4%)	1,250 (7.0%)	400 (3.5%)	100 (4.0%)	40 (5.7%)	20 (7.6%)	6,000 (6.8%)
Public administrations	660 (4.4%)	1,790 (10.1%)	1,020 (9.0%)	180 (7.3%)	60 (8.2%)	10 (4.9%)	6,900 (7.8%)
Health and education	930 (6.2%)	490 (2.8%)	380 (3.3%)	90 (3.6%)	40 (6.1%)	10 (3.6%)	3,600 (4.1%)
Transport	760 (5.1%)	700 (3.9%)	260 (2.3%)	100 (4.4%)	30 (3.8%)	20 (5.8%)	3,500 (3.9%)
Energy and water	690 (4.6%)	400 (2.2%)	170 (1.5%)	80 (3.2%)	20 (2.8%)	10 (3.2%)	2,500 (2.9%)
Communications and information services	420 (2.8%)	290 (1.6%)	100 (0.8%)	50 (1.9%)	10 (1.9%)	10 (4.1%)	1,600 (1.8%)
Financial services	760 (5.0%)	430 (2.4%)	430 (3.8%)	80 (3.2%)	20 (2.9%)	10 (2.6%)	3,200 (3.6%)
Primary sectors	220 (1.4%)	320 (1.8%)	170 (1.5%)	100 (4.0%)	20 (2.6%)	10 (2.0%)	1,500 (1.7%)
Manufacturing	710 (4.7%)	860 (4.9%)	1,120 (9.9%)	230 (9.7%)	80 (10.7%)	20 (7.7%)	5,600 (6.3%)
Construction	850 (5.6%)	740 (4.2%)	680 (6.1%)	210 (8.6%)	60 (8.5%)	40 (12.3%)	4,700 (5.4%)
Real estate and property management	690 (4.6%)	470 (2.6%)	440 (3.9%)	110 (4.5%)	20 (3.4%)	20 (5.2%)	3,200 (3.7%)
Wholesale and retail distribution	1,130 (7.5%)	1,250 (7.0%)	1,510 (13.4%)	270 (11.4%)	40 (6.2%)	20 (7.6%)	7,800 (8.9%)
Hotels, restaurants and leisure	700 (4.6%)	640 (3.6%)	540 (4.8%)	160 (6.6%)	40 (5.3%)	10 (4.7%)	3,900 (4.4%)
Other market services	270 (1.8%)	470 (2.6%)	380 (3.4%)	70 (3.0%)	10 (1.7%)	10 (2.8%)	2,200 (2.5%)
Private individuals and households	1,090 (7.2%)	1,730 (9.7%)	2,100 (18.6%)	270 (11.1%)	100 (13.8%)	30 (9.2%)	9,800 (11.2%)
Other	290 (1.9%)	1,510 (8.5%)	0 (0.0%)	10 (0.2%)	0 (0.3%)	0 (0.0%)	3,400 (3.8%)
Total	15,100 (100.0%)	17,800 (100.0%)	11,300 (100.0%)	2,400 (100.0%)	700 (100.0%)	300 (100.0%)	88,000 (100.0%)

Source: Ecorys SSS

Table 6.4 'Other' security products: estimates (log based weights) of employment by product category employees and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Fire detection, alarm and suppression	5,490 (5.1%)	23,380 (21.4%)	9,260 (15.4%)	5,370 (22.4%)	2,980 (16.5%)	330 (16.6%)	107,800 (14.6%)
Intruder detection and alarm	11,360 (10.5%)	11,310 (10.4%)	11,530 (19.2%)	2,680 (11.2%)	3,380 (18.8%)	150 (7.7%)	93,400 (12.6%)
Local area observation (incl. video / CCTV surveillance)	15,110 (14.0%)	11,790 (10.8%)	7,830 (13.0%)	3,170 (13.2%)	2,400 (13.4%)	320 (15.9%)	93,500 (12.6%)
Mechanical access control, barriers, enclosures etc.	14,400 (13.3%)	9,680 (8.9%)	9,870 (16.4%)	2,190 (9.1%)	2,130 (11.9%)	170 (8.3%)	88,800 (12.0%)
Identification and authentication (incl. electronic access control)	9,740 (9.0%)	13,900 (12.7%)	4,550 (7.6%)	1,930 (8.1%)	1,360 (7.6%)	150 (7.5%)	73,000 (9.9%)
Communication equipment and systems	8,270 (7.7%)	3,430 (3.1%)	1,710 (2.8%)	590 (2.4%)	660 (3.7%)	70 (3.6%)	34,000 (4.6%)
Protective and specialised clothing	3,030 (2.8%)	6,570 (6.0%)	2,470 (4.1%)	2,070 (8.6%)	1,270 (7.1%)	290 (14.5%)	35,800 (4.8%)
Wide area observation and surveillance	4,830 (4.5%)	3,110 (2.9%)	2,680 (4.5%)	670 (2.8%)	270 (1.5%)	30 (1.6%)	26,800 (3.6%)
Tracking and tracing; positioning and localisation	5,570 (5.2%)	1,460 (1.3%)	1,570 (2.6%)	370 (1.5%)	700 (3.9%)	60 (3.1%)	22,400 (3.0%)
Command and control and decision support systems	6,250 (5.8%)	1,820 (1.7%)	1,270 (2.1%)	320 (1.3%)	240 (1.3%)	10 (0.3%)	22,900 (3.1%)
Intelligence and information gathering systems	3,930 (3.6%)	2,210 (2.0%)	820 (1.4%)	160 (0.7%)	180 (1.0%)	0 (0.1%)	16,900 (2.3%)
Detection and screening	3,960 (3.7%)	1,190 (1.1%)	1,410 (2.3%)	770 (3.2%)	590 (3.3%)	50 (2.5%)	18,400 (2.5%)
Vehicles and platforms	2,870 (2.7%)	1,970 (1.8%)	480 (0.8%)	260 (1.1%)	310 (1.7%)	140 (7.2%)	13,700 (1.8%)
Other equipment and supplies	7,370 (6.8%)	4,220 (3.9%)	4,260 (7.1%)	3,120 (13.0%)	1,490 (8.3%)	220 (11.0%)	47,400 (6.4%)
Other (including not declared)	5,820 (5.4%)	12,970 (11.9%)	300 (0.5%)	320 (1.3%)	20 (0.1%)	0 (0.0%)	45,100 (6.1%)
Total	108,000 (100.0%)	109,000 (100.0%)	60,000 (100.0%)	24,000 (100.0%)	18,000 (100.0%)	2,000 (100.0%)	740,000 (100.0%)

Source: Ecorys SSS

Table 6.5 'Other' security products: estimates (log based weights) of employment by business activity (employees and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Wholesale or retail distribution	15,810 (14.6%)	25,300 (23.2%)	11,070 (18.5%)	3,730 (15.6%)	3,770 (20.9%)	570 (28.5%)	138,500 (18.7%)
Installation	13,260 (12.3%)	23,070 (21.2%)	11,530 (19.2%)	3,910 (16.3%)	2,880 (16.0%)	260 (12.9%)	126,800 (17.1%)
Manufacturing and assembly	15,690 (14.5%)	17,820 (16.3%)	5,820 (9.7%)	3,780 (15.7%)	1,940 (10.8%)	370 (18.4%)	104,500 (14.1%)
Maintenance and servicing	12,440 (11.5%)	9,330 (8.6%)	8,370 (13.9%)	3,190 (13.3%)	3,020 (16.8%)	350 (17.4%)	84,300 (11.4%)
Research and development	11,990 (11.1%)	12,490 (11.5%)	5,420 (9.0%)	2,110 (8.8%)	300 (1.7%)	90 (4.5%)	74,900 (10.1%)
Design and engineering	12,550 (11.6%)	8,290 (7.6%)	7,840 (13.1%)	2,520 (10.5%)	1,030 (5.7%)	110 (5.3%)	74,700 (10.1%)
Integration	7,850 (7.3%)	4,420 (4.1%)	3,400 (5.7%)	1,510 (6.3%)	1,630 (9.0%)	120 (6.2%)	43,600 (5.9%)
Test and inspection	8,900 (8.2%)	3,150 (2.9%)	2,990 (5.0%)	1,560 (6.5%)	1,110 (6.2%)	100 (5.0%)	41,100 (5.6%)
Monitoring services	9,130 (8.5%)	4,410 (4.1%)	3,570 (5.9%)	740 (3.1%)	2,330 (12.9%)	40 (1.8%)	46,800 (6.3%)
Other	380 (0.4%)	710 (0.7%)	0 (0.0%)	950 (4.0%)	0 (0.0%)	0 (0.0%)	4,700 (0.6%)
Total	108,000 (100.0%)	109,000 (100.0%)	60,000 (100.0%)	24,000 (100.0%)	18,000 (100.0%)	2,000 (100.0%)	740,000 (100.0%)

Source: Ecorys SSS

Table 6.6 'Other' security products: estimates (log based weights) of employment by market segment (employees and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Cyber security industry	2,040 (1.9%)	710 (0.6%)	430 (0.7%)	360 (1.5%)	440 (2.5%)	20 (0.9%)	9,200 (1.2%)
Other security industry	6,400 (5.9%)	4,400 (4.0%)	2,590 (4.3%)	990 (4.1%)	880 (4.9%)	20 (0.9%)	35,400 (4.8%)
Other security services	5,470 (5.1%)	18,360 (16.8%)	4,150 (6.9%)	1,270 (5.3%)	530 (2.9%)	60 (2.8%)	69,100 (9.3%)
Defence	12,450 (11.5%)	4,350 (4.0%)	1,910 (3.2%)	720 (3.0%)	1,110 (6.2%)	190 (9.5%)	47,600 (6.4%)
Public security service providers	9,400 (8.7%)	7,780 (7.1%)	2,290 (3.8%)	980 (4.1%)	1,090 (6.0%)	150 (7.3%)	50,000 (6.8%)
Public administrations	4,920 (4.6%)	11,380 (10.4%)	6,160 (10.3%)	1,780 (7.4%)	1,640 (9.1%)	130 (6.6%)	60,000 (8.1%)
Health and education	6,600 (6.1%)	3,160 (2.9%)	2,110 (3.5%)	880 (3.7%)	1,120 (6.2%)	60 (2.9%)	32,200 (4.3%)
Transport	5,970 (5.5%)	4,500 (4.1%)	1,480 (2.5%)	1,060 (4.4%)	630 (3.5%)	100 (5.1%)	31,700 (4.3%)
Energy and water	5,280 (4.9%)	2,600 (2.4%)	1,030 (1.7%)	730 (3.0%)	530 (2.9%)	70 (3.3%)	23,600 (3.2%)
Communications and information services	3,050 (2.8%)	1,730 (1.6%)	590 (1.0%)	470 (1.9%)	330 (1.8%)	90 (4.5%)	14,300 (1.9%)
Financial services	5,100 (4.7%)	2,750 (2.5%)	2,930 (4.9%)	740 (3.1%)	620 (3.5%)	60 (3.0%)	28,200 (3.8%)
Primary sectors	1,610 (1.5%)	2,450 (2.2%)	900 (1.5%)	960 (4.0%)	400 (2.2%)	30 (1.6%)	14,700 (2.0%)
Manufacturing	4,980 (4.6%)	5,230 (4.8%)	6,340 (10.6%)	2,060 (8.6%)	2,030 (11.3%)	200 (10.0%)	47,900 (6.5%)
Construction	6,160 (5.7%)	4,820 (4.4%)	3,580 (6.0%)	2,190 (9.1%)	1,620 (9.0%)	300 (15.0%)	42,600 (5.8%)
Real estate and property management	4,790 (4.4%)	2,940 (2.7%)	2,120 (3.5%)	1,070 (4.4%)	610 (3.4%)	120 (5.9%)	26,700 (3.6%)
Wholesale and retail distribution	7,620 (7.1%)	7,160 (6.6%)	8,160 (13.6%)	2,850 (11.9%)	1,000 (5.6%)	140 (7.1%)	62,100 (8.4%)
Hotels, restaurants and leisure	4,330 (4.0%)	3,600 (3.3%)	2,560 (4.3%)	1,670 (6.9%)	990 (5.5%)	100 (4.9%)	30,500 (4.1%)
Other market services	2,070 (1.9%)	2,960 (2.7%)	1,930 (3.2%)	750 (3.1%)	280 (1.5%)	40 (1.9%)	18,500 (2.5%)
Private individuals and households	7,380 (6.8%)	9,030 (8.3%)	8,740 (14.6%)	2,390 (9.9%)	2,130 (11.9%)	140 (6.8%)	68,800 (9.3%)
Other	2,370 (2.2%)	9,110 (8.4%)	0 (0.0%)	90 (0.4%)	20 (0.1%)	0 (0.0%)	26,900 (3.6%)
Total	108,000 (100.0%)	109,000 (100.0%)	60,000 (100.0%)	24,000 (100.0%)	18,000 (100.0%)	2,000 (100.0%)	740,000 (100.0%)

Source: Ecorys SSS

Table 6.7 'Other' security services: estimates (log based weights) of turnover by service category (€ million and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Guarding and manning	3,540 (19.8%)	4,970 (39.4%)	950 (17.6%)	450 (7.7%)	130 (25.7%)	90 (29.8%)	18,300 (23.7%)
Remote monitoring	2,000 (11.2%)	1,770 (14.0%)	790 (14.7%)	560 (9.4%)	90 (18.5%)	40 (11.9%)	9,500 (12.3%)
Security of persons	1,310 (7.3%)	1,640 (13.0%)	710 (13.1%)	410 (7.0%)	60 (11.4%)	40 (12.5%)	7,500 (9.8%)
Detection and investigation	850 (4.8%)	320 (2.5%)	920 (17.1%)	220 (3.7%)	10 (2.0%)	0 (0.4%)	4,200 (5.5%)
Other (manned services)	500 (2.8%)	240 (1.9%)	10 (0.2%)	0 (0.1%)	10 (1.6%)	10 (2.8%)	1,400 (1.8%)
Security consulting	4,760 (26.6%)	1,480 (11.7%)	870 (16.1%)	1,890 (32.0%)	80 (16.8%)	70 (22.2%)	16,500 (21.5%)
Security training	2,300 (12.8%)	960 (7.6%)	410 (7.5%)	1,050 (17.7%)	100 (19.3%)	40 (13.6%)	8,800 (11.4%)
Security research - tech	1,540 (8.6%)	780 (6.2%)	560 (10.4%)	550 (9.3%)	10 (1.7%)	20 (5.7%)	6,200 (8.1%)
Security research - other	550 (3.1%)	230 (1.8%)	180 (3.3%)	540 (9.2%)	20 (3.1%)	0 (1.1%)	2,800 (3.6%)
Other (services)	560 (3.2%)	220 (1.8%)	0 (0.0%)	220 (3.8%)	0 (0.0%)	0 (0.0%)	1,800 (2.4%)
Total	17,900 (100.0%)	12,600 (100.0%)	5,400 (100.0%)	5,900 (100.0%)	500 (100.0%)	300 (100.0%)	77,000 (100.0%)

Source: Ecorys SSS

Table 6.8 'Other' security services: estimates (log based weights) of turnover by market segment (€ million and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Cyber security industry	290 (1.6%)	70 (0.6%)	60 (1.1%)	40 (0.7%)	10 (1.5%)	0 (0.1%)	900 (1.1%)
Other security industry	610 (3.4%)	580 (4.6%)	100 (1.9%)	230 (3.9%)	30 (5.7%)	0 (0.2%)	2,800 (3.7%)
Other security services	1,340 (7.5%)	2,290 (18.2%)	270 (4.9%)	260 (4.4%)	10 (2.4%)	0 (0.8%)	7,600 (9.9%)
Defence	1,240 (6.9%)	410 (3.2%)	80 (1.5%)	160 (2.7%)	20 (3.1%)	10 (2.2%)	3,500 (4.5%)
Public security service providers	1,250 (7.0%)	890 (7.1%)	100 (1.8%)	110 (1.8%)	30 (6.4%)	10 (2.3%)	4,300 (5.6%)
Public administrations	1,050 (5.9%)	1,170 (9.3%)	420 (7.8%)	590 (10.1%)	40 (8.4%)	10 (4.3%)	6,000 (7.8%)
Health and education	1,090 (6.1%)	280 (2.3%)	120 (2.2%)	240 (4.0%)	40 (7.3%)	10 (2.8%)	3,200 (4.2%)
Transport	1,080 (6.1%)	350 (2.8%)	170 (3.2%)	260 (4.5%)	30 (5.1%)	10 (2.8%)	3,500 (4.5%)
Energy and water	750 (4.2%)	320 (2.5%)	120 (2.2%)	290 (4.9%)	20 (3.7%)	10 (2.3%)	2,700 (3.5%)
Communications and information services	580 (3.2%)	240 (1.9%)	60 (1.1%)	150 (2.5%)	10 (2.6%)	10 (1.9%)	1,900 (2.5%)
Financial services	940 (5.2%)	250 (2.0%)	370 (6.8%)	310 (5.3%)	20 (3.7%)	0 (1.4%)	3,400 (4.5%)
Primary sectors	400 (2.2%)	200 (1.6%)	80 (1.5%)	230 (3.9%)	10 (1.9%)	10 (2.3%)	1,700 (2.2%)
Manufacturing	690 (3.9%)	630 (5.0%)	550 (10.2%)	650 (11.0%)	50 (10.5%)	40 (13.3%)	4,700 (6.1%)
Construction	1,460 (8.2%)	500 (3.9%)	200 (3.8%)	420 (7.2%)	50 (10.1%)	40 (13.7%)	4,800 (6.2%)
Real estate and property management	1,270 (7.1%)	350 (2.8%)	270 (5.0%)	350 (5.9%)	20 (3.5%)	30 (9.0%)	4,100 (5.3%)
Wholesale and retail distribution	970 (5.4%)	740 (5.9%)	580 (10.8%)	320 (5.5%)	30 (5.2%)	20 (8.1%)	4,800 (6.3%)
Hotels, restaurants and leisure	880 (4.9%)	640 (5.1%)	290 (5.3%)	440 (7.5%)	30 (5.3%)	40 (14.3%)	4,100 (5.4%)
Other market services	410 (2.3%)	420 (3.4%)	240 (4.4%)	280 (4.7%)	10 (2.8%)	10 (1.7%)	2,500 (3.2%)
Private individuals and households	1,280 (7.1%)	1,170 (9.3%)	1,320 (24.4%)	540 (9.2%)	50 (10.3%)	50 (16.7%)	7,900 (10.3%)
Other	320 (1.8%)	1,070 (8.5%)	0 (0.0%)	10 (0.2%)	0 (0.7%)	0 (0.0%)	2,600 (3.3%)
Total	17,900 (100.0%)	12,600 (100.0%)	5,400 (100.0%)	5,900 (100.0%)	500 (100.0%)	300 (100.0%)	77,000 (100.0%)

Source: Ecorys SSS

Table 6.9 'Other' security services: estimates (log based weights) of employment by service category (employees and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Guarding and manning	81,300 (23.8%)	54,410 (40.3%)	18,450 (25.3%)	5,840 (9.4%)	25,480 (35.4%)	5,810 (34.2%)	333,500 (27.1%)
Remote monitoring	40,210 (11.8%)	19,340 (14.3%)	11,570 (15.9%)	5,720 (9.2%)	16,890 (23.5%)	2,220 (13.1%)	168,500 (13.7%)
Security of persons	26,870 (7.9%)	17,030 (12.6%)	9,600 (13.2%)	4,900 (7.9%)	10,000 (13.9%)	2,290 (13.5%)	123,000 (10.0%)
Detection and investigation	16,290 (4.8%)	2,930 (2.2%)	8,960 (12.3%)	1,810 (2.9%)	1,190 (1.7%)	100 (0.6%)	56,100 (4.6%)
Other (manned services)	9,940 (2.9%)	2,210 (1.6%)	100 (0.1%)	20 (0.0%)	1,440 (2.0%)	770 (4.5%)	24,600 (2.0%)
Security consulting	79,600 (23.3%)	14,940 (11.1%)	10,370 (14.2%)	19,480 (31.4%)	8,320 (11.6%)	3,170 (18.7%)	238,600 (19.4%)
Security training	44,290 (13.0%)	10,140 (7.5%)	5,320 (7.3%)	10,510 (16.9%)	6,820 (9.5%)	1,820 (10.7%)	138,600 (11.3%)
Security research - tech	23,190 (6.8%)	8,410 (6.2%)	6,220 (8.5%)	5,640 (9.1%)	1,040 (1.4%)	640 (3.7%)	80,000 (6.5%)
Security research - other	7,530 (2.2%)	2,620 (1.9%)	2,410 (3.3%)	5,380 (8.7%)	830 (1.1%)	180 (1.0%)	33,700 (2.7%)
Other (services)	12,780 (3.7%)	2,970 (2.2%)	0 (0.0%)	2,700 (4.4%)	0 (0.0%)	0 (0.0%)	33,200 (2.7%)
Total	342,000 (100.0%)	135,000 (100.0%)	73,000 (100.0%)	62,000 (100.0%)	72,000 (100.0%)	17,000 (100.0%)	1,230,000 (100.0%)

Source: Ecorys SSS

Table 6.10 'Other' security services: estimates (log based weights) of employment by market segment (employees and % of total)

	UK	FR	IT	ES	PL	EE	EU28
Cyber security industry	6,340 (1.9%)	890 (0.7%)	810 (1.1%)	440 (0.7%)	990 (1.4%)	10 (0.1%)	17,000 (1.4%)
Other security industry	11,790 (3.4%)	5,850 (4.3%)	1,540 (2.1%)	2,540 (4.1%)	5,850 (8.1%)	30 (0.2%)	49,600 (4.0%)
Other security services	21,350 (6.2%)	24,920 (18.5%)	3,620 (5.0%)	2,330 (3.8%)	2,090 (2.9%)	70 (0.4%)	97,700 (7.9%)
Defence	24,890 (7.3%)	4,110 (3.0%)	1,100 (1.5%)	1,860 (3.0%)	2,370 (3.3%)	210 (1.2%)	61,700 (5.0%)
Public security service providers	22,230 (6.5%)	10,740 (8.0%)	1,320 (1.8%)	1,030 (1.7%)	4,900 (6.8%)	370 (2.2%)	72,300 (5.9%)
Public administrations	23,760 (6.9%)	12,140 (9.0%)	6,260 (8.6%)	6,030 (9.7%)	6,600 (9.2%)	550 (3.2%)	98,500 (8.0%)
Health and education	19,610 (5.7%)	3,150 (2.3%)	1,910 (2.6%)	2,570 (4.1%)	5,420 (7.5%)	280 (1.6%)	58,700 (4.8%)
Transport	21,290 (6.2%)	3,630 (2.7%)	2,670 (3.7%)	2,650 (4.3%)	2,340 (3.3%)	530 (3.1%)	58,600 (4.8%)
Energy and water	15,460 (4.5%)	3,930 (2.9%)	2,230 (3.1%)	3,400 (5.5%)	2,540 (3.5%)	380 (2.2%)	49,600 (4.0%)
Communications and information services	10,400 (3.0%)	2,720 (2.0%)	1,120 (1.5%)	1,570 (2.5%)	1,700 (2.4%)	340 (2.0%)	31,500 (2.6%)
Financial services	16,640 (4.9%)	2,630 (1.9%)	4,840 (6.6%)	3,020 (4.9%)	2,550 (3.5%)	220 (1.3%)	53,400 (4.3%)
Primary sectors	7,110 (2.1%)	2,090 (1.5%)	1,270 (1.7%)	2,260 (3.6%)	990 (1.4%)	310 (1.8%)	24,700 (2.0%)
Manufacturing	14,110 (4.1%)	6,720 (5.0%)	7,140 (9.8%)	7,610 (12.3%)	6,870 (9.5%)	2,540 (14.9%)	76,300 (6.2%)
Construction	27,890 (8.2%)	5,310 (3.9%)	2,790 (3.8%)	4,530 (7.3%)	6,730 (9.3%)	1,790 (10.6%)	85,000 (6.9%)
Real estate and property management	27,280 (8.0%)	3,850 (2.8%)	3,750 (5.1%)	3,520 (5.7%)	2,100 (2.9%)	1,690 (9.9%)	72,800 (5.9%)
Wholesale and retail distribution	18,390 (5.4%)	7,490 (5.5%)	8,740 (12.0%)	3,010 (4.9%)	3,080 (4.3%)	1,440 (8.5%)	73,200 (6.0%)
Hotels, restaurants and leisure	18,400 (5.4%)	6,290 (4.7%)	4,670 (6.4%)	4,550 (7.3%)	3,790 (5.3%)	2,750 (16.2%)	67,800 (5.5%)
Other market services	7,850 (2.3%)	5,030 (3.7%)	2,980 (4.1%)	3,080 (5.0%)	1,140 (1.6%)	130 (0.7%)	36,100 (2.9%)
Private individuals and households	21,900 (6.4%)	12,540 (9.3%)	14,250 (19.5%)	5,890 (9.5%)	9,470 (13.1%)	3,380 (19.9%)	115,200 (9.4%)
Other	5,290 (1.5%)	10,980 (8.1%)	0 (0.0%)	120 (0.2%)	460 (0.6%)	0 (0.0%)	30,300 (2.5%)
Total	342,000 (100.0%)	135,000 (100.0%)	73,000 (100.0%)	62,000 (100.0%)	72,000 (100.0%)	17,000 (100.0%)	1,230,000 (100.0%)

Source: Ecorys SSS

Table 6.11 Cyber security products and services: estimates (log based weights) of turnover by product category (€ million and % of total)

	UK	FR	IT	ES	PL	EU28
Data security solutions	590 (13.3%)	670 (13.4%)	520 (20.1%)	110 (16.4%)	30 (6.1%)	3,800 (14.6%)
Hardware security solutions	310 (7.0%)	960 (19.2%)	220 (8.5%)	80 (11.0%)	120 (23.4%)	3,300 (12.7%)
Identity and access management solutions	630 (14.4%)	530 (10.6%)	370 (14.3%)	80 (11.1%)	50 (10.3%)	3,300 (12.6%)
System integration and implementation services	470 (10.6%)	360 (7.2%)	230 (9.0%)	60 (8.6%)	80 (15.6%)	2,400 (9.1%)
Applications security solutions	360 (8.1%)	560 (11.2%)	160 (6.1%)	70 (10.1%)	20 (3.3%)	2,300 (8.8%)
Governance, vulnerability and cyber-security management systems	430 (9.8%)	260 (5.3%)	300 (11.5%)	100 (13.8%)	40 (7.6%)	2,200 (8.6%)
Infrastructure (network) security solutions	380 (8.7%)	210 (4.3%)	290 (11.2%)	70 (9.3%)	60 (11.5%)	2,000 (7.6%)
Audit, planning and advisory services	300 (6.7%)	390 (7.7%)	210 (8.0%)	50 (7.6%)	30 (5.8%)	1,900 (7.4%)
Management and operations services	320 (7.3%)	380 (7.7%)	130 (5.0%)	40 (5.3%)	40 (8.9%)	1,800 (6.9%)
Security training services	360 (8.3%)	220 (4.5%)	140 (5.3%)	40 (6.0%)	40 (7.4%)	1,600 (6.1%)
Other/not-specified products	150 (3.4%)	160 (3.2%)	30 (1.1%)	0 (0.2%)	0 (0.0%)	700 (2.6%)
Other/not-specified services	110 (2.5%)	290 (5.9%)	0 (0.0%)	0 (0.5%)	0 (0.1%)	800 (3.1%)
Total	4,400 (100.0%)	5,000 (100.0%)	2,600 (100.0%)	700 (100.0%)	500 (100.0%)	26,000 (100.0%)

Source: Ecorys SSS

Table 6.12 Cyber security products and services: estimates (log based weights) of turnover by business activity (€ million and % of total)

	UK	FR	IT	ES	PL	EU28
Software development	390 (8.8%)	770 (15.4%)	230 (8.7%)	120 (16.8%)	10 (2.4%)	3,000 (11.5%)
Monitoring	530 (12.1%)	560 (11.3%)	270 (10.3%)	40 (6.4%)	30 (5.5%)	2,800 (10.9%)
Distribution	400 (9.0%)	590 (11.7%)	280 (10.9%)	80 (11.4%)	80 (16.6%)	2,800 (10.8%)
Research and development	380 (8.5%)	640 (12.7%)	260 (10.2%)	70 (10.7%)	10 (2.5%)	2,700 (10.3%)
Design and engineering	480 (10.9%)	480 (9.7%)	290 (11.3%)	50 (7.7%)	30 (5.7%)	2,600 (10.2%)
Maintenance	420 (9.6%)	460 (9.1%)	270 (10.3%)	90 (12.9%)	90 (18.1%)	2,600 (10.0%)
System integration	520 (11.8%)	420 (8.3%)	240 (9.3%)	80 (12.1%)	40 (9.0%)	2,600 (9.9%)
Installation	480 (10.9%)	460 (9.2%)	240 (9.1%)	50 (6.8%)	80 (16.4%)	2,600 (9.9%)
Test and inspection	340 (7.8%)	200 (4.0%)	370 (14.0%)	50 (6.5%)	40 (8.6%)	2,000 (7.5%)
Manufacturing and assembly	110 (2.6%)	200 (4.0%)	100 (3.7%)	40 (6.0%)	80 (15.2%)	1,000 (4.0%)
Other	350 (7.9%)	220 (4.4%)	50 (2.1%)	20 (2.8%)	0 (0.2%)	1,300 (4.9%)
Total	4,400 (100.0%)	5,000 (100.0%)	2,600 (100.0%)	700 (100.0%)	500 (100.0%)	26,000 (100.0%)

Source: Ecorys SSS

Table 6.13 Cyber security products and services: estimates (log based weights) of turnover by market segment (€ million and % of total)

	UK	FR	IT	ES	PL	EU28
Cyber security industry	440 (9.9%)	430 (8.6%)	150 (5.8%)	30 (3.8%)	40 (8.4%)	2,100 (8.3%)
Other security industry	130 (3.0%)	70 (1.4%)	80 (3.2%)	10 (1.6%)	0 (0.9%)	600 (2.3%)
Other security services	170 (3.9%)	450 (9.1%)	110 (4.3%)	20 (3.1%)	10 (1.1%)	1,500 (5.8%)
Defence	390 (8.9%)	110 (2.3%)	140 (5.5%)	30 (4.0%)	20 (4.6%)	1,400 (5.3%)
Public security service providers	330 (7.6%)	300 (6.0%)	70 (2.7%)	20 (3.2%)	40 (7.4%)	1,500 (5.8%)
Public administrations	310 (7.1%)	530 (10.6%)	230 (8.9%)	80 (10.8%)	30 (6.5%)	2,300 (8.9%)
Health and education	210 (4.8%)	190 (3.8%)	60 (2.1%)	50 (6.7%)	30 (5.6%)	1,000 (4.0%)
Transport	200 (4.5%)	170 (3.5%)	90 (3.6%)	30 (4.6%)	20 (4.6%)	1,000 (3.9%)
Energy and water	220 (4.9%)	210 (4.1%)	40 (1.7%)	30 (3.9%)	10 (2.5%)	1,000 (3.9%)
Communications and information services	220 (5.0%)	230 (4.5%)	160 (6.1%)	50 (6.7%)	10 (2.4%)	1,300 (5.0%)
Financial services	610 (14.0%)	190 (3.8%)	330 (12.9%)	60 (8.5%)	10 (2.8%)	2,400 (9.2%)
Primary sectors	70 (1.5%)	140 (2.8%)	30 (1.1%)	10 (1.6%)	20 (3.3%)	500 (2.0%)
Manufacturing	170 (4.0%)	370 (7.4%)	190 (7.3%)	60 (8.8%)	40 (8.1%)	1,600 (6.3%)
Construction	170 (4.0%)	200 (4.1%)	80 (3.3%)	30 (3.7%)	30 (6.6%)	1,000 (4.0%)
Real estate and property management	120 (2.7%)	260 (5.3%)	100 (3.9%)	20 (2.5%)	10 (2.5%)	1,000 (3.9%)
Wholesale and retail distribution	160 (3.7%)	300 (6.0%)	180 (6.8%)	70 (9.9%)	30 (6.4%)	1,500 (5.6%)
Hotels, restaurants and leisure	160 (3.7%)	190 (3.7%)	110 (4.4%)	40 (6.1%)	30 (6.5%)	1,100 (4.1%)
Other market services	50 (1.2%)	110 (2.2%)	160 (6.3%)	30 (4.7%)	10 (1.8%)	700 (2.8%)
Private individuals and households	200 (4.4%)	400 (8.1%)	260 (10.1%)	30 (3.7%)	90 (17.3%)	1,900 (7.4%)
Other	60 (1.4%)	140 (2.9%)	0 (0.0%)	20 (2.3%)	0 (0.7%)	400 (1.7%)
Total	4,400 (100.0%)	5,000 (100.0%)	2,600 (100.0%)	700 (100.0%)	500 (100.0%)	26,000 (100.0%)

Source: Ecorys SSS

Table 6.14 Cyber security products and services: estimates (log based weights) of employment by product category employees and % of total)

	UK	FR	IT	ES	PL	EU28
Data security solutions	3,130 (13.6%)	6,310 (13.7%)	5,320 (17.7%)	810 (16.3%)	210 (7.0%)	42,800 (14.8%)
Hardware security solutions	1,480 (6.4%)	7,830 (17.0%)	2,860 (9.5%)	490 (9.9%)	820 (27.5%)	36,600 (12.6%)
Identity and access management solutions	2,800 (12.2%)	5,190 (11.3%)	4,100 (13.7%)	590 (11.8%)	320 (10.8%)	35,200 (12.1%)
Applications security solutions	1,890 (8.2%)	5,260 (11.4%)	2,250 (7.5%)	560 (11.2%)	90 (3.1%)	27,200 (9.4%)
System integration and implementation services	2,600 (11.3%)	3,490 (7.6%)	2,390 (8.0%)	370 (7.5%)	310 (10.3%)	24,800 (8.6%)
Governance, vulnerability and cyber-security management systems	2,320 (10.1%)	2,240 (4.9%)	3,550 (11.8%)	720 (14.4%)	250 (8.4%)	24,600 (8.5%)
Audit, planning and advisory services	1,500 (6.5%)	3,650 (7.9%)	2,440 (8.1%)	340 (6.8%)	230 (7.6%)	22,100 (7.6%)
Infrastructure (network) security solutions	2,080 (9.0%)	2,110 (4.6%)	3,140 (10.5%)	510 (10.3%)	300 (9.8%)	22,100 (7.6%)
Management and operations services	2,080 (9.0%)	3,570 (7.8%)	1,440 (4.8%)	250 (4.9%)	300 (9.9%)	20,700 (7.1%)
Security training services	2,140 (9.3%)	2,230 (4.9%)	1,460 (4.9%)	290 (5.7%)	170 (5.6%)	17,000 (5.9%)
Other/not-specified products	750 (3.3%)	1,260 (2.7%)	1,070 (3.6%)	10 (0.2%)	0 (0.0%)	8,400 (2.9%)
Other/not-specified services	230 (1.0%)	2,850 (6.2%)	0 (0.0%)	50 (1.0%)	0 (0.0%)	8,500 (2.9%)
Total	23,000 (100.0%)	46,000 (100.0%)	30,000 (100.0%)	5,000 (100.0%)	3,000 (100.0%)	290,000 (100.0%)

Source: Ecorys SSS

Table 6.15 Cyber security products and services: estimates (log based weights) of employment by business activity (employees and % of total)

	UK	FR	IT	ES	PL	EU28
Software development	1,820 (7.9%)	7,380 (16.0%)	2,580 (8.6%)	890 (17.9%)	50 (1.8%)	34,500 (11.9%)
Research and development	1,900 (8.3%)	7,040 (15.3%)	2,900 (9.7%)	570 (11.4%)	100 (3.2%)	33,900 (11.7%)
Monitoring	3,660 (15.9%)	4,460 (9.7%)	2,750 (9.2%)	280 (5.6%)	200 (6.6%)	30,800 (10.6%)
Design and engineering	2,330 (10.1%)	4,900 (10.7%)	3,280 (10.9%)	470 (9.4%)	210 (7.1%)	30,300 (10.5%)
Distribution	1,950 (8.5%)	4,750 (10.3%)	2,640 (8.8%)	530 (10.5%)	450 (14.9%)	27,900 (9.6%)
Maintenance	2,250 (9.8%)	3,730 (8.1%)	2,980 (9.9%)	630 (12.6%)	560 (18.6%)	27,500 (9.5%)
System integration	2,810 (12.2%)	3,760 (8.2%)	2,530 (8.4%)	610 (12.2%)	240 (8.0%)	27,000 (9.3%)
Installation	2,530 (11.0%)	3,500 (7.6%)	3,100 (10.3%)	320 (6.4%)	490 (16.3%)	26,900 (9.3%)
Test and inspection	1,900 (8.3%)	1,710 (3.7%)	5,480 (18.3%)	320 (6.4%)	260 (8.7%)	26,200 (9.0%)
Manufacturing and assembly	550 (2.4%)	2,390 (5.2%)	1,360 (4.5%)	290 (5.9%)	440 (14.8%)	13,700 (4.7%)
Other	1,310 (5.7%)	2,370 (5.1%)	400 (1.3%)	90 (1.7%)	0 (0.0%)	11,300 (3.9%)
Total	23,000 (100.0%)	46,000 (100.0%)	30,000 (100.0%)	5,000 (100.0%)	3,000 (100.0%)	290,000 (100.0%)

Source: Ecorys SSS

Table 6.16 Cyber security products and services: estimates (log based weights) of employment by market segment (employees and % of total)

	UK	FR	IT	ES	PL	EU28
Cyber security industry	2,530 (11.0%)	4,000 (8.7%)	1,160 (3.9%)	250 (5.0%)	290 (9.6%)	22,300 (7.7%)
Other security industry	630 (2.8%)	730 (1.6%)	1,110 (3.7%)	100 (2.1%)	60 (2.1%)	7,200 (2.5%)
Other security services	970 (4.2%)	3,710 (8.1%)	1,240 (4.1%)	130 (2.6%)	30 (1.2%)	16,500 (5.7%)
Defence	2,220 (9.7%)	1,310 (2.8%)	2,860 (9.5%)	240 (4.7%)	70 (2.5%)	18,200 (6.3%)
Public security service providers	1,870 (8.1%)	2,680 (5.8%)	770 (2.6%)	190 (3.8%)	220 (7.3%)	15,500 (5.4%)
Public administrations	1,760 (7.6%)	5,050 (11.0%)	1,990 (6.6%)	580 (11.6%)	300 (9.9%)	26,200 (9.0%)
Health and education	1,090 (4.7%)	1,850 (4.0%)	630 (2.1%)	380 (7.5%)	170 (5.7%)	11,200 (3.9%)
Transport	1,010 (4.4%)	1,800 (3.9%)	1,070 (3.6%)	260 (5.3%)	180 (5.9%)	11,700 (4.0%)
Energy and water	1,220 (5.3%)	2,150 (4.7%)	520 (1.7%)	230 (4.7%)	120 (4.0%)	11,500 (4.0%)
Communications and information services	1,060 (4.6%)	2,520 (5.5%)	1,960 (6.5%)	390 (7.7%)	100 (3.3%)	16,300 (5.6%)
Financial services	2,770 (12.0%)	2,070 (4.5%)	3,810 (12.7%)	440 (8.7%)	130 (4.3%)	25,000 (8.6%)
Primary sectors	350 (1.5%)	1,260 (2.7%)	310 (1.0%)	80 (1.6%)	80 (2.8%)	5,700 (2.0%)
Manufacturing	860 (3.8%)	3,160 (6.9%)	1,860 (6.2%)	390 (7.7%)	200 (6.7%)	17,500 (6.0%)
Construction	790 (3.4%)	1,780 (3.9%)	1,060 (3.5%)	180 (3.5%)	200 (6.5%)	10,800 (3.7%)
Real estate and property management	510 (2.2%)	2,250 (4.9%)	1,270 (4.2%)	120 (2.5%)	70 (2.4%)	11,400 (3.9%)
Wholesale and retail distribution	820 (3.6%)	2,850 (6.2%)	1,840 (6.1%)	360 (7.2%)	140 (4.8%)	16,300 (5.6%)
Hotels, restaurants and leisure	840 (3.6%)	1,600 (3.5%)	1,550 (5.2%)	280 (5.7%)	150 (4.9%)	12,000 (4.1%)
Other market services	260 (1.1%)	900 (2.0%)	1,840 (6.1%)	170 (3.5%)	40 (1.2%)	8,700 (3.0%)
Private individuals and households	1,180 (5.1%)	3,120 (6.8%)	3,140 (10.5%)	160 (3.2%)	450 (15.1%)	21,800 (7.5%)
Other	250 (1.1%)	1,220 (2.7%)	0 (0.0%)	60 (1.3%)	0 (0.0%)	4,200 (1.4%)
Total	23,000 (100.0%)	46,000 (100.0%)	30,000 (100.0%)	5,000 (100.0%)	3,000 (100.0%)	290,000 (100.0%)

Source: Ecorys SSS

Annex I: Comparative Tables

Table 1. Supply of products and services by ‘threat category’ (share of affirmative responses)

		Protection against criminality, terrorism, public disorder	Protection of critical infrastructure	Border protection and control	Natural and man-made disasters
UK	N respondents	366	297	157	121
	Share of respondents	38.9%	31.6%	16.7%	12.9%
Germany	N respondents	99	74	15	28
	Share of respondents	46%	34%	7%	13%
France	N respondents	199	350	52	125
	Share of respondents	27.4%	48.2%	7.2%	17.2%
Italy	N respondents	426	265	41	97
	Share of respondents	51.4%	32.0%	4.9%	11.7%
Spain	N respondents	215	272	47	134
	Share of respondents	32.2%	40.7%	7.0%	20.1%
Poland	N respondents	202	189	26	102
	Share of respondents	38.9%	36.4%	5.0%	19.7%
Estonia	N respondents	60	42	24	27
	Share of respondents	39.2%	27.5%	15.7%	17.6%

Table 2. Share of activities related to the civilian security sector (as opposed to defense)

	Civilian only (100%)	Greater than 80%	Between 60% and 79%	Between 40% and 59%	Between 20% and 39%	Civilian less than 20%
UK	49%	14%	11%	6%	7%	13%
Germany	73%	20%	1%	3%	1%	1%
France	72%	10%	6%	5%	3%	4%
Italy	72%	18%	5%	2%	2%	1%
Spain	70%	17%	7%	1%	2%	2%
Poland	60%	24%	8%	4%	1%	2%
Estonia	49%	24%	6%	8%	8%	4%

Table 3. Share of security related products and services (as opposed to non-security products and services)

	Civilian only (100%)	Greater than 80%	Between 60% and 79%	Between 40% and 59%	Between 20% and 39%	Civilian less than 20%
UK	48%	15%	11%	5%	7%	13%
Germany	52%	18%	6%	7%	10%	8%
France	77%	5%	4%	5%	3%	4%
Italy	57%	13%	7%	6%	8%	9%
Spain	52%	10%	6%	6%	10%	16%
Poland	35%	20%	13%	11%	7%	14%
Estonia	37%	17%	10%	15%	10%	11%

Table 4. Supply of products and services by 'broad industry category'

		Cyber-security products and services	and	Other products	security	Other services	security
UK	N respondents	84		301		241	
	Share of respondents	13.4%		48.1%		38.5%	
Germany	N respondents	67		73		55	
	Share of respondents	34.4%		37.4%		28.2%	
France	N respondents	69		256		237	
	Share of respondents	12.3%		45.6%		42.2%	
Italy	N respondents	50		274		227	
	Share of respondents	9.1%		49.7%		41.2%	
Spain	N respondents	66		225		201	
	Share of respondents	13.4%		45.7%		40.9%	
Poland	N respondents	97		181		117	
	Share of respondents	24.6%		45.8%		29.6%	
Estonia	N respondents	5		41		39	
	Share of respondents	5.9%		48.2%		45.9%	

Table 5. Composition of the sample by scope of 'broad industry categories' offered

		Cyber-security products services	and	Other products	security	Other services	security
Cyber security and other security services	UK	1.0%		0.0%		1.9%	
	Germany	8.6%		0.0%		8.6%	
	France	0.0%		0.0%		0.0%	
	Italy	0.8%		1.0%		0.0%	
	Spain	1.3%		0.0%		1.0%	
	Poland	0.3%		0.0%		1.3%	
	Estonia	0.8%		2.3%		0.0%	
Cyber security and other security products	UK	1.4%		2.4%		0.0%	
	Germany	0.0%		14.3%		11.4%	
	France	0.0%		0.2%		1.0%	
	Italy	0.2%		0.0%		1.6%	
	Spain	0.8%		0.8%		1.6%	
	Poland	1.3%		2.3%		2.0%	
	Estonia	0.0%		0.0%		0.0%	
Cyber security only	UK	5.0%		0.0%		0.0%	
	Germany	5.7%		0.0%		0.0%	
	France	1.4%		0.0%		0.4%	
	Italy	3.6%		0.0%		0.0%	
	Spain	8.5%		0.0%		0.0%	
	Poland	2.7%		4.3%		0.0%	
	Estonia	5.0%		1.4%		0.0%	
All categories	UK	2.4%		2.6%		3.3%	
	Germany	2.9%		2.9%		8.6%	
	France	0.0%		5.7%		3.8%	
	Italy	0.4%		1.8%		2.4%	
	Spain	8.5%		0.0%		0.0%	
	Poland	0.0%		2.3%		9.3%	
	Estonia	5.6%		0.0%		0.0%	
Other security services only	UK	0.0%		0.0%		20.7%	
	Germany	0.0%		0.0%		8.6%	
	France	10.9%		0.0%		0.0%	
	Italy	0.0%		6.7%		23.8%	
	Spain	0.0%		6.7%		9.1%	
	Poland	18.0%		0.0%		0.0%	
	Estonia	0.0%		8.5%		9.9%	
Other security products and other security services	UK	0.0%		12.8%		12.6%	
	Germany	0.0%		14.3%		11.4%	
	France	0.0%		0.0%		35.4%	
	Italy	0.0%		14.0%		13.2%	
	Spain	0.0%		6.7%		9.1%	
	Poland	0.0%		0.0%		20.0%	
	Estonia	0.0%		0.0%		36.6%	
Other security products only	UK	0.0%		34.0%		0.0%	
	Germany	0.0%		25.7%		0.0%	
	France	0.0%		41.1%		0.0%	
	Italy	0.0%		37.3%		0.0%	
	Spain	0.0%		36.3%		0.0%	
	Poland	0.0%		36.0%		0.0%	
	Estonia	0.0%		38.0%		0.0%	

Table 6. Cyber security products and services

		Most important category	2nd most important category	3rd most important category	Not in top 3
Applications security solutions	UK	3.7%	8.5%	4.9%	34.1%
	France	10.1%	4.3%	5.8%	21.7%
	Italy	5.1%	6.8%	6.8%	35.6%
	Spain	1.5%	16.7%	10.6%	45.5%
	Polland	0.0%	5.2%	8.2%	17.5%
	Estonia	0.0%	0.0%	20.0%	40.0%
Audit, planning and advisory services	UK	4.9%	4.9%	4.9%	32.9%
	France	2.9%	5.8%	7.2%	29.0%
	Italy	1.7%	6.8%	6.8%	42.4%
	Spain	9.1%	7.6%	7.6%	31.8%
	Polland	4.1%	5.2%	5.2%	30.9%
	Estonia	20.0%	0.0%	0.0%	0.0%
Data security solutions	UK	8.5%	17.1%	13.4%	29.3%
	France	15.9%	8.7%	7.2%	10.1%
	Italy	32.2%	16.9%	13.6%	13.6%
	Spain	19.7%	12.1%	15.2%	27.3%
	Polland	6.2%	5.2%	8.2%	32.0%
	Estonia	20.0%	20.0%	0.0%	40.0%
Governance, vulnerability and cyber-security management systems	UK	17.1%	9.8%	4.9%	18.3%
	France	8.7%	4.3%	1.4%	14.5%
	Italy	11.9%	8.5%	10.2%	33.9%
	Spain	22.7%	12.1%	4.5%	27.3%
	Polland	8.2%	7.2%	3.1%	32.0%
	Estonia	20.0%	0.0%	0.0%	20.0%
Hardware security solutions	UK	11.0%	6.1%	0.0%	35.4%
	France	27.5%	11.6%	1.4%	11.6%
	Italy	5.1%	10.2%	5.1%	37.3%
	Spain	7.6%	6.1%	12.1%	33.3%
	Polland	27.8%	15.5%	7.2%	32.0%
	Estonia	0.0%	40.0%	20.0%	0.0%
Identity and access management solutions	UK	9.8%	13.4%	9.8%	31.7%
	France	7.2%	15.9%	4.3%	20.3%
	Italy	15.3%	20.3%	13.6%	18.6%
	Spain	16.7%	12.1%	7.6%	36.4%
	Polland	13.4%	9.3%	8.2%	38.1%
	Estonia	20.0%	0.0%	0.0%	20.0%
Infrastructure (network) security solutions	UK	7.3%	9.8%	9.8%	40.2%
	France	5.8%	4.3%	4.3%	21.7%
	Italy	11.9%	10.2%	11.9%	27.1%
	Spain	9.1%	12.1%	9.1%	30.3%
	Polland	13.4%	12.4%	4.1%	25.8%
	Estonia	20.0%	0.0%	0.0%	40.0%
Management and operations services	UK	6.1%	8.5%	4.9%	36.6%
	France	8.7%	2.9%	5.8%	26.1%
	Italy	3.4%	3.4%	1.7%	40.7%
	Spain	1.5%	4.5%	7.6%	42.4%
	Polland	5.2%	12.4%	12.4%	41.2%
	Estonia	0.0%	0.0%	20.0%	0.0%
Security training services	UK	9.8%	3.7%	8.5%	25.6%
	France	0.0%	5.8%	2.9%	27.5%
	Italy	5.1%	5.1%	5.1%	27.1%
	Spain	3.0%	4.5%	10.6%	36.4%
	Polland	5.2%	5.2%	10.3%	35.1%
	Estonia	0.0%	0.0%	0.0%	20.0%
System integration and implementation services	UK	11.0%	8.5%	9.8%	39.0%
	France	1.4%	2.9%	14.5%	26.1%
	Italy	6.8%	3.4%	3.4%	45.8%
	Spain	9.1%	9.1%	4.5%	45.5%
	Polland	16.5%	14.4%	7.2%	36.1%
	Estonia	0.0%	40.0%	20.0%	40.0%

Table 7. Cyber security business activities

		Most important category	2nd most important category	3rd most important category	Not in top 3
Design and engineering	UK	15.8%	6.6%	6.6%	27.6%
	France	10.3%	5.2%	6.9%	17.2%
	Italy	15.5%	6.9%	6.9%	24.1%
	Spain	6.1%	4.5%	12.1%	31.8%
	Poland	4.1%	5.2%	4.1%	34.0%
	Estonia	0.0%	0.0%	0.0%	20.0%
Distribution activities	UK	9.2%	3.9%	5.3%	13.2%
	France	19.0%	6.9%	0.0%	22.4%
	Italy	13.8%	13.8%	0.0%	29.3%
	Spain	12.1%	9.1%	13.6%	34.8%
	Poland	21.6%	12.4%	8.2%	37.1%
	Estonia	40.0%	0.0%	0.0%	20.0%
Installation and post-production integration	UK	11.8%	9.2%	9.2%	26.3%
	France	6.9%	13.8%	0.0%	22.4%
	Italy	10.3%	6.9%	10.3%	36.2%
	Spain	6.1%	9.1%	6.1%	30.3%
	Poland	16.5%	26.8%	9.3%	36.1%
	Estonia	20.0%	40.0%	0.0%	40.0%
Maintenance and service	UK	5.3%	14.5%	11.8%	22.4%
	France	5.2%	15.5%	10.3%	24.1%
	Italy	0.0%	22.4%	15.5%	31.0%
	Spain	10.6%	10.6%	25.8%	30.3%
	Poland	11.3%	26.8%	34.0%	18.6%
	Estonia	0.0%	20.0%	20.0%	60.0%
Manufacturing and assembly	UK	3.9%	3.9%	2.6%	15.8%
	France	3.4%	0.0%	3.4%	22.4%
	Italy	3.4%	1.7%	6.9%	15.5%
	Spain	6.1%	3.0%	4.5%	24.2%
	Poland	24.7%	7.2%	7.2%	23.7%
	Estonia	20.0%	0.0%	0.0%	40.0%
Monitoring, management and outsourcing	UK	10.5%	7.9%	3.9%	26.3%
	France	19.0%	3.4%	6.9%	10.3%
	Italy	10.3%	3.4%	10.3%	31.0%
	Spain	4.5%	6.1%	3.0%	37.9%
	Poland	5.2%	3.1%	3.1%	40.2%
	Estonia	0.0%	0.0%	20.0%	60.0%
Research and development	UK	9.2%	2.6%	5.3%	32.9%
	France	8.6%	12.1%	6.9%	25.9%
	Italy	17.2%	6.9%	3.4%	10.3%
	Spain	12.1%	13.6%	1.5%	19.7%
	Poland	3.1%	1.0%	0.0%	8.2%
	Estonia	0.0%	0.0%	20.0%	40.0%
Software development and programming	UK	10.5%	7.9%	7.9%	18.4%
	France	17.2%	10.3%	10.3%	13.8%
	Italy	5.2%	5.2%	12.1%	29.3%
	Spain	27.3%	12.1%	1.5%	21.2%
	Poland	0.0%	2.1%	2.1%	19.6%
	Estonia	0.0%	40.0%	20.0%	0.0%
System integration (sub-system)	UK	6.6%	26.3%	7.9%	27.6%
	France	5.2%	8.6%	10.3%	25.9%
	Italy	10.3%	8.6%	6.9%	34.5%
	Spain	10.6%	22.7%	13.6%	19.7%
	Poland	9.3%	7.2%	8.2%	44.3%
	Estonia	20.0%	0.0%	20.0%	60.0%
Test and inspection	UK	2.6%	6.6%	14.5%	34.2%
	France	1.7%	1.7%	3.4%	34.5%
	Italy	4.1%	4.1%	4.1%	73.2%
	Spain	1.5%	4.5%	9.1%	47.0%
	Poland	4.1%	4.1%	4.1%	73.2%
	Estonia	0.0%	0.0%	0.0%	100.0%

Table 8. 'Other' security products

		Most important category	2nd most important category	3rd most important category	Not in top 3
Protective and specialised clothing	UK	2.4%	0.7%	1.7%	6.1%
	France	1.7%	7.9%	2.3%	6.5%
	Italy	4.8%	1.2%	0.8%	4.4%
	Spain	17.1%	5.0%	1.1%	3.3%
	Polland	6.7%	2.7%	1.3%	4.0%
	Estonia	10.0%	0.0%	0.0%	2.5%
Command control and decision support systems	UK	5.1%	6.1%	3.4%	21.2%
	France	0.0%	0.6%	1.1%	23.1%
	Italy	0.4%	0.8%	0.8%	13.7%
	Spain	0.0%	1.1%	0.0%	14.4%
	Polland	0.4%	1.3%	2.7%	8.9%
	Estonia	0.0%	2.5%	0.0%	7.5%
Communication equipment and systems	UK	6.5%	7.2%	5.1%	26.3%
	France	0.8%	2.3%	1.7%	28.7%
	Italy	3.2%	2.0%	0.4%	16.9%
	Spain	1.1%	0.6%	2.8%	28.7%
	Polland	2.2%	2.7%	3.1%	19.1%
	Estonia	0.0%	5.0%	7.5%	17.5%
Identification and authentication (incl. electronic access control)	UK	9.9%	7.2%	3.4%	25.6%
	France	3.9%	6.2%	7.6%	40.6%
	Italy	11.3%	7.7%	3.6%	18.1%
	Spain	4.4%	5.5%	8.3%	35.9%
	Polland	6.2%	9.8%	7.6%	20.9%
	Estonia	10.0%	10.0%	7.5%	20.0%
Fire detection, alarm and suppression	UK	3.4%	5.5%	4.1%	15.0%
	France	14.1%	11.3%	18.9%	22.5%
	Italy	25.8%	8.1%	2.8%	8.5%
	Spain	18.8%	16.0%	9.4%	22.1%
	Polland	26.7%	7.1%	4.0%	10.7%
	Estonia	7.5%	15.0%	10.0%	10.0%
Intruder detection and alarm	UK	14.0%	10.6%	5.8%	19.5%
	France	35.8%	19.7%	6.8%	7.3%
	Italy	14.9%	10.9%	2.8%	12.1%
	Spain	25.4%	18.2%	10.5%	9.9%
	Polland	14.7%	12.4%	5.3%	9.8%
	Estonia	15.0%	12.5%	7.5%	12.5%
Local area observation (incl. video / CCTV surveillance)	UK	19.8%	14.0%	12.6%	11.6%
	France	18.3%	24.8%	16.1%	9.6%
	Italy	8.1%	10.1%	9.3%	13.3%
	Spain	9.9%	13.8%	6.6%	13.8%
	Polland	12.9%	9.3%	10.7%	8.9%
	Estonia	15.0%	10.0%	5.0%	17.5%
Mechanical access control, barriers, enclosures etc.	UK	12.3%	8.9%	7.2%	14.3%
	France	13.2%	5.1%	7.6%	22.8%
	Italy	12.1%	3.6%	2.8%	16.5%
	Spain	12.2%	9.9%	10.5%	15.5%
	Polland	12.9%	5.8%	6.7%	13.8%
	Estonia	15.0%	2.5%	5.0%	20.0%

Table 9. Other security products business activities

		Most important category	2nd most important category	3rd most important category	Not in top 3
Design and engineering	UK	8.9%	15.0%	8.9%	30.4%
	France	5.6%	7.3%	5.6%	16.5%
	Italy	13.8%	9.5%	13.8%	15.0%
	Spain	6.7%	12.9%	6.7%	17.3%
	Polland	5.0%	2.2%	5.0%	18.4%
	Estonia	0.0%	10.3%	0.0%	15.4%
Installation	UK	16.1%	18.2%	7.9%	16.1%
	France	26.2%	17.7%	4.4%	26.2%
	Italy	36.6%	21.9%	8.4%	36.6%
	Spain	23.1%	20.0%	5.3%	23.1%
	Polland	20.7%	15.1%	10.1%	20.7%
	Estonia	17.9%	15.4%	5.1%	17.9%
Integration	UK	5.0%	6.8%	6.1%	26.3%
	France	2.8%	2.4%	2.8%	18.5%
	Italy	1.2%	4.3%	4.6%	31.4%
	Spain	4.0%	5.8%	8.0%	24.9%
	Polland	3.9%	5.0%	5.0%	29.1%
	Estonia	5.1%	2.6%	10.3%	25.6%
Maintenance and servicing	UK	9.6%	16.4%	9.6%	9.6%
	France	2.4%	14.1%	2.4%	2.4%
	Italy	8.6%	30.5%	8.6%	8.6%
	Spain	11.6%	20.9%	11.6%	11.6%
	Polland	7.8%	31.8%	7.8%	7.8%
	Estonia	15.4%	20.5%	15.4%	15.4%
Manufacturing and assembly	UK	20.4%	5.7%	3.9%	3.9%
	France	16.9%	8.1%	4.0%	4.0%
	Italy	6.9%	5.2%	4.0%	4.0%
	Spain	18.7%	8.4%	7.1%	7.1%
	Polland	16.2%	6.7%	3.9%	3.9%
	Estonia	20.5%	5.1%	2.6%	2.6%
Monitoring services	UK	6.8%	3.2%	9.3%	18.6%
	France	4.0%	2.4%	2.4%	6.5%
	Italy	4.0%	1.7%	8.4%	30.3%
	Spain	1.3%	0.9%	4.0%	22.2%
	Polland	8.4%	3.9%	3.4%	13.4%
	Estonia	0.0%	7.7%	5.1%	17.9%
Research and development	UK	12.1%	12.1%	12.1%	21.8%
	France	14.1%	14.1%	14.1%	13.3%
	Italy	6.9%	6.9%	6.9%	14.7%
	Spain	9.8%	9.8%	9.8%	13.8%
	Polland	0.6%	0.6%	0.6%	6.7%
	Estonia	5.1%	5.1%	5.1%	12.8%
Test and inspection	UK	1.1%	5.7%	11.4%	45.0%
	France	1.2%	1.2%	2.8%	29.8%
	Italy	0.6%	2.0%	8.1%	48.1%
	Spain	0.9%	4.0%	12.4%	34.7%
	Polland	2.2%	8.9%	11.2%	49.2%
	Estonia	0.0%	7.7%	15.4%	33.3%
Wholesale or trade distribution	UK	19.6%	6.1%	7.1%	22.9%
	France	25.4%	11.7%	7.3%	15.3%
	Italy	21.3%	12.7%	15.0%	18.4%
	Spain	18.7%	9.3%	12.9%	22.7%
	Polland	34.6%	9.5%	8.4%	24.6%
	Estonia	35.9%	15.4%	23.1%	7.7%

Table 10. 'Other' security services

		Most important category	2nd most important category	3rd most important category	Not in top 3
Research (socio-economic and other)	UK	0.4%	4.8%	3.5%	10.5%
	France	0.0%	3.1%	0.9%	7.9%
	Italy	0.0%	2.4%	5.2%	19.6%
	Spain	7.4%	3.0%	10.9%	7.4%
	Polland	1.7%	0.9%	2.6%	9.4%
	Estonia	0.0%	0.0%	0.0%	10.3%
Research (technological/technical)	UK	7.0%	10.1%	7.9%	10.1%
	France	6.2%	5.3%	4.8%	6.6%
	Italy	11.5%	5.6%	10.1%	21.7%
	Spain	5.9%	8.4%	5.9%	7.4%
	Polland	0.9%	1.7%	0.9%	9.4%
	Estonia	7.7%	2.6%	5.1%	12.8%
Detective and investigation	UK	1.8%	2.6%	3.1%	12.3%
	France	2.2%	0.0%	0.9%	4.0%
	Italy	26.2%	3.5%	2.1%	2.8%
	Spain	5.0%	2.5%	1.5%	4.5%
	Polland	1.7%	0.9%	1.7%	8.5%
	Estonia	0.0%	0.0%	0.0%	2.6%
Guarding and manning	UK	26.3%	2.2%	3.5%	2.6%
	France	53.3%	4.4%	1.3%	4.8%
	Italy	17.1%	8.0%	3.5%	4.9%
	Spain	9.4%	1.5%	1.5%	2.5%
	Polland	38.5%	8.5%	0.9%	2.6%
	Estonia	43.6%	7.7%	5.1%	0.0%
Remote monitoring	UK	11.0%	16.2%	3.9%	11.0%
	France	10.6%	18.5%	2.2%	7.9%
	Italy	12.6%	16.4%	5.6%	9.1%
	Spain	11.9%	5.0%	1.0%	5.4%
	Polland	17.1%	19.7%	5.1%	4.3%
	Estonia	10.3%	20.5%	2.6%	0.0%
Security consulting and advisory services	UK	34.6%	15.8%	8.3%	11.0%
	France	10.6%	6.6%	7.5%	15.0%
	Italy	14.7%	22.0%	11.5%	17.1%
	Spain	38.6%	18.3%	7.9%	4.5%
	Polland	16.2%	13.7%	6.0%	14.5%
	Estonia	15.4%	23.1%	12.8%	15.4%
Security of persons	UK	3.1%	8.3%	6.1%	13.6%
	France	6.6%	18.9%	7.5%	8.4%
	Italy	13.3%	9.1%	9.1%	8.0%
	Spain	7.4%	5.4%	4.0%	4.0%
	Polland	7.7%	7.7%	17.9%	7.7%
	Estonia	7.7%	17.9%	10.3%	7.7%
Security training services	UK	8.8%	14.9%	7.9%	11.8%
	France	5.7%	5.3%	4.8%	13.7%
	Italy	3.8%	10.1%	10.8%	16.1%
	Spain	10.9%	22.3%	5.9%	5.0%
	Polland	15.4%	11.1%	2.6%	15.4%
	Estonia	12.8%	5.1%	15.4%	10.3%

Table 11. Market segmentation all products & services

		Most important category	2nd most important category	3rd most important category	Not in top 3
Construction	UK	26.4%	11.1%	4.2%	22.2%
	Germany	6.3%	10.3%	5.3%	46.3%
	France	8.0%	5.2%	4.7%	37.6%
	Italy	2.4%	5.6%	5.6%	35.3%
	Spain	3.1%	4.8%	2.3%	26.2%
	Polland	3.0%	4.5%	6.1%	15.2%
	Estonia	7.3%	7.8%	4.8%	36.5%
Manufacturing	UK	0.0%	0.0%	0.0%	0.0%
	Germany	11.1%	11.1%	5.6%	36.1%
	France	14.0%	8.3%	3.0%	38.0%
	Italy	16.3%	7.5%	5.7%	28.8%
	Spain	13.6%	11.6%	8.6%	23.0%
	Polland	5.6%	3.1%	2.7%	26.0%
Private individuals and households	UK	2.0%	3.0%	5.6%	40.0%
	Germany	0.0%	0.0%	0.0%	0.0%
	France	9.7%	5.6%	15.3%	34.7%
	Italy	21.3%	8.0%	6.7%	32.3%
	Spain	12.4%	8.3%	9.1%	23.6%
	Polland	34.3%	14.4%	11.2%	17.6%
Public administrations	UK	4.5%	1.5%	4.5%	19.7%
	Germany	8.9%	5.3%	8.1%	29.1%
	France	0.0%	0.0%	0.0%	0.0%
	Italy	4.2%	2.8%	5.6%	37.5%
	Spain	6.0%	11.3%	6.0%	41.7%
	Polland	10.1%	11.7%	8.8%	27.7%
Public security service providers	UK	8.9%	11.6%	7.6%	26.9%
	Germany	7.6%	1.5%	7.6%	18.2%
	France	6.1%	5.6%	5.6%	28.6%
	Italy	0.0%	0.0%	0.0%	0.0%
	Spain	4.2%	5.6%	4.2%	31.9%
	Polland	9.0%	7.0%	4.3%	18.0%
Real estate and property management	UK	0.4%	3.4%	2.2%	20.0%
	Germany	5.6%	8.9%	5.4%	26.4%
	France	6.1%	4.5%	4.5%	18.2%
	Italy	9.4%	11.4%	4.6%	39.2%
	Spain	0.0%	0.0%	0.0%	0.0%
	Polland	2.8%	18.1%	9.7%	25.0%
Wholesale and retail distribution	UK	3.1%	4.1%	4.4%	37.3%
	Germany	1.2%	5.4%	3.8%	37.7%
	France	1.9%	3.3%	2.3%	25.0%
	Italy	7.6%	4.5%	4.5%	12.1%
	Spain	5.1%	5.3%	4.1%	37.7%
	Polland	0.0%	0.0%	0.0%	0.0%
Estonia	8.3%	6.9%	9.7%	36.1%	

Table 12. Market Segmentation – cyber security

		Most important category	2nd most important category	3rd most important category	Not in top 3
Private individual households	UK	5.1%	2.6%	0.0%	23.1%
	France	15.5%	6.9%	6.9%	15.5%
	Italy	12.0%	8.0%	0.0%	16.0%
	Spain	2.3%	2.3%	0.0%	13.6%
	Poland	26.9%	11.9%	4.5%	34.3%
	Estonia	0.0%	0.0%	0.0%	25.0%
Public security service providers	UK	7.7%	2.6%	2.6%	46.2%
	France	5.2%	6.9%	1.7%	31.0%
	Italy	0.0%	0.0%	4.0%	24.0%
	Spain	2.3%	2.3%	2.3%	29.5%
	Poland	10.4%	6.0%	6.0%	11.9%
	Estonia	25.0%	0.0%	0.0%	25.0%
Construction	UK	0.0%	2.6%	2.6%	41.0%
	France	6.9%	0.0%	1.7%	39.7%
	Italy	0.0%	4.0%	8.0%	24.0%
	Spain	2.3%	4.5%	0.0%	31.8%
	Poland	6.0%	7.5%	3.0%	40.3%
	Estonia	25.0%	0.0%	0.0%	50.0%
Hotels, restaurants and leisure	UK	2.6%	0.0%	15.4%	25.6%
	France	0.0%	5.2%	1.7%	43.1%
	Italy	4.0%	4.0%	4.0%	28.0%
	Spain	4.5%	9.1%	6.8%	20.5%
	Poland	1.5%	6.0%	0.0%	61.2%
	Estonia	25.0%	0.0%	0.0%	0.0%
Manufacturing	UK	0.0%	2.6%	7.7%	43.6%
	France	10.3%	5.2%	0.0%	32.8%
	Italy	8.0%	8.0%	8.0%	20.0%
	Spain	18.2%	4.5%	9.1%	22.7%
	Poland	13.4%	9.0%	3.0%	29.9%
	Estonia	0.0%	0.0%	0.0%	50.0%
Communications and information services	UK	0.0%	7.7%	5.1%	56.4%
	France	3.4%	3.4%	0.0%	32.8%
	Italy	8.0%	4.0%	8.0%	32.0%
	Spain	6.8%	6.8%	6.8%	29.5%
	Poland	1.5%	1.5%	1.5%	17.9%
	Estonia	25.0%	0.0%	25.0%	0.0%
Financial services	UK	38.5%	7.7%	5.1%	28.2%
	France	3.4%	0.0%	1.7%	37.9%
	Italy	20.0%	12.0%	4.0%	24.0%
	Spain	11.4%	9.1%	6.8%	29.5%
	Poland	0.0%	3.0%	0.0%	23.9%
	Estonia	0.0%	0.0%	0.0%	0.0%
Wholesale and retail distribution	UK	0.0%	2.6%	7.7%	43.6%
	France	5.2%	8.6%	10.3%	24.1%
	Italy	4.0%	12.0%	8.0%	28.0%
	Spain	11.4%	4.5%	4.5%	34.1%
	Poland	3.0%	3.0%	0.0%	49.3%
	Estonia	0.0%	25.0%	0.0%	50.0%
Public administration	UK	17.9%	5.1%	0.0%	28.2%
	Poland	8.6%	17.2%	15.5%	29.3%
	Spain	16.0%	12.0%	8.0%	12.0%
	Italy	15.9%	13.6%	9.1%	27.3%
	France	1.5%	4.5%	7.5%	47.8%
	Estonia	0.0%	0.0%	0.0%	75.0%

Table 13. Market Segmentation – ‘other’ security products (% of respondents)

		Most important category	2nd most important category	3rd most important category	Not in top 3
Cyber security industry	UK	1.0%	1.4%	1.0%	8.6%
	France	0.9%	0.0%	0.4%	2.6%
	Italy	0.7%	0.0%	1.1%	8.1%
	Spain	1.1%	2.2%	0.6%	6.7%
	Poland	0.7%	2.2%	1.5%	10.4%
	Estonia	5.9%	0.0%	0.0%	2.9%
Communications and information services	UK	1.0%	2.9%	3.8%	32.5%
	France	0.0%	2.2%	2.6%	15.0%
	Italy	0.4%	0.0%	0.4%	12.2%
	Spain	2.8%	0.0%	1.1%	16.3%
	Poland	2.2%	0.0%	1.5%	18.5%
	Estonia	0.0%	8.8%	5.9%	35.3%
Other security services	UK	8.1%	2.9%	1.4%	35.4%
	France	22.5%	8.8%	2.2%	20.7%
	Italy	7.7%	2.6%	2.2%	21.8%
	Spain	3.9%	5.1%	3.9%	24.2%
	Poland	5.9%	5.2%	0.7%	17.0%
	Estonia	11.8%	0.0%	0.0%	20.6%
Real estate and property management	UK	2.4%	4.3%	5.7%	30.6%
	France	0.9%	3.1%	1.8%	23.8%
	Italy	1.1%	4.4%	3.3%	39.9%
	Spain	3.4%	3.9%	5.6%	33.7%
	Poland	4.4%	0.0%	0.7%	23.0%
	Estonia	0.0%	17.6%	8.8%	35.3%
Manufacturing	UK	3.8%	1.9%	6.7%	34.9%
	France	4.8%	2.6%	3.5%	23.8%
	Italy	13.7%	11.8%	10.7%	20.7%
	Spain	16.9%	6.7%	3.9%	30.3%
	Poland	14.8%	8.9%	3.0%	32.6%
	Estonia	8.8%	8.8%	2.9%	44.1%
Public security service providers	UK	10.5%	16.3%	3.8%	35.9%
	France	4.4%	8.4%	6.2%	29.1%
	Italy	0.4%	5.2%	3.0%	21.4%
	Spain	1.7%	1.7%	6.2%	33.1%
	Poland	7.4%	8.1%	0.0%	23.0%
	Estonia	5.9%	11.8%	5.9%	41.2%
Public administrations	UK	3.8%	5.3%	6.7%	24.9%
	France	9.3%	10.1%	5.3%	28.2%
	Italy	8.9%	12.9%	8.5%	24.7%
	Spain	6.7%	11.8%	7.9%	28.7%
	Poland	5.9%	13.3%	7.4%	37.0%
	Estonia	2.9%	0.0%	11.8%	52.9%
Wholesale and retail distribution	UK	7.7%	7.7%	5.7%	29.7%
	France	7.9%	4.4%	3.5%	22.0%
	Italy	12.2%	15.5%	10.3%	31.4%
	Spain	11.8%	11.8%	10.7%	32.0%
	Poland	2.2%	3.7%	2.2%	60.0%
	Estonia	8.8%	5.9%	8.8%	47.1%
Construction	UK	4.8%	9.6%	3.8%	31.1%
	France	2.2%	5.3%	1.8%	25.6%
	Italy	4.1%	7.0%	5.5%	36.2%
	Spain	10.7%	7.3%	6.2%	36.0%
	Poland	4.4%	10.4%	7.4%	48.1%
	Estonia	26.5%	17.6%	5.9%	20.6%
Private individuals and households	UK	10.0%	3.3%	7.7%	26.3%
	Poland	14.1%	6.6%	4.4%	15.9%
	Spain	32.5%	12.9%	12.2%	17.3%
	Italy	16.9%	6.2%	9.6%	23.0%
	France	23.7%	5.9%	5.9%	33.3%
	UK	5.9%	5.9%	17.6%	44.1%

Table 14. Market Segmentation – ‘other’ security services (% of respondents)

		Most important category	2nd most important category	3rd most important category	Not in top 3
Financial services	UK	6.1%	4.8%	6.1%	40.1%
	France	1.0%	0.0%	0.5%	20.1%
	Italy	9.8%	4.9%	7.3%	20.5%
	Spain	8.5%	1.8%	7.3%	25.0%
	Polland	4.1%	2.0%	2.0%	31.6%
	Estonia	2.9%	0.0%	0.0%	8.8%
Real estate and property management	UK	10.2%	6.8%	2.7%	48.3%
	France	1.5%	2.0%	3.5%	23.6%
	Italy	1.5%	6.8%	3.9%	35.6%
	Spain	3.7%	5.5%	4.3%	41.5%
	Polland	3.1%	3.1%	2.0%	23.5%
	Estonia	5.9%	17.6%	8.8%	17.6%
Construction	UK	12.9%	6.8%	6.8%	42.9%
	France	3.0%	5.5%	3.0%	23.1%
	Italy	0.5%	3.9%	5.4%	35.6%
	Spain	6.7%	3.0%	4.3%	40.9%
	Polland	9.2%	12.2%	4.1%	48.0%
	Estonia	26.5%	5.9%	2.9%	20.6%
Hotels, restaurants and leisure	UK	4.8%	7.5%	1.4%	36.1%
	France	4.0%	5.0%	2.0%	30.2%
	Italy	1.5%	5.4%	10.2%	37.6%
	Spain	4.9%	7.3%	12.2%	39.0%
	Polland	3.1%	3.1%	3.1%	54.1%
	Estonia	14.7%	14.7%	5.9%	32.4%
Manufacturing	UK	0.0%	4.8%	3.4%	46.3%
	France	5.0%	3.0%	2.5%	26.6%
	Italy	14.1%	11.7%	5.9%	26.3%
	Spain	15.2%	9.1%	6.7%	28.7%
	Polland	13.3%	7.1%	3.1%	51.0%
	Estonia	14.7%	14.7%	8.8%	26.5%
Public administrations	UK	6.1%	6.1%	5.4%	34.0%
	France	8.5%	11.6%	8.0%	24.6%
	Italy	5.9%	9.3%	12.2%	26.8%
	Spain	12.2%	11.0%	9.8%	26.8%
	Polland	9.2%	13.3%	3.1%	43.9%
	Estonia	5.9%	5.9%	0.0%	17.6%
Wholesale and retail distribution	UK	5.4%	4.1%	5.4%	45.6%
	France	8.0%	5.0%	1.0%	22.1%
	Italy	9.8%	15.6%	6.8%	32.2%
	Spain	4.9%	4.3%	5.5%	33.5%
	Polland	2.0%	3.1%	2.0%	56.1%
	Estonia	8.8%	5.9%	11.8%	23.5%
Private individuals and households	UK	8.2%	8.8%	10.9%	34.7%
	France	9.5%	6.0%	6.0%	21.6%
	Italy	39.5%	17.1%	11.2%	18.0%
	Spain	10.4%	12.2%	11.0%	26.8%
	Polland	14.3%	8.2%	9.2%	29.6%
	Estonia	14.7%	14.7%	8.8%	26.5%

Table 15. Share of international markets in total sales of security products and services (% of respondents)

	National	Regional	Export [0-25%]	Export share [25-50%]	Export [50-75%]	Export share[75-100%]
Estonia	41%	15%	27%	6%	6%	6%
Poland	48%	40%	9%	2%	1%	1%
Spain	35%	26%	22%	4%	8%	5%
Italy	33%	45%	13%	3%	3%	2%
France	37%	29%	12%	8%	7%	7%
Germany	51%	33%	8%	3%	2%	2%
UK	28%	17%	21%	12%	9%	12%

Table 16. 'Other' security products: geographical market and share of international markets in total sales of security products (% of respondents)

	National	Regional	Export [0-25%]	Export share [25-50%]	Export [50-75%]	Export share[75-100%]
Estonia	9%	32%	29%	9%	9%	12%
Poland	37%	48%	11%	0%	3%	1%
Spain	32%	29%	23%	6%	4%	6%
Italy	46%	32%	11%	3%	4%	3%
France	28%	36%	12%	8%	9%	7%
Germany	50%	29%	12%	4%	3%	2%
UK	17%	21%	26%	9%	12%	15%

Table 17. 'Other' security services : geographical market and share of international markets in total sales of security products (% of respondents)

	National	Regional	Export [0-25%]	Export share [25-50%]	Export [50-75%]	Export share[75-100%]
Estonia	8%	43%	25%	8%	8%	10%
Poland	41%	41%	13%	0%	4%	1%
Spain	15%	25%	25%	9%	11%	15%
Italy	27%	37%	12%	8%	9%	7%
France	30%	32%	23%	6%	4%	6%
Germany	51%	39%	7%	1%	1%	1%
UK	43%	31%	13%	4%	5%	4%

Table 18. Distribution of number of employees working in security by main broad industry category (% of respondents in broad industry category)

		0 to 4	5 to 9	10 to 49	50 to 249	above 250
All respondents	UK	29%	17%	36%	11%	6%
	Poland	65%	12%	13%	8%	2%
	Italy	54%	14%	23%	7%	2%
	France	22%	19%	38%	16%	4%
	Spain	38%	24%	32%	5%	2%
	Estonia	54%	15%	23%	4%	4%
	Germany	30%	22%	29%	13%	6%
Cyber security	UK	32%	10%	46%	10%	2%
	Poland	79%	7%	12%	1%	0%
	Italy	56%	8%	28%	0%	8%
	France	26%	13%	34%	16%	10%
	Spain	70%	23%	30%	2%	0%
	Estonia	38%	0%	25%	0%	0%
	Germany	37%	21%	30%	8%	5%
'Other' security products	UK	32%	19%	36%	11%	2%
	Poland	76%	10%	10%	2%	1%
	Italy	54%	17%	23%	6%	1%
	France	24%	20%	38%	14%	4%
	Spain	33%	30%	33%	3%	1%
	Estonia	62%	18%	15%	6%	0%
	Germany	24%	24%	30%	14%	7%
'Other' security services	UK	26%	17%	33%	11%	14%
	Poland	41%	16%	19%	20%	3%
	Italy	46%	15%	27%	10%	3%
	France	20%	20%	39%	17%	3%
	Spain	41%	18%	30%	7%	4%
	Estonia	42%	15%	30%	3%	9%
	Germany	32%	19%	25%	16%	8%

Table 19. Distribution of turnover from sales of security products and services by main broad industry category (% of respondents in broad industry category)

		< € 250 k	€ 250 k-500 k	€ 500 k- 1 m	€ 1 m- 5 m	€ 5 m-25 m	> € 25 m
All respondents	UK	14.7%	18.2%	11.6%	37.3%	13.7%	4%
	Poland	70.7%	13.9%	7.7%	5.8%	1.9%	0%
	Italy	37.2%	20.8%	12.7%	19.6%	6.9%	3%
	France	21.5%	17.1%	18.4%	27.8%	10.1%	5%
	Spain	35.1%	20.3%	16.3%	21.5%	4.6%	2%
	Estonia	56.7%	15.0%	13.3%	6.7%	3.3%	5%
Cyber security	UK	13.0%	17.4%	17.4%	34.8%	13.0%	4%
	Poland	79.2%	11.3%	3.8%	1.9%	3.8%	0%
	Italy	43.8%	18.8%	6.3%	25.0%	0.0%	6%
	France	34.3%	14.3%	8.6%	22.9%	8.6%	11%
	Spain	41.5%	24.4%	19.5%	9.8%	2.4%	2%
	Estonia	66.7%	0.0%	0.0%	0.0%	33.3%	0%
'Other' security products	UK	12.9%	19.6%	9.2%	39.3%	15.3%	4%
	Poland	73.3%	10.8%	7.5%	6.7%	1.7%	0%
	Italy	33.8%	20.1%	15.5%	18.7%	9.1%	3%
	France	13.4%	19.5%	18.1%	30.9%	12.8%	5%
	Spain	25.3%	21.9%	17.8%	29.5%	4.8%	1%
	Estonia	38.5%	23.1%	19.2%	15.4%	0.0%	4%
'Other' security services	UK	17.9%	16.0%	14.2%	34.9%	11.3%	6%
	Poland	61.6%	19.8%	10.5%	7.0%	1.2%	0%
	Italy	41.1%	22.0%	9.5%	20.2%	4.8%	2%
	France	27.3%	15.2%	21.2%	25.8%	7.6%	3%
	Spain	43.5%	17.4%	13.8%	16.7%	5.1%	4%
	Estonia	71.0%	9.7%	9.7%	0.0%	3.2%	6%

Table 20. Distribution of turnover growth by main broad industry category (% of respondents in broad industry category)

		Increased by more than 25%	Increased by between 11% and 25%	Increased by between 3% and 10%	Remained more or less the same [+/- 2%]	Decreased by between 3% and 25%	Decreased by more than 25%
All respondents	UK	34.5%	15.5%	16.7%	20.1%	9.5%	3.7%
	Germany ⁹¹	23%	17%	18%	35%	5%	3%
	Poland	15.9%	14.7%	20.5%	27.1%	15.9%	5.8%
	Italy	10.6%	11.3%	17.4%	30.6%	18.9%	11.3%
	France	18.4%	22.0%	18.4%	34.4%	5.1%	1.6%
	Spain	10.8%	10.2%	11.7%	25.9%	24.5%	16.9%
	Estonia	20.6%	20.6%	22.2%	28.6%	6.3%	1.6%
Cyber security	UK	56.3%	19%	13%	13%	0%	0%
	Germany	22.5%	15%	17%	37%	7%	2%
	Poland	15.4%	13%	29%	29%	13%	0%
	Italy	20.0%	25%	10%	40%	5%	0%
	France	20.0%	24%	18%	32%	4%	2%
	Spain	19.0%	19%	14%	26%	7%	14%
	Estonia	25.0%	25%	0%	50%	0%	0%
'Other' security products	UK	30%	13%	18%	23%	12%	4%
	Germany	24%	19%	19%	34%	2%	3%
	Poland	17%	13%	22%	27%	15%	7%
	Italy	10%	9%	18%	34%	19%	10%
	France	17%	20%	19%	36%	7%	2%
	Spain	10%	9%	9%	27%	30%	14%
	Estonia	34%	28%	17%	17%	3%	0%
'Other' security services	UK	35%	18%	16%	18%	9%	4%
	Germany	27%	18%	17%	33%	4%	1%
	Poland	14%	18%	14%	27%	19%	8%
	Italy	10%	13%	17%	26%	20%	14%
	France	20%	24%	18%	33%	4%	1%
	Spain	9%	9%	14%	24%	23%	21%
	Estonia	7%	13%	30%	37%	10%	3%

⁹¹ Intervals for variations in turnover for German data are slightly different: "increased more than 10%", "increased between 6% and 10%", "increased between 3 and 5%", "remained constant (+/- 2%)", "decreased by between 3% and 5%", "decreased by between 6% and 10%", "decreased by more than 10%"

Table 21. Distribution of turnover growth expectations for next 5 years by main broad industry category (% of respondents in broad industry category)

		Increased by more than 25%	Increased by between 11% and 25%	Increased by between 3% and 10%	Remained more or less the same [+/- 2%]	Decreased by between 3% and 11%	Decreased by more than 11%
All respondents	UK	43.9%	23.9%	19.2%	11.0%	0.6%	1.4%
	Poland	12.4%	17.4%	24.3%	39.0%	2.7%	4.2%
	Italy	11.0%	17.4%	30.1%	31.4%	4.9%	5.3%
	France	18.8%	17.4%	24.1%	32.9%	5.0%	1.8%
	Spain	15.5%	21.8%	34.7%	22.9%	2.8%	2.3%
	Estonia	18.8%	28.1%	32.8%	20.3%	0.0%	0.0%
	Germany ⁹²	19.0%	22.8%	31.9%	21.1%	2.9%	2.3%
Cyber security	UK	62%	15%	15%	9%	0%	0.0%
	Poland	12%	19%	32%	28%	2%	7.0%
	Italy	25%	25%	40%	5%	0%	5.0%
	France	24%	36%	13%	22%	2%	2.2%
	Spain	28%	33%	21%	16%	2%	0.0%
	Estonia	25%	50%	0%	25%	0%	0.0%
	Germany	24%	27%	25%	17%	3%	3.2%
'Other' security products	UK	46%	22%	19%	11%	1%	1.6%
	Poland	14%	14%	24%	42%	1%	5.2%
	Italy	11%	18%	32%	29%	5%	5.0%
	France	17%	14%	27%	35%	6%	1.3%
	Spain	17%	22%	34%	22%	3%	1.9%
	Estonia	29%	36%	21%	14%	0%	0.0%
	Germany	17%	21%	36%	23%	2%	1.2%
'Other' security services	UK	37%	30%	21%	11%	0%	1.5%
	Poland	10%	21%	20%	43%	6%	1.1%
	Italy	9%	16%	27%	37%	5%	5.7%
	France	19%	16%	24%	34%	4%	2.1%
	Spain	10%	18%	39%	25%	3%	3.3%
	Estonia	9%	19%	47%	25%	0%	0.0%
	Germany	22%	19%	33%	20%	3%	1.9%

⁹² Intervals for variations in turnover for German data are slightly different: "increased more than 10%", "increased between 6% and 10%", "Increased between 3 and 5%", "remained constant (+/- 2%)", "decreased by between 3% and 5%", "decreased by between 6% and 10%, decreased by more than 10%"

Table 22. Distribution of demand growth expectations by costumer groups and geographical areas (% of respondents, excluding no answer / don't know)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
National market as a whole	Estonia	13%	55%	26%	5%	2%
	Poland	9%	61%	23%	5%	1%
	Spain	12%	49%	31%	6%	2%
	Italy	11%	50%	27%	7%	4%
	France	15%	36%	36%	11%	2%
	Germany	51%	26%	18%	2%	3%
	UK	35%	41%	18%	6%	1%
Europe	Estonia	13%	53%	29%	4%	2%
	Poland	22%	53%	17%	6%	2%
	Spain	21%	49%	23%	4%	3%
	Italy	19%	55%	20%	4%	2%
	France	23%	40%	26%	10%	1%
	Germany	33%	37%	21%	6%	3%
	UK	7%	43%	43%	7%	0%
Outside Europe	Estonia	12%	44%	38%	6%	0%
	Poland	28%	46%	22%	2%	2%
	Spain	41%	32%	19%	5%	4%
	Italy	28%	46%	24%	1%	2%
	France	30%	32%	25%	10%	2%
	Germany	13%	28%	57%	0%	2%
	UK	50%	32%	14%	2%	2%
Public sector	Estonia	17%	49%	26%	6%	2%
	Poland	13%	41%	39%	5%	2%
	Spain	14%	33%	41%	6%	6%
	Italy	10%	43%	30%	12%	5%
	France	16%	30%	39%	11%	4%
	Germany	12%	61%	20%	6%	0%
	UK	32%	32%	25%	8%	4%
Critical infrastructure sectors	Estonia	17%	49%	32%	2%	0%
	Poland	19%	41%	35%	2%	3%
	Spain	23%	35%	31%	6%	5%
	Italy	18%	42%	30%	8%	3%
	France	18%	33%	38%	9%	2%
	Germany	35%	43%	21%	2%	0%
	UK	37%	31%	24%	6%	2%
Business sector	Estonia	14%	51%	25%	8%	2%
	Poland	15%	49%	28%	6%	2%
	Spain	20%	44%	27%	6%	3%
	Italy	9%	50%	28%	10%	3%
	France	16%	33%	42%	9%	1%
	Germany	18%	60%	21%	1%	0%
	UK	35%	39%	20%	5%	1%
Private individuals and households	Estonia	9%	42%	35%	11%	3%
	Poland	11%	39%	40%	6%	4%
	Spain	8%	36%	40%	9%	6%
	Italy	17%	40%	30%	8%	5%
	France	16%	31%	35%	14%	3%
	Germany	13%	36%	47%	3%	2%
	UK	26%	34%	32%	6%	1%

Table 23. Cyber security: Distribution of demand growth expectations by costumer groups and geographical areas (% of respondents, excluding no answer / don't know)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
National market as a whole	UK	63%	32%	5%	0%	0%
	Poland	17%	57%	17%	6%	2%
	Italy	25%	54%	13%	4%	4%
	France	18%	32%	41%	7%	2%
	Spain	19%	56%	23%	2%	0%
	Estonia	0%	100%	0%	0%	0%
Europe	UK	55%	32%	13%	0%	0%
	Poland	31%	40%	20%	3%	6%
	Italy	29%	50%	17%	0%	4%
	France	24%	32%	35%	8%	0%
	Spain	30%	57%	11%	3%	0%
	Estonia	33%	67%	0%	0%	0%
Outside Europe	UK	55%	38%	3%	0%	3%
	Poland	29%	44%	21%	0%	6%
	Italy	40%	40%	15%	0%	5%
	France	30%	23%	37%	7%	3%
	Spain	53%	39%	3%	0%	6%
	Estonia	50%	50%	0%	0%	0%
Public sector	UK	46%	37%	12%	5%	0%
	Poland	27%	40%	27%	5%	2%
	Italy	31%	36%	21%	5%	7%
	France	21%	23%	42%	7%	7%
	Spain	29%	38%	21%	0%	13%
	Estonia	25%	25%	25%	0%	25%
	Germany	15%	62%	17%	6%	0%
Critical infrastructure sectors	UK	56%	21%	10%	8%	5%
	Poland	22%	48%	26%	0%	3%
	Italy	62%	26%	12%	0%	0%
	France	28%	30%	35%	5%	3%
	Spain	41%	32%	18%	0%	9%
	Estonia	33%	33%	33%	0%	0%
Business sector	UK	59%	33%	8%	0%	0%
	Poland	23%	45%	25%	5%	2%
	Italy	36%	43%	19%	2%	0%
	France	41%	27%	23%	5%	5%
	Spain	20%	30%	39%	9%	2%
	Estonia	0%	33%	67%	0%	0%
	Germany	29%	60%	11%	0%	0%
Private individuals and households	UK	18%	43%	27%	10%	2%
	Poland	31%	25%	28%	8%	8%
	Italy	32%	29%	32%	7%	0%
	France	13%	43%	23%	13%	7%
	Spain	9%	36%	36%	9%	9%
	Estonia	0%	25%	50%	25%	0%
	Germany	11%	26%	59%	2%	2%

Table 24. Other security products: Distribution of demand growth expectations by customer groups and geographical areas (% of respondents, excluding no answer / don't know)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
National market as a whole	UK	35%	38%	19%	8%	1%
	Poland	6%	65%	22%	5%	2%
	Italy	11%	52%	27%	6%	3%
	France	11%	38%	36%	11%	3%
	Spain	9%	50%	35%	5%	1%
	Estonia	14%	46%	29%	7%	4%
Europe	UK	38%	35%	20%	5%	3%
	Poland	13%	53%	23%	9%	3%
	Italy	20%	54%	21%	3%	2%
	France	16%	50%	22%	11%	1%
	Spain	20%	49%	23%	6%	1%
	Estonia	15%	37%	37%	7%	4%
Outside Europe	UK	57%	29%	11%	1%	2%
	Poland	28%	40%	28%	2%	2%
	Italy	26%	50%	22%	1%	2%
	France	28%	42%	20%	9%	1%
	Spain	40%	38%	15%	5%	2%
	Estonia	8%	33%	50%	8%	0%
Public sector	UK	29%	29%	28%	9%	5%
	Poland	9%	47%	37%	6%	2%
	Italy	9%	47%	32%	10%	3%
	France	11%	33%	39%	14%	4%
	Spain	10%	31%	48%	6%	4%
	Estonia	13%	50%	30%	7%	0%
	Germany	9%	59%	26%	7%	0%
Critical infrastructure sectors	UK	34%	31%	25%	8%	2%
	Poland	15%	46%	34%	1%	4%
	Italy	17%	46%	30%	5%	2%
	France	13%	35%	38%	13%	2%
	Spain	14%	39%	39%	5%	3%
	Estonia	17%	47%	33%	3%	0%
	Germany	36%	36%	25%	3%	0%
Business sector	UK	31%	38%	22%	7%	1%
	Poland	12%	51%	27%	6%	3%
	Italy	6%	53%	31%	6%	4%
	France	13%	37%	41%	9%	1%
	Spain	17%	45%	29%	7%	2%
	Estonia	17%	43%	20%	17%	3%
	Germany	16%	59%	23%	2%	0%
Private individuals and households	UK	25%	32%	34%	7%	2%
	Poland	10%	36%	44%	5%	5%
	Italy	19%	41%	28%	7%	4%
	France	14%	33%	37%	13%	3%
	Spain	7%	40%	40%	8%	5%
	Estonia	13%	32%	35%	16%	3%
Germany	19%	46%	28%	4%	4%	

Table 25. Other security services: Distribution of demand growth expectations by customer groups and geographical areas (% of respondents, excluding no answer / don't know)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
National market as a whole	UK	28%	46%	20%	5%	1%
	Poland	7%	60%	29%	4%	0%
	Italy	10%	47%	29%	9%	5%
	France	19%	34%	35%	11%	1%
	Spain	13%	48%	28%	8%	4%
	Estonia	13%	58%	26%	3%	0%
Europe	UK	19%	43%	25%	9%	3%
	Poland	27%	61%	9%	4%	0%
	Italy	16%	56%	19%	6%	3%
	France	32%	30%	27%	10%	1%
	Spain	20%	46%	25%	3%	6%
	Estonia	8%	68%	24%	0%	0%
Outside Europe	UK	40%	34%	21%	4%	1%
	Poland	26%	55%	14%	5%	0%
	Italy	30%	39%	28%	1%	2%
	France	34%	23%	28%	14%	2%
	Spain	38%	25%	27%	6%	4%
	Estonia	13%	54%	29%	4%	0%
Public sector	UK	31%	34%	24%	7%	3%
	Poland	8%	34%	49%	4%	4%
	Italy	9%	39%	29%	17%	6%
	France	21%	29%	38%	9%	3%
	Spain	14%	34%	38%	7%	7%
	Estonia	19%	52%	23%	6%	0%
	Germany	9%	59%	26%	7%	0%
Critical infrastructure sectors	UK	36%	32%	25%	5%	2%
	Poland	21%	30%	44%	3%	2%
	Italy	16%	39%	31%	12%	3%
	France	22%	32%	38%	7%	1%
	Spain	23%	35%	28%	7%	6%
	Estonia	17%	53%	30%	0%	0%
	Germany	36%	36%	25%	3%	0%
Business sector	UK	35%	41%	20%	3%	2%
	Poland	13%	48%	30%	6%	2%
	Italy	10%	49%	23%	14%	3%
	France	18%	29%	43%	9%	1%
	Spain	18%	43%	28%	7%	4%
	Estonia	13%	60%	27%	0%	0%
	Germany	16%	59%	23%	2%	0%
Private individuals and households	UK	26%	38%	29%	6%	1%
	Poland	8%	40%	43%	5%	5%
	Italy	15%	39%	32%	8%	5%
	France	15%	31%	34%	17%	2%
	Spain	9%	36%	36%	9%	9%
	Estonia	6%	55%	32%	3%	3%
	Germany	19%	46%	28%	4%	4%

Table 26. Geographical origin of main competitors (% respondents)

	Regional	National	Domestic & International (Europe only)	Domestic & International (Europe and outside Europe)	International: Europe only	International: Europe and outside Europe
Estonia	14%	48%	14%	17%	1%	6%
Poland	38%	42%	11%	5%	2%	2%
Spain	26%	38%	7%	14%	7%	9%
Italy	47%	35%	5%	8%	3%	3%
France	23%	44%	6%	12%	5%	11%
Germany	3%	48%	31%	17%	0%	0%
UK	11%	38%	5%	34%	2%	9%

Table 27. Distribution of expectations of change in competition by geographical origin of competitors (All respondents)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
Regional	Estonia	0%	31%	62%	8%	0%
	Poland	7%	46%	39%	5%	2%
	Spain	12%	26%	49%	11%	2%
	Italy	14%	30%	42%	11%	3%
	France	27%	22%	40%	10%	1%
	UK	18%	28%	42%	11%	1%
National	Estonia	5%	42%	44%	5%	4%
	Poland	14%	33%	44%	7%	1%
	Spain	16%	32%	38%	11%	3%
	Italy	16%	38%	35%	9%	2%
	France	22%	27%	43%	7%	1%
	UK	24%	30%	37%	9%	1%
International (Europe)	Estonia	10%	67%	19%	0%	5%
	Poland	35%	33%	31%	2%	0%
	Spain	21%	38%	33%	7%	1%
	Italy	11%	52%	35%	2%	0%
	France	26%	35%	35%	1%	2%
	UK	23%	38%	30%	9%	0%
International (outside Europe)	Estonia	19%	56%	25%	0%	0%
	Poland	22%	33%	44%	0%	0%
	Spain	41%	33%	23%	1%	1%
	Italy	34%	32%	26%	4%	4%
	France	43%	28%	29%	0%	0%
	UK	42%	29%	24%	6%	1%

Table 28. Distribution of expectations of change in competition by geographical origin of competitors (Cyber security)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
Regional	Estonia	0%	0%	0%	0%	0%
	Poland	12%	28%	52%	4%	4%
	Spain	20%	33%	40%	7%	0%
	Italy	27%	36%	36%	0%	0%
	France	19%	25%	44%	6%	6%
	UK	20%	25%	45%	5%	5%
National	Estonia	0%	50%	50%	0%	0%
	Poland	16%	34%	42%	5%	3%
	Spain	19%	48%	26%	7%	0%
	Italy	24%	29%	47%	0%	0%
	France	11%	22%	59%	7%	0%
	UK	37%	26%	22%	7%	7%
International (Europe)	Estonia	0%	100%	0%	0%	0%
	Poland	30%	30%	40%	0%	0%
	Spain	33%	33%	27%	7%	0%
	Italy	0%	71%	29%	0%	0%
	France	27%	27%	40%	7%	0%
	UK	39%	39%	22%	0%	0%
International (outside Europe)	Estonia	100%	0%	0%	0%	0%
	Poland	100%	0%	0%	0%	0%
	Spain	38%	44%	19%	0%	0%
	Italy	67%	33%	0%	0%	0%
	France	27%	33%	40%	0%	0%
	UK	71%	21%	4%	4%	0%

Table 29. Distribution of expectations of change in competition by geographical origin of competitors (Other security products)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
Regional	Estonia	0%	25%	50%	25%	0%
	Poland	6%	22%	51%	16%	5%
	Spain	7%	46%	35%	9%	3%
	Italy	14%	31%	44%	10%	1%
	France	16%	25%	49%	8%	1%
	UK	23%	21%	41%	13%	1%
National	Estonia	7%	33%	48%	7%	4%
	Poland	10%	32%	48%	9%	1%
	Spain	11%	37%	42%	8%	3%
	Italy	16%	36%	34%	11%	3%
	France	19%	30%	42%	8%	1%
	UK	21%	29%	41%	8%	2%
International (Europe)	Estonia	13%	50%	35%	2%	0%
	Poland	13%	63%	25%	0%	0%
	Spain	19%	41%	31%	7%	2%
	Italy	22%	39%	30%	9%	0%
	France	27%	35%	36%	0%	2%
	UK	40%	28%	32%	0%	0%
International (outside Europe)	Estonia	15%	54%	31%	0%	0%
	Poland	25%	33%	42%	0%	0%
	Spain	34%	38%	24%	0%	3%
	Italy	38%	29%	27%	7%	0%
	France	41%	32%	24%	0%	3%
	UK	43%	28%	28%	0%	0%

Table 30. Distribution of expectations of change in competition by geographical origin of competitors (Other security services)

		Increase strongly	Increase slightly	Stay roughly the same	Decrease slightly	Decrease strongly
Regional	Estonia	0%	33%	67%	0%	0%
	Poland	6%	54%	39%	2%	0%
	Spain	13%	30%	42%	15%	0%
	Italy	16%	28%	49%	7%	0%
	France	19%	31%	33%	16%	1%
	UK	33%	21%	39%	8%	0%
National	Estonia	4%	50%	38%	4%	4%
	Poland	15%	44%	31%	8%	2%
	Spain	18%	30%	44%	6%	2%
	Italy	19%	28%	31%	17%	4%
	France	25%	26%	42%	7%	0%
	UK	26%	32%	33%	9%	0%
International (Europe)	Estonia	0%	100%	0%	0%	0%
	Poland	10%	50%	40%	0%	0%
	Spain	18%	36%	34%	11%	0%
	Italy	19%	35%	39%	6%	0%
	France	24%	41%	31%	0%	3%
	UK	29%	43%	21%	7%	0%
International (outside Europe)	Estonia	0%	40%	60%	0%	0%
	Poland	0%	100%	0%	0%	0%
	Spain	22%	22%	56%	0%	0%
	Italy	34%	32%	28%	4%	2%
	France	45%	27%	23%	5%	0%
	UK	56%	22%	22%	0%	0%

Annex II: Ecorys Survey on the Structure of the Security Industry (Ecorys SSS) - questionnaire

SCREENING QUESTIONS

For the purposes of the survey, the Security Industry is defined as private enterprises and research institutions engaged in or supporting the development and supply of products and services used for civil security purposes. Where civil security refers to efforts to prepare for, protect against, and respond to:

- Acts of criminality, terrorism, and public disorder;
- Attacks against critical infrastructure and essential services (*cf. critical infrastructure protection*);
- Violations of the integrity of national borders (*cf. border control*);
- Natural and man-made disasters (*cf. crisis management and response*)

NB. See **List 5** for a description of security challenges (risks and threats)

Identify that the company is active in the supply of security-related products and/or services

SC1.	Does your firm offer products and/or services for protection against criminality, terrorism, or public disorder?	
	<ul style="list-style-type: none"> • Yes • No 	

This covers, for example: petty, serious and organized crime, including cyber-crimes; terrorism and other acts of extremism; espionage (industrial, political or ideological); public disorder and civil unrest.

SC2.	Does your firm offer products and/or services for the protection of critical infrastructures?	
	<ul style="list-style-type: none"> • Yes • No 	

This covers, for example: transport infrastructure and services (air, marine, rail and other mass transport); ICT networks; energy and water production and supply; financial systems; public administrations; health and education service infrastructures.

SC3.	Does your firm offer products and/or services used for border protection and/or border control?	
	<ul style="list-style-type: none"> • Yes • No 	

This covers, for example: combating cross-border criminal and terrorism activities, illegal or uncontrolled migration; border surveillance.

SC4.	Does your firm offer products and/or services used to prepare for or respond to natural and man-made disasters?	
	<ul style="list-style-type: none"> • Yes 	
	<ul style="list-style-type: none"> • No 	

These include, for example: natural disasters such as earthquakes, volcanic activity, major storms, flooding, forest fires; major industrial accidents or failures of critical infrastructure networks.

Identify the share of security in the total supply of products and/or services of the company

SC5.	Does your firm offer products and/or services that are not related to security?		
	<ul style="list-style-type: none"> • No (security only) 		Go to SC7
	<ul style="list-style-type: none"> • Yes (security-related and non-security) 		Go to SC6

SC6.	What proportion (approximately) of your firm's activities relates to the offer of security-related products and services?	
	<ul style="list-style-type: none"> • Less than 20% 	
	<ul style="list-style-type: none"> • Between 20% and 39% 	
	<ul style="list-style-type: none"> • Between 40% and 59% 	
	<ul style="list-style-type: none"> • Between 60% and 79% 	
	<ul style="list-style-type: none"> • Greater than 80% 	

Firm's activity, for example in terms of total turnover or sales revenues

Identify the share of civilian and military use of products supplied by the company

SC7.	Does your firm offer security products and/or services used in the military sector, the civilian sector (including private and public sector), or both		
	<ul style="list-style-type: none"> • Military sector only 		END
	<ul style="list-style-type: none"> • Civilian sector only 		Go to Q.1
	<ul style="list-style-type: none"> • Both military and civilian sector 		Go to SC8

If the company is only engaged in the supply of products for military (defence) use, the interview should be terminated.

SC8.	What proportion of your firm's security activities (i.e. offer of security related products and services) relates to the civilian sector?	
	<ul style="list-style-type: none"> • Less than 20% 	
	<ul style="list-style-type: none"> • Between 20% and 39% 	
	<ul style="list-style-type: none"> • Between 40% and 59% 	
	<ul style="list-style-type: none"> • Between 60% and 79% 	
	<ul style="list-style-type: none"> • Greater than 80% 	

Firm's activity, for example in terms of total turnover or sales revenues

PRODUCT PORTFOLIO

The Security Industry is understood to be composed of the following main sub-segments

- Cyber-security services and products
- Other security products
- Other security services, covering:
 - Security (man-power related) services
 - Security consultancy services
 - Security research services

Q.1	Which of the following categories of security products and services does your firm offer?
Q1a.	<p>If multiple product and/or service categories are given:</p> <p>Please indicate the most important (main) product or service category offered by your firm (e.g. in terms of the category's share in the total value of security products and services offered by your firm).</p>

	YES (Q.1)	Main category (Q1a)	
• Cyber-security products and services			Ask Q.2
• Other security products			Ask Q.4
• Other security services			Ask Q.6

Scope of security segments:

- **Cyber-security products and services:** products (hardware and/or software) and services destined towards the protection of ICT systems and equipment, and electronically stored and/or electronically processed or communicated information. [see Error! Reference source not found.]
- **Other security products:** integrated systems, sub-systems, products, equipment and technologies used for the (physical) security of persons, tangible property and assets, infrastructures and environments. Includes products that are primarily for use by security service providers (e.g. police, fire-fighters, border guards, emergency services, and private security service providers) and/or public administrations undertaking security functions. [see List 2]
- **Other security services:**
 - **Security (man-power related) services:** providers of manpower-related and other services for the security of persons, tangible objects and assets, infrastructure and environments. [see List 3]
 - **Security consultancy services:** providers of consultancy and advisory services – other than for cyber security (covered under Cyber-security products and services) – related to security (including training). [see List 3]
 - **Security research services:** Providers of security-related research services (e.g. educational, academic and private institutions engaged in security-related research activities), including: research on security and safety-relevant technologies and technical solutions; research on social, behavioural, organisational, economic and legal aspects of security). [see List 3]

Cyber security products and services

Q.2	Which of the following categories of IT/cyber-security products and services does your firm offer?
Q2a.	<p>If multiple product and/or service categories are given:</p> <p>Please indicate the most important (main) product or service category offered by your firm (e.g. in terms of the category's share in the total value of security products and services offered by your firm).</p>

	YES (Q.2)	Main category (Q2a)
Cyber-security products and solutions		
• Governance, vulnerability and cyber-security management systems		
• Identity and access management solutions		
• Data security solutions		
• Applications security solutions		
• Infrastructure (network) security solutions		
• Hardware security		
• Other [<i>please specify</i>]		
Cyber-security services		
• Audit, planning and advisory services		
• System integration and implementation services		
• Management and operations services		
• Security training services		
• Other [<i>please specify</i>]		

Products and solutions: provision of integrated systems, sub-systems, solutions, technologies and software used for the security of IT systems, electronic data storage, and electronically processed or communicated information.

NB. Includes activities of: design, development, distribution, installation, maintenance and upgrading of IT security software applications, hardware and systems.

Services: provision of services relating to the assessment, development, operation and management of secure IT systems and networks, infrastructure, devices and processes; related IT security training services; IT security certification; digital forensics (analysis, investigation and proof preservation).

See: List 1

NOTE: To be answered only if in Q.2 the company indicates that it supplies cyber-security products and solutions

Q.3	Which of the following types of activities (related to the supply of IT/cyber-security products and solutions) does your firm undertake?
Q3a.	<p>If multiple activity types are given:</p> <p>Please indicate the most important (main) activity type undertaken by your firm (e.g. in terms of the activity's share in the total revenues or business costs).</p> <p>Note: if it is not possible to provide an indication for individual activity sub-categories, please indicate the most important broad activity category heading.</p>

	YES (Q.3)	Main activity (Q3a)
Product development		
• Research and development		
• Design and engineering		
Production		
• Manufacturing and assembly (hardware)		
• Software development and programming		
• System integration (e.g. integration of sub-systems within larger systems)		
Product supply and installation		
• Wholesale or retail distribution activities (e.g. sales of systems, sub-systems, software, or hardware)		
• Installation and post-production system integration		
Maintenance and inspection		
• Maintenance / service contracts (including upgrades)		
• Test and inspection		
Associated services		
• Monitoring, management and outsourcing services		
Other		
• Other [<i>please specify</i>]		

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Other security products

Q.4	Which of the following categories of security products does your firm offer?
Q4a.	<p>If multiple product categories are given:</p> <p>Please indicate the most important (main) product category offered by your firm (e.g. in terms of the category's share in the total value of security products offered by your firm).</p>

	YES (Q.4)	Main category (Q4a)
Other security products and solutions		
• Mechanical access control, barriers and products to enhance physical resilience		
• Identification and authentication (<i>including</i> electronic access control)		
• Intruder detection and alarm		
• Fire detection, alarm and suppression		
• Detection and screening for dangerous or illicit items or concealed persons		
• Tracking and tracing; positioning and localisation		
• Local area observation and surveillance (<i>including</i> video / CCTV surveillance)		
• Wide area observation and surveillance		
• Communication equipment and systems		
• Command and control, and decision support systems		
• Intelligence and information gathering systems (<i>including</i> for security forensics)		
• Vehicles and platforms		
• Protective and specialised clothing		
• Other equipment and supplies for security service providers		
• Other [<i>please specify</i>]		

Other (physical) security products: products primarily for use for the security of persons, tangible property and assets, infrastructure and environments. Includes **products that are primarily for use by security service providers** (e.g. police, fire-fighters, border guards, emergency services, and private security service providers) and/or public administrations undertaking security functions.

NB. Includes activities of: design, development, manufacture, assembly, software programming, distribution, installation, maintenance and upgrading of physical security equipment and systems.

See List 2

Q.5	Which of the following types of activities (related to the supply of physical security products) does your firm undertake?
Q5a.	<p>If multiple activity types are given:</p> <p>Please indicate the most important (main) activity type undertaken by your firm (e.g. in terms of the activity's share in the total revenues or business costs).</p> <p>Note: if it is not possible to provide an indication for individual activity sub-categories, please indicate the most important broad activity category heading.</p>

	YES (Q.5)	Main activity (Q5a)
Product development		
• Research and development		
• Design and engineering		
Production		
• Manufacturing and assembly		
• Integration (e.g. integration of sub-systems within larger systems)		
Product supply and installation		
• Wholesale or retail distribution activities (e.g. sales of systems, equipment and parts)		
• Installation		
Maintenance and inspection		
• Maintenance / service contracts (including upgrades)		
• Test and inspection		
Associated services		
• Monitoring services		
• Other [<i>please specify</i>]		

Security services (other than cyber-security services)

Q.6	Which of the following categories of security services does your firm offer?
Q6a.	<p>If multiple services categories are given:</p> <p>Please indicate the most important (main) service category offered by your firm (e.g. in terms of the category's share in the total value of security services offered by your firm).</p>

	YES (Q.6)	Main category (Q6a)
Manpower based services		
• Guarding and manning		
• Remote monitoring		
• Security of persons		
• Detective and investigation services		
• Other [<i>please specify</i>]		
Consultancy, advisory and training services		
• Security consulting and advisory services		
• Security training services [<i>other than for IT/cyber security; covered under Q.2</i>]		
Research services		
• Research on security-related technologies and technical solutions		
• Research on behavioural, organisational, economic and legal aspects of security		
• Other [<i>please specify</i>]		

[See: List 3](#)

MARKET BREAKDOWN

Market Sectors

Q.7	From which sectors do your customers (for security products and services) come from?
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Q7a.	<p>If multiple sectors are given:</p> <p>Please indicate the most important (main) sector (e.g. in terms of the sector's share in the total value of security products and services offered by your firm).</p> <p>Note: if it is not possible to provide an indication for individual sector categories, please indicate the most important broad category heading.</p>
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	YES (Q.7)	Main sector (0)
Security industry*		
• Cyber security industry		
• Other (physical) security industry		
• Private security service providers		
*Relates to cases where the interviewed company sells products or services to other companies active in the security industry (e.g. acts as a sub-contractor or component supplier)		
Public administrations and services		
• Defence (military) sector		
• Public security service providers		
• Public administrations (<i>other than public security service providers and defence</i>)		
• Health and education		
Critical infrastructure sectors		
• Transport		
• Energy and water		
• Communications and information services		
• Financial services (including insurance)		
Economic sectors (other)		
• Primary sectors (e.g. agriculture, mining)		
• Manufacturing		
• Construction		
• Real estate and property management (e.g. offices and residential property)		
• Wholesale and retail distribution		
• Hotels, restaurants and leisure		
• Other market services		
Private citizens		
• Private individuals and households		

See: List 6

Geographical markets

Q.8	In which geographical markets do you sell your security products and services?
Q8a.	If possible, please indicate (approximately) the share of each geographical market in total sales of security products and services offered by your firm.
Q8b.	If it is not possible to provide a breakdown for international markets, please indicate the share of exports in total sales of security products and services offered by your firm.

	YES (Q.8)	Share (Q8a)
National market		
• Local/regional markets (i.e. sub-national level)		
• National market as a whole		
International markets		
• EU Member States		
• Outside the EU		
TOTAL share (should sum to 100%)		
	Share (Q8b)	
Export share		
• Share of exports in total sales of security products and services		

COMPANY SIZE (EMPLOYMENT & TURNOVER)

Employment

Q.9	How many employees does your company have (both in [COUNTRY] and abroad)?
Q9a.	How many employees does your company have in [COUNTRY]?

	TOTAL employees (Q.9)	Employees in [COUNTRY] (Q9a)
Number of employees		
• Zero		
• 1 to 4 employees		
• 5 to 9 employees		
• 10 to 49 employees		
• 50 to 249 employees		
• 250 to 999 employees		
• 1000 or more employees		

Q.10	How many employees does your company have in [COUNTRY] working in the field of security?
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	Security employees in [COUNTRY] (Q.9)
Number of employees	
• Zero	
• 1 to 4 employees	
• 5 to 9 employees	
• 10 to 49 employees	
• 50 to 249 employees	
• 250 to 999 employees	
• 1000 or more employees	

Turnover

Q.11	What is your company's turnover (e.g. for the last year available) in [COUNTRY] from sales of security products and services
Q11a.	Please indicate which year this turnover number relates to.

	Turnover (Q.11)
• Below € 250 000 [<€250k]	
• € 250 001 to € 500 000 [€250k - €500k]	
• € 500 001 to € 1 000 000 [€500k - €1 mil]	
• € 1 000 001 to € 5 000 000 [€1 mil - €5 mil]	
• € 5 000 001 to € 10 000 000 [€5 mil - €10 mil]	
• € 10 000 001 to € 25 000 000 [€10 mil - €25 mil]	
• € 25 000 001 to € 50 000 000 [€25 mil - €50 mil]	
• € 50 000 001 to € 100 000 000 [€50 mil - €100 mil]	
• € 100 000 001 to € 500 000 000 [€100 mil - €500 mil]	
• More than € 500 000 000 [>€500 mil]	
	Year (Q11a)
• Year for turnover data	

	<p>Note: The turnover number should relate to total turnover generated in [COUNTRY], including any turnover generated from exports of products and services from [COUNTRY]. It should not relate only to turnover from sales in [COUNTRY], unless the company has no exports.</p>
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GROWTH PERFORMANCE & PROSPECTS

Q.12	What has been the (total) growth in your turnover from the supply of security products and services over the last 5 years?
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	Growth (Q.12)
• Increased by more than 25%	
• Increased by between 11% and 25%	
• Increased by between 3% and 10%	
• Remained more or less the same [growth of $\pm 2\%$]	
• Decreased by between 3% and 10%	
• Decreased by between 11% and 25%	
• Decreased by more than 25%	

Note: The turnover number should relate to total turnover generated in [COUNTRY], including any turnover generated from exports of products and services from [COUNTRY]. It should not relate only to turnover from sales in [COUNTRY], unless the company has no exports.

Q.13	What is your expectation for the (total) growth in your turnover from the supply of security products and services over the next 5 years?
------	---

	Growth (Q.13)
• Increase by more than 25%	
• Increase by between 11% and 25%	
• Increase by between 3% and 10%	
• Remain more or less the same [growth of $\pm 2\%$]	
• Decrease by between 3% and 10%	
• Decrease by between 11% and 25%	
• Decrease by more than 25%	

Note: The turnover number should relate to total turnover generated in [COUNTRY], including any turnover generated from exports of products and services from [COUNTRY]. It should not relate only to turnover from sales in [COUNTRY], unless the company has no exports.

Q.14	How do expect demand for security products and services to develop in the foreseeable future from the following customer groups and geographical areas?
------	---

Please use the following scale:

1. Increase strongly
2. Increase slightly
3. Stay roughly the same
4. Decrease slightly
5. Decrease strongly

DK: Don't know / no opinion

	1	2	3	4	5	D K
National market (in [COUNTRY])						
• Public sector						
• Critical infrastructure sectors						
• Business sector (i.e. private industry and services)						

• Private individuals and households							
• National market as a whole							
International markets							
• Europe (EU and non-EU)							
• Outside Europe							

COMPETITORS

Q.15	From which geographical regions / countries do your main competitors come from?
	National
	• Local/regional area (i.e. sub-national level within [COUNTRY])
	• National area (i.e. other companies from [COUNTRY])
	International
	• European countries (EU and non-EU)
	• Outside Europe

Q.16	How do expect competition from companies coming from the different geographical regions to change in the future (i.e. over the next 5 years)?
	<p>Please use the following scale:</p> <p>NA: Not applicable (no competition from companies coming from the region)</p> <ol style="list-style-type: none"> 1. Increase strongly 2. Increase slightly 3. Stay roughly the same 4. Decrease slightly 5. Decrease strongly <p>DK: Don't Know / no opinion</p>

	N A	1	2	3	4	5	D K
National							
• Local/regional area (i.e. sub-national level within [COUNTRY])							
• National area (i.e. other companies from [COUNTRY])							
International							
• European countries (EU and non-EU)							
• Outside Europe							

List 1.

Cyber Security: broad segmentation of products, technologies and services

Cyber security products and solutions	<i>Examples:</i>
Governance, vulnerability and cyber-security management	<ul style="list-style-type: none"> Information security management systems SIEMS (security information and event management) systems
Identity and access management	<ul style="list-style-type: none"> Electronic access control (identification and authentication) for IT and communications equipment (hardware), systems and networks
Data security	<ul style="list-style-type: none"> Encryption, cryptography and digital signature solutions Public key infrastructure solutions Digital rights management solutions Information rights management solutions Data loss/leak prevention, secure data deletion, secure archiving, data recovery solutions Content filtering and anti-spam solutions
Applications security	<ul style="list-style-type: none"> Security of IT software and applications (design, coding development and testing)
Infrastructure security	<ul style="list-style-type: none"> System and network security software (e.g. firewalls, antivirus, anti-DDoS⁹³, intrusion detection, tracking and tracing) Unified Threat Management (UTM) solutions Terminal (fixed or mobile) security solutions and endpoint hardening solutions Vulnerability scanners Internet/network communications security solutions (e.g. secure phone, video conferencing, e-mail and messaging systems)
Hardware (device/endpoint) security	<ul style="list-style-type: none"> Secure personal portable devices and identity documents Hardware security modules Enrolment and issuance equipment/systems for access control and identify management Biometric-based security equipment/systems Network encryption equipment/systems Special casings etc. for IT hardware
Cyber security services	<i>Examples</i>
Audit, planning and advisory services	<ul style="list-style-type: none"> Security audit, vulnerability and intrusion testing, and risk and threat assessment Security strategy, planning and management advice Security certification and conformity/compliance assessment Digital forensics: post event (incident / intrusion) analysis, investigation and proof preservation Other IT/cyber security consultancy services
System integration and implementation services	<ul style="list-style-type: none"> Security engineering, design and architecture development Security project management Implementation and integration, interoperability testing Implementation support (technical assistance/expert support services)
Management and operations services	<ul style="list-style-type: none"> Security system management and operations Operational support (technical assistance/expert support services) Managed security services Secure outsourcing Continuity and recovery management Trusted third party services / E-content and e-reputation services
Security training services	<ul style="list-style-type: none"> IT / cyber-security education and training

⁹³ Distributed Denial of Service (DDoS)

List 2.

Other Security Products: broad segmentation of products, technologies and services

Other security products	Examples:
Mechanical access control, barriers, enclosures and physical resilience	<ul style="list-style-type: none"> • Locks and locking systems • Safes, strongboxes etc. • Armoured and fire-resistant doors • Mechanical seals (and electronic seals without tracking) • Physical perimeter barriers (e.g. fencing and other security barriers) • Other materials and products to enhance physical resilience to security threats (e.g. blast proofing, hardening, strengthening etc.)
Identification and authentication	<ul style="list-style-type: none"> • Electronic access control systems for buildings and other designated areas (sites and places), including with smartcards or biometric identification and authentication. • Other identification, accreditation and authentication systems for persons (including with biometrics); e.g. PIN and chip cards, identity cards, passport systems, etc. • Identification and authentication of materials, goods and equipment (e.g. vehicle recognition, protection against forgery and counterfeiting)
Intruder detection and alarm	<ul style="list-style-type: none"> • Intruder detection and alarm systems (with or without remote monitoring)
Fire detection, alarm and suppression	<ul style="list-style-type: none"> • Fire, smoke and explosion detection and alarm systems (with or without remote monitoring) • Fire suppression systems
Detection and screening for dangerous or illicit items or concealed persons	<ul style="list-style-type: none"> • Detection capabilities for dangerous/hazardous or illicit items and substances (e.g. screening of persons, baggage, cargo, etc.) • Detection capabilities for concealed persons • Specialised detection for CBRNE (chemical, biological, radiological, nuclear, and explosives) and other risks.
Observation and surveillance (localised)	<ul style="list-style-type: none"> • Video and other observation and surveillance systems (e.g. CCTV) including video analytics etc. (with or without remote monitoring). Includes surveillance systems for facilities, infrastructure and specified locations (e.g. urban areas, transport hubs, etc.)
Observation and surveillance (wide area)	<ul style="list-style-type: none"> • Large area (specialised environment) observation and surveillance systems (e.g. air, maritime and land border surveillance) for civil security purposes
Tracking and, tracing, positioning and localisation	<ul style="list-style-type: none"> • Tagging and tracing devices and systems (e.g. bar code, RFID, Wi-Fi based) • Tracking, localisation and positioning devices and systems (e.g. for cargo containers, land vehicles, ships and aircraft; such as AIS, LRIT etc.) • Tracking, localisation and positioning of persons, equipment, supplies etc. in crisis situations • Tracking, localisation and positioning of hazardous substances and devices (e.g. radioactive materials, hazardous chemicals, etc.) • Electronic seals with tracking/positioning (e.g. GPS, RFID)
Communications	<ul style="list-style-type: none"> • Communication systems for use by civil security service providers (e.g. police, fire fighters, private security services), particularly secure communication systems • Public information and situation alert communication systems
Command, control and decision support	<ul style="list-style-type: none"> • Command and control systems for use in security situations (e.g. emergency response and rescue, special security missions and crisis management) • Information management and decision support systems for use in security situations • Other tools and systems to support planning and organisation and maintaining of security (functional) capabilities; including tools for simulation, modelling, mapping etc. for security purposes
Intelligence and information gathering	<ul style="list-style-type: none"> • Intelligence and information gathering systems for security-related purposes; • Equipment and materials for security forensics

Vehicles and platforms	<ul style="list-style-type: none"> • Special land vehicles for use by civil security service providers (e.g. police, fire fighters, private security services) such as armoured vehicles, water cannon systems etc. • Aircraft (planes, helicopters) and un-manned flight systems (UAVs) for use by civil security service providers • Ships and boats for use by coastguards • Robotic platforms for use in civil security operations (e.g. bomb disarmament and disposal, search and rescue)
Protective clothing	<ul style="list-style-type: none"> • Protective and specialised clothing for use by public and private security service providers (police, fire fighters, security guards, etc.)
Equipment and supplies for security services	<ul style="list-style-type: none"> • (Other) specialised gear, equipment and supplies for law enforcement, public order and safety services, other emergency services and private security service providers (including weapons and ammunition)
Security systems integration	<ul style="list-style-type: none"> • Specific activities related to the integration of functional security systems (as separate from the supply of associated equipment and platforms)

List 3.

Private security services sector: broad segmentation

Private security services	Manpower based security services
Guarding and manning	<ul style="list-style-type: none"> Guarding and manning services (e.g. securing buildings, infrastructure, spaces and environments through the deployment of persons, including with animals). Security patrol services Protection of valuables (e.g. cash-in-transit services)
Remote monitoring	<ul style="list-style-type: none"> Remote monitoring and surveillance services
Security of persons	<ul style="list-style-type: none"> Protection of individuals or groups of persons (e.g. VIP protection services)
Detection and investigation	<ul style="list-style-type: none"> Security investigation and detective service activities
Security consultancy services	Consultancy, advisory and training services
Security consulting and advisory services	<ul style="list-style-type: none"> Risk assessment and advisory services Threat assessment and analysis Security engineering and design services Other security related consultancy and advisory services
Security training services	<ul style="list-style-type: none"> Specialised security training services Note: excludes IT security training services
Security research services	Public and private institutions engaged in security-related research activities
Technologies and technical solutions	<ul style="list-style-type: none"> Educational, academic and private institutions engaged in security-related research activities concerning the development of technologies and technical solutions.
Other research	<ul style="list-style-type: none"> Educational, academic and private institutions engaged in security-related research activities concerning, for example, social, behavioural, organisational, economic and legal aspects of security

List 4.

Public security services sector

Public security services	Providers of public order, safety, fire and other manpower-related public security services
Examples include:	<ul style="list-style-type: none"> • Regular and auxiliary police forces, special police forces, border guards, coast guards etc. • Regular and auxiliary fire brigades in fire prevention, firefighting, search and rescue, assistance in civic disasters (natural or man-made) • Other specialised fire prevention and firefighting services (e.g. airports, oil and gas, forest fires) whether or not in the public sector. • Other specialised providers of assistance and remediation services in the event of civic disasters • Technical services supporting public security services (e.g. police laboratories)
Public security intelligence and preparedness	Public administrations engaged in security intelligence and preparedness
Examples include:	<ul style="list-style-type: none"> • State intelligence services (including counter-terrorism, and intelligence on criminal and natural/man-made risks) • Public administrations (other than covered under 'Public security services') involved in security preparedness and intervention (e.g. risk assessment, contingency planning, disaster management etc.)

List 5.

Security challenges (risks and threats): broad segmentation

New security		New security threats (e.g. 'homeland security') threats and risks	
	Terrorism and extremism	<ul style="list-style-type: none"> • Terrorism of all forms • Other threats resulting from extremism and radicalisation 	
	Organised crime	<ul style="list-style-type: none"> • Organised (typically systematic) criminal activities, including crimes perpetrated by national and international organised criminal groups. 	
	Espionage	<ul style="list-style-type: none"> • Illegal activities (whether State-led or privately orchestrated) to obtain information and data. 	
	Illegal migration	<ul style="list-style-type: none"> • Risks relating to illegal or irregular migration flows; including both risks to the integrity of the State (e.g. breach of border controls) and risks to migrants themselves (e.g. migrants in distress) 	
Traditional ('ordinary') security		Traditional ('ordinary') security risks and threats	
	Ordinary criminal activities	<ul style="list-style-type: none"> • Ordinary criminal activities: e.g. theft, burglary, vandalism, petty crimes • Public order offenses 	
	Fire etc.	<ul style="list-style-type: none"> • Fire, explosions and similar risks, other than where associated specifically to other security challenges (e.g. terrorism) 	
Disasters and crises		Risks and threats stemming from natural and man-made disasters	
	Man-made disasters	<ul style="list-style-type: none"> • For example, relating to major industrial accidents (including, with release of hazardous materials) or failure of complex industrial systems and critical/essential infrastructure (e.g. failures of communication and energy networks) 	
	Natural disasters	<ul style="list-style-type: none"> • For example, relating to geological (earthquakes, volcanic activity) and climate-related risks (e.g. floods, storms, forest fires) 	
	Epidemiological threats	<ul style="list-style-type: none"> • For example, relating to serious outbreaks (pandemics) of infectious diseases <p>NB: Outside the scope of the survey</p>	
State conflicts		Military threats (i.e. external security threats)	
	State conflicts	<ul style="list-style-type: none"> • Threats associated to conflicts between or within States or resulting from state failure. Essentially this concerns threats that fall primarily within the scope of national defence (i.e. within the competence of military forces) <p>NB: Outside the scope of the survey</p>	

List 6.

Security market: broad segmentation

Security industry (supply chain)	Providers of security systems, sub-systems, products, equipment and technologies and associated services*	
Cyber security industry	<ul style="list-style-type: none"> Providers of products used for the security of IT systems, electronic data storage, and electronically processed or communicated information 	See List 1
Other security industry	<ul style="list-style-type: none"> Providers of products used for the (physical) security of persons, tangible property and assets, infrastructures and environments 	See List 2
Private security services sector	<ul style="list-style-type: none"> Private security services, security consultancy services and security research services 	See List 3
	* Concerns intra-industry supply of products whereby a company sells products or services to other companies active in the security industry (e.g. acts as a sub-contractor or supplier of components or sub-systems for inclusion within integrated systems delivered by prime contractors)	
Public administrations and services	Public administrations and service providers (including education and health services)	NACE
Defence	<ul style="list-style-type: none"> Administration, supervision and operation of military defence affairs and land, sea, air and space defence forces 	84.22
Public security service providers	<ul style="list-style-type: none"> Public security services, public security intelligence and preparedness services 	See List 4
Public administrations	<ul style="list-style-type: none"> Public administrations (central, regional or local) other than defence, public order, safety and fire service activities (<i>above</i>) 	84 (ex. 84.22, 84.24, 84.25)
Health and education	<ul style="list-style-type: none"> Human health services whether public or private (hospitals etc.) Education services whether public or private (schools, universities etc.) 	85, 86
Critical infrastructure sectors	Economic sectors providing assets and systems deemed to essential for the maintenance of vital societal functions	NACE
Transport	<ul style="list-style-type: none"> Aviation sector (airports and air transport services) Maritime sector (ports and marine transport services) Inter-urban and urban mass transit systems (public transport hubs, networks and services) 	49.1, 49.2, 49.31, 50.1, 50.2, 51 (ex. 51.22)
	<ul style="list-style-type: none"> Other transport sectors and related activities associated to the preservation of the security of supply chains 	49.4, 49.5, 50.4, 52, 53
Energy and water	<ul style="list-style-type: none"> Electricity generation and distribution Gas transport, storage and distribution Water capture, storage, treatment and distribution 	35, 36, 37
Communications and information	<ul style="list-style-type: none"> Telecommunication infrastructure and systems Public broadcasting (radio and television) 	60, 61
Finance	<ul style="list-style-type: none"> Banking, securities and investment services Insurance and reinsurance 	64 - 66
Other economic sectors	Other economic sectors	NACE
Primary sectors	<ul style="list-style-type: none"> Agriculture, forestry, fishing, Mining and quarrying 	01 - 03 05 - 09
Manufacturing	<ul style="list-style-type: none"> Manufacturing sectors other than: <ul style="list-style-type: none"> Physical security industry (<i>above</i>) Cyber security (hardware) industry (<i>above</i>) 	10 - 33

	Construction	<ul style="list-style-type: none"> • Construction of buildings • Civil engineering • Specialised construction activities 	41 - 43
	Real estate and property management	<ul style="list-style-type: none"> • Buying, selling, renting and operating real estate 	68
	Wholesale and retail distribution	<ul style="list-style-type: none"> • Wholesale and retail sale (i.e. sale without transformation) of goods 	45 - 47
	Hotels, restaurants and leisure services	<ul style="list-style-type: none"> • Short-stay accommodation for visitors and travellers; food and beverage services; arts, entertainment and recreation services 	55, 56; 90, 91, 93; 59.14
	Professional, business and other market services	<ul style="list-style-type: none"> • Professional and other business services other than: <ul style="list-style-type: none"> ◦ Cyber security services (<i>above</i>) ◦ Private security services (<i>above</i>) • Other markets services (i.e. services not covered elsewhere): 	62-63; 69-75; 77-79; 81-82
	Private citizens and households	Private citizens and households acting in individual/personal capacity	NACE
	Citizens and households	<ul style="list-style-type: none"> • Private individuals and households 	N.A.



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