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

Security Sector Survey Analysis: Italy

Client: European Commission DG Migration and Home Affairs

Brussels, April 2015

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

Security Sector Survey Analysis: Italy

Client: European Commission DG Migration and Home Affairs

Brussels, April 2015

About Ecorys

At Ecorys we aim to deliver real benefit to society through the work we do. We offer research, consultancy and project management, specialising in economic, social and spatial development. Focusing on complex market, policy and management issues we provide our clients in the public, private and not-for-profit sectors worldwide with a unique perspective and high-value solutions. Ecorys' remarkable history spans more than 85 years. Our expertise covers economy and competitiveness; regions, cities and real estate; energy and water; transport and mobility; social policy, education, health and governance. We value our independence, integrity and partnerships. Our staff comprises dedicated experts from academia and consultancy, who share best practices both within our company and with our partners internationally.

Ecorys Netherlands has an active CSR policy and is ISO14001 certified (the international standard for environmental management systems). Our sustainability goals translate into our company policy and practical measures for people, planet and profit, such as using a 100% green electricity tariff, purchasing carbon offsets for all our flights, incentivising staff to use public transport and printing on FSC or PEFC certified paper. Our actions have reduced our carbon footprint by an estimated 80% since 2007.

ECORYS Nederland B.V.
Watermanweg 44
3067 GG Rotterdam

P.O. Box 4175
3006 AD Rotterdam
The Netherlands

T +31 (0)10 453 88 00
F +31 (0)10 453 07 68
E netherlands@ecorys.com
Registration no. 24316726

W www.ecorys.com

Table of contents

Preface 5

1 Introduction 7
1.1 General context 7
1.2 Aim of this report 8
1.3 Structure of the report 8

2 Survey overview 9
2.1 Survey implementation 9
2.2 Survey population 9
2.3 Coverage and response rate 9
2.4 Survey instrument and method 10
2.5 Field report 10
2.5.1 Field time 10
2.5.2 Length of interviews 10
2.6 Data preparation and testing 10

3 Descriptive analysis 11
3.1 Security 'threat' categories 11
3.2 Areas of economic activity 12
3.3 Broad segmentation of security products and services 13
3.4 Cyber security 15
3.4.1 Cyber security products and services 15
3.4.2 Cyber/IT business activities 17
3.5 'Other' security product providers 18
3.5.1 'Other' security products 18
3.5.2 'Other' security products business activities 20
3.6 'Other' security service providers 21
3.6.1 'Other' security services 21
3.7 Security market by economic sector (end-user) 23
3.7.1 Overall – all products and services 23
3.7.2 Breakdown by main broad category of security products and services 24
3.8 Security market by geographical region 27
3.8.1 Geographical markets – all products and services 27
3.8.2 Breakdown by main broad category of security products and services 28
3.9 Firm structure: employment and turnover 30
3.9.1 Employment 30
3.9.2 Turnover 31
3.10 Growth performance and prospects 33
3.10.1 Past turnover growth performance 33
3.10.2 Future turnover growth prospects 34
3.10.3 Future demand prospects by broad customer group and geographical area 36
3.11 Competitors 39
3.11.1 Geographical origin of main competitors – all products and services 39
3.11.2 Breakdown by main broad category of security products and services 40
3.11.3 Future competition prospects by geographical origin of main competitors 41

4 Aggregate estimates of the size of the security industry 43
4.1 Overview of approach 43
4.2 Method for the estimation of turnover and employment for the survey sample 44
4.2.1 Underlying assumptions 44
4.2.2 Estimation of turnover for non-declaring respondents 44
4.2.3 Estimation of employment levels for employment-size class '1000 or more employees' 45
4.2.4 Estimation of sample average values of employment and turnover per firm 45
4.3 Method for the initial estimation of aggregate turnover and employment 46
4.3.1 Underlying assumptions 46
4.3.2 Calculation of the initial estimate of the population of security companies 46
4.3.3 Calculation of initial estimates of aggregate (national) turnover and employment 46
4.4 Variants and sub-groups 47
4.4.1 Adjustment for possible defence-related turnover and employment (variant) 47
4.4.2 Estimation of turnover and employment by main broad industry category (sub-groups) 47
4.5 Size of the security industry: survey estimates and aggregate (national) extrapolation. 48

Annexes 59

Product and services segmentation 60

Market Segmentation 63

Preface

This Background Report has been produced as part of the study on “Development of statistical data on the European security technological and industrial base” commissioned by the European Commission within the Framework Contract on Security (ENTR/09/050) between the European Commission and a consortium led by Ecorys Nederland B.V. in collaboration with TNO and DECISION.

The Background Report provides an overview of initial findings from a survey of companies active in the (civil) security sector in Italy. It is one of a series of reports covering findings from surveys conducted for: Estonia, France, Italy, Poland, Spain and the United Kingdom. The survey design and subsequent data analysis has been undertaken by Ecorys, while the actual surveying of companies has been conducted by GfK, a specialist market research company. The individual country surveys of companies have been conducted over the period October 2014 to February 2015.

To obtain comparable data for Germany, Ecorys has collaborated with the Brandenburg Institute for Society and Security (BIGS) who have conducted a similar survey based on a common survey questionnaire design. This survey has been implemented as a follow-up round to previous surveys of companies active in the (civil) security sector in Germany undertaken by BIGS.

The survey findings described in this Background Report – and in the other accompanying country reports – aim to contribute to a better understanding the structure, size and development of the security sector in the EU. In this regard, comments and feedback on this report are welcomed. Similarly, if you are interested in obtaining more information on this report, on the overall study or, more broadly, on our work on the security sector, please contact the study team.

Study Team

- Roelof-Jan Molemaker (Director): Roelof-Jan.Molemaker@ecorys.com
- Paul Baker (Associate): baker.paul.s@gmail.com
- Andreas Pauer (Consultant): Andreas.Pauer@be.ecorys.com
- Olga Abramczky (Consultant): Olga.Abramczyk@be.ecorys.com
- Rachel Beerman (Consultant): Rachel.Beerman@ecorys.com

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 sector[1,2]. 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". Responding to the Communication, the European Economic and Social Committee (EESC)[3] also placed emphasis on the need for relevant, detailed statistics looking at security sectors companies, not least, of their production, workforce and size.[4]

In light of the above, as part of its Security Research Programme for 2013[5], the European Commission set out its intention to launch a study for '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.

In September 2013, under the Framework Contract ENTR/09/050 the European Commission requested that Ecorys prepare a proposal for a study on the "Development of statistical Data on the European Security and Technological Base". The subsequent proposal was approved in December 2013, with implementation of the study commencing in January 2014. The study has been divided into 2 main phases:

- *Phase I* covers preparatory activities leading to an 'Implementation Plan' for the development of statistical data on the security industry;
- *Phase II* will cover the implementation of the tasks and activities elaborated in the 'Implementation Plan' and as agreed with the Commission services.

Phase I of the study was completed and approved in November 2014. Phase II of the study is planned to be completed by the end of May 2015.

[1] (European Commission, 2012a).
[2] (European Commission, 2012b).
[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] (European Commission, 2012c).

1.2 Aim of this report

The aim of this report is to provide an overview of the main patterns revealed by a survey of companies active in the (civil) security sector in Italy. The 'Security Sector Survey for Italy' – hereafter *Ecorys SSS Italy* – was commissioned by Ecorys and undertaken by GfK in January 2015.

The analysis in this report focuses, firstly, on providing a description of the structure of the security industry in terms of:

- supply of products and services;
- segmentation of the security market by economic sector (end users);
- segmentation of the security market by geographical region, including the share of exports;
- industry structure by firm size (employment and turnover);
- growth performance and prospects;
- geographical composition of main competitors and prospects for future competition.

In addition, a second aim of the analysis is to support efforts to extrapolate survey findings to arrive at estimates of the overall size of the Italian security sector in terms of employment and turnover.

1.3 Structure of the report

The structure of the report is as follows:

- Chapter 2 provides an overview of the survey approach and outcomes;
- Chapter 3 provides a descriptive analysis of the survey results;
- Chapter 4 provides an assessment of the overall size of the Italian security sector based on an extrapolation of survey results.

2 Survey overview

***Note**: the following information is primarily taken from the GfK 'Methods Report' provide to Ecorys in January 2015.*

2.1 Survey implementation

Ecorys, working on behalf of the European Commission, commissioned GfK to undertake a survey - carried out via 'Computer Aided Telephone Interviews' (CATI) - of companies in the security industry.

2.2 Survey population

Ecorys established a list of companies that a priori are active in the security sector. The list of companies (including business addresses and contact details) was primarily collected from published lists of members of relevant business associations available from the internet, together with supplementary searches of the internet based on relevant search criteria. The address list consisted of 4,497 records, which can be considered as the target group for the study.

2.3 Coverage and response rate

A total of n = 503 completed interviews could be conducted by GfK.[6] To achieve this net sample, GfK's field organisation tried to contact all 4,497 companies. Details of the response rate are provided below.

Table 2.1 Coverage and response rate

	Total	% of total
Total sample provided	4,497	100%
Survey achieved	503	11%
Sample not yet dialed	256	6%
Dialed sample still active	1,385	31%
Screening failures	100	2%
Refusals	1,542	34%
Other non-response	678	15%
Incorrect phone numbers	33	1%
Sample conversion	6	
Refusal rate	75%	
Response rate	11%	
Incidence	83%	
Explanation of calculations: Sample conversion: total sample provided (4,497) – Dialed sampled still active (1,385)/surveys achieved (503) Refusal rate: Refusals (1,542)/[Refusals (1,542) + surveys achieved (503)] Response rate: surveys achieved (503)/total sample provided (4,497) Incidence: surveys achieved (503)/[surveys achieved (503) + Screening failures (100)]		

Source: GfK

[6] Of this sample, 2 companies have been excluded from the subsequent analysis in this report due to the large number of questions to which no responses were provided. Consequently the net sample used in the subsequent analysis is n = 501.

2.4 Survey instrument and method

All interviews were conducted via CATI (Computer Assisted Telephone Interviews). By default GfK uses an Auto-Dialing-System in order to ensure an optimal exploitation of the sample and a maximum of realised interviews. Especially in B2B surveys, this is of great importance, as it allows to identify non-existent numbers technically and to manage appointments efficiently. Furthermore the CATI survey allows to make automated plausibility checks already during the interview, e.g. by identifying typos from respondents entering unrealistic numerical values. In addition, the correct sequence of the interview was ensured via programmed filter guides. This proceeding significantly reduced the cleanup effort after the survey and maximized the number of realized interviews.

The questionnaire was developed and finally signed off by ECORYS and was programmed by GfK as CATI script. Before signing off the questionnaire it was submitted to the European Commission services for their approval.

The used questionnaire was sub-divided into the following main areas:

- Screening (Company);
- Product portfolio;
- Market breakdown;
- Company size (employment and turnover);
- Growth performance prospects;
- Competitors.

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 was provided 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.

2.5 Field report

2.5.1 Field time

The fieldwork was conducted in the period from January 15, 2015 – January 30, 2015. In general, the interviews of this B2B-survey were done on working days only.

2.5.2 Length of interviews

The average duration of the 503 interviews in Italy was 22.4 minutes.

2.6 Data preparation and testing

The collected data was provided by GfK's field organization to the project managers at GfK as a labelled SPSS data set. In the context of GfK´s standard quality assurance procedure a comprehensive plausibility check was made. Special attention was paid to the check whether all filter questions were implemented correctly in the programmed questionnaire. The final data was sent to ECORYS as a labelled SPSS data set.

3 Descriptive analysis

3.1 Security 'threat' categories

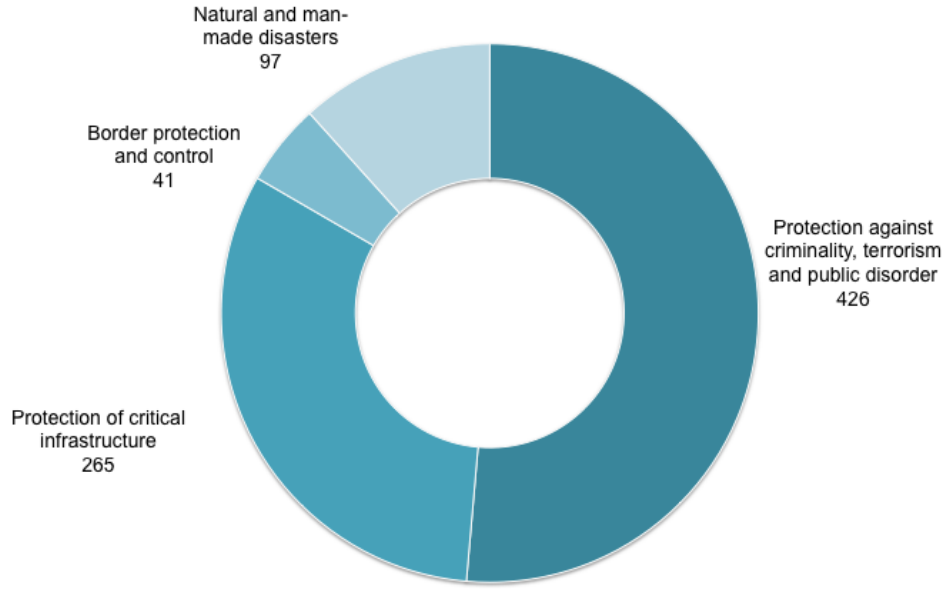
Respondents to the survey were requested to identify whether they offered products and/or service(s) for use in the following areas ('threat categories'):

- Protection against criminality, terrorism or public disorder;
- Protection of critical infrastructure;
- Border protection and control;
- Preparation for or response to natural and/or man-made disasters.

Note: multiple responses allowed.

Figure 3.1 shows the number of respondents that indicated being active in each area of security ('threat categories'). Approximately 85% of surveyed organisations supply products and services for '*protection against criminality, terrorism or public disorder*'. By contrast, less than 10% of organisations are active in the supply of products and services for '*border protection and control*'. See Table 3.1 for underlying data.

Figure 3.1 Supply of products and services by 'threat category' (number of responses)



Source: Ecorys SSS (Italy)

Table 3.1 Supply of products and services by 'threat category'

	Affirmative responses	Share of affirmative responses	Share of respondents
Protection against criminality, terrorism, public disorder	426	51.4%	85.0%
Protection of critical infrastructure	265	32.0%	52.9%
Border protection and control	41	4.9%	8.2%
Natural and man-made disasters	97	11.7%	19.4%

Source: Ecorys SSS (Italy)

3.2 Areas of economic activity

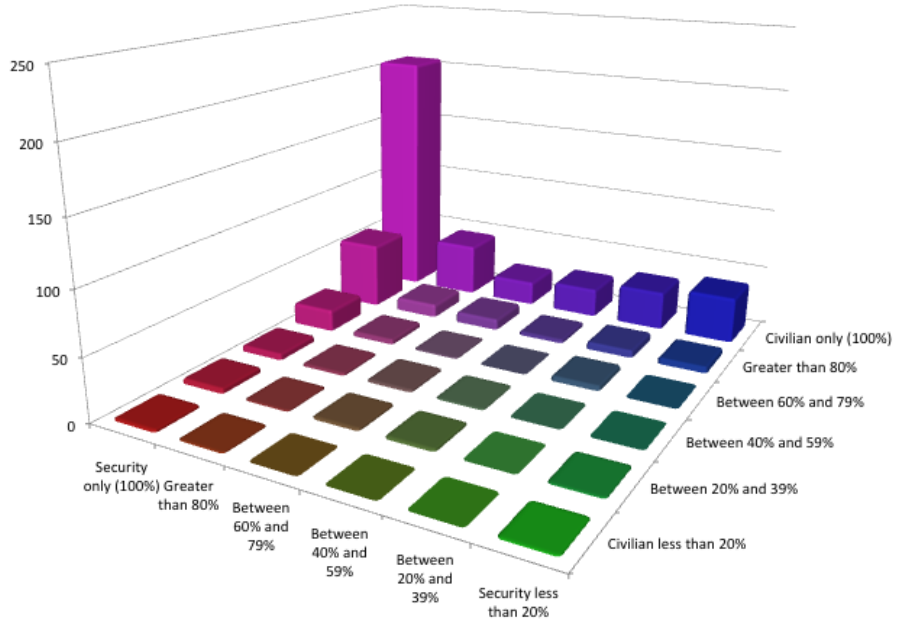
Respondents to the survey were requested to provide information on:

- the proportion of their activities relating to the offer of security-related products and services;
- the proportion of their security-related activities relating to the civilian (as opposed to military) sector.

Note: Firms with security-related activities concerning purely the military sector are excluded from the survey.

Figure 3.2 shows a cross tabulation of the proportion of respondents business activities that relate to the supply of security-related products and services and the relative orientation of this supply between civilian and military markets. Just over 200 respondents (41% of the sample) are specialised exclusively in the supply of security products and services to the civil (non-military) security area. More than half of respondents (57%) supply only security-related products and services, while a substantially larger proportion (72%) supply their security products and services only to the civil sector. See Table 3.2 for underlying data.

Figure 3.2 Composition of survey sample by area of economic activity (number of respondents)



Source: Ecorys SSS (Italy)

Table 3.2 Composition of survey sample by area of economic activity

Share of activities related to the civilian sector	Share of security-related products and services						Total
	Security only (100%)	Greater than 80%	60% to 79%	40% to 59%	20% to 39%	Less than 20%	
Civilian only (100%)	40.8%	8.7%	4.0%	4.8%	6.4%	7.6%	**72.2%**
Greater than 80%	10.9%	2.2%	1.8%	0.6%	1.2%	1.0%	**17.7%**
60% to 79%	3.6%	0.8%	0.2%	0.0%	0.8%	0.0%	**5.4%**
40% to 59%	1.0%	0.4%	0.4%	0.2%	0.0%	0.0%	**2.0%**
20% to 39%	0.8%	0.2%	0.4%	0.4%	0.0%	0.2%	**2.0%**
Less than 20%	0.4%	0.2%	0.0%	0.0%	0.0%	0.2%	**0.8%**
Total	**57.5%**	**12.5%**	**6.8%**	**6.0%**	**8.3%**	**8.9%**	**100.0%**

Source: Ecorys SSS (Italy)

Feedback from stakeholders

The civil security and the defence industry are well separated in Italy. Companies usually provide services or products for one or the other.

3.3 Broad segmentation of security products and services

Respondents were requested to indicate the types of security products and services they offered based on the following broad categories:

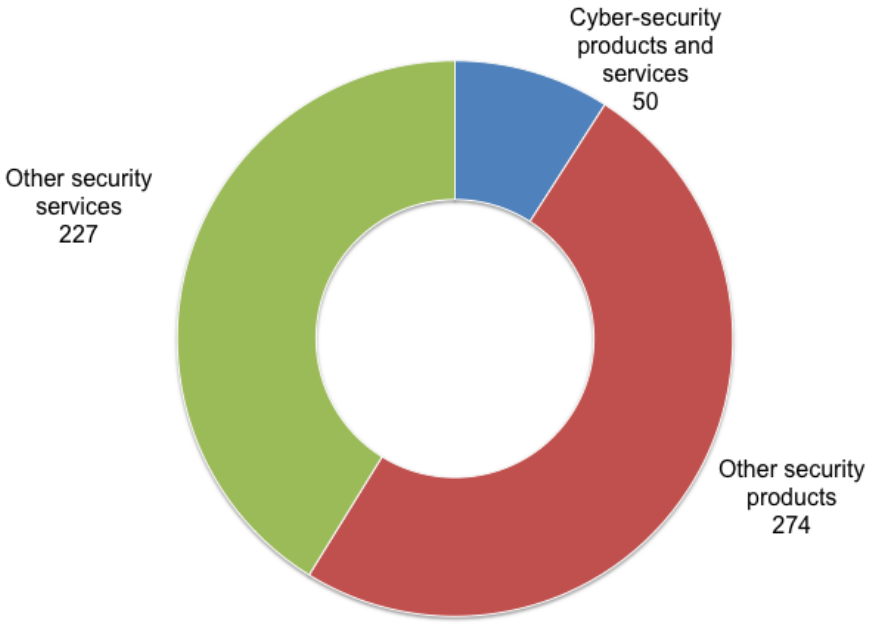
- Cyber-security products and services
- Other security products
- Other security services

Note: multiple responses allowed. Where multiple categories were given, respondents were requested to indicate the most important category.

Figure 3.3 shows the number of respondents that indicate being active in each broad industry category. The most common category is '*other security products*', with 71% of surveyed organisations indicating that they are active in this area, followed by '*other security services*' (58%). Less than a fifth (12%) of respondents offers '*cyber security products and services*'.

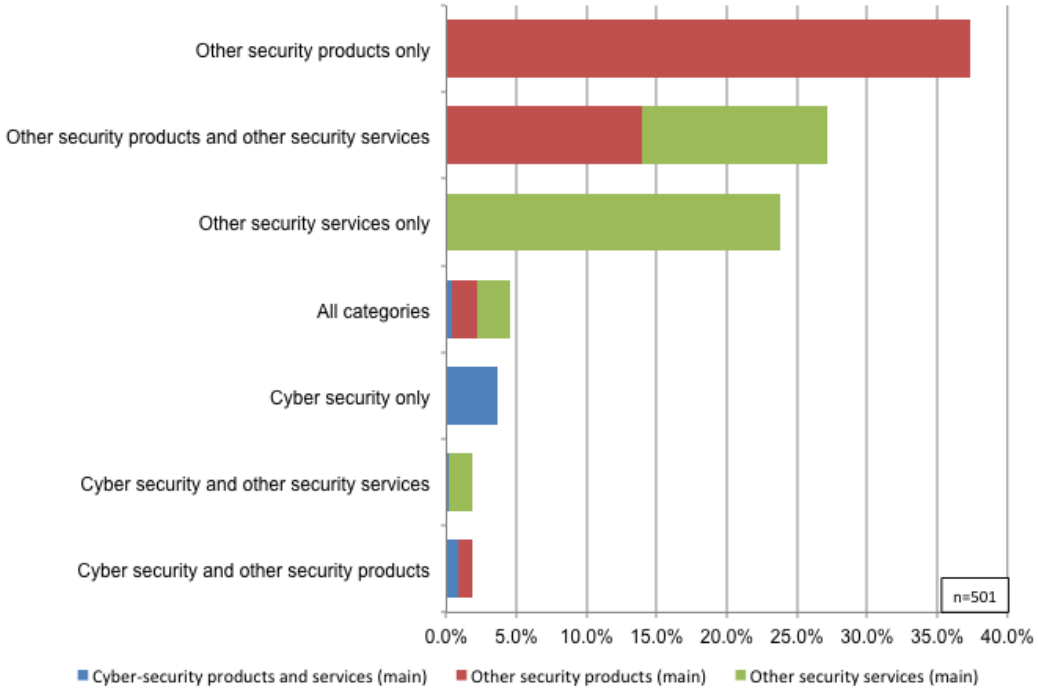
Allowing for the fact that respondents may be active in more than one broad industry category, Figure 3.3 shows the composition of the sample according to the scope of broad industry categories where they are active and, where relevant, their most important category. Just under two-thirds of respondents (65%) are active only in one segment, while the most common combination of categories occurs between 'other' security products and 'other' security services. More than a third of organisations are active exclusively in the area of '*other security products*' (37% of respondents), just under a fourth are active exclusively in the area of '*other security services*' (24%), and a further 27% of respondents are being active in both the supply of '*other security products*' and '*other security services*'. Overall, more than half of respondents (54%) indicate that their main broad category of security activity is '*other security products*', roughly two-fifths (41%) indicate '*other security services*' and only 5% indicate '*cyber security products and services*' as their main broad area of security activity while a further 7% indicate being active in the area of cyber-security and one or both of the remaining broad industry categories. See Table 3.3 for underlying data.

Figure 3.3 **Supply of products and services by 'broad industry category' (number of responses)**



Source: Ecorys SSS (Italy)

Figure 3.4 **Composition of the sample by scope of 'broad industry categories' offered.**



Source: Ecorys SSS (Italy)

Table 3.3 **Composition of survey sample by broad industry categories (% of respondents)**

	Main broad industry category			Total
	Cyber-security products and services	Other security products	Other security services	
Cyber security only	3.6%			**3.6%**
Other security products only		37.3%		**37.3%**
Other security services only			23.8%	**23.8%**
Cyber security and other security products	0.8%	1.0%		**1.8%**
Cyber security and other security services	0.2%		1.6%	**1.8%**
Other security products and other security services		14.0%	13.2%	**27.1%**
All categories	0.4%	1.8%	2.4%	**4.6%**
Total	**5.0%**	**54.1%**	**40.9%**	**100.0%**

Source: Ecorys SSS (Italy)

Feedback from stakeholders

The Italian sector is (in particular on its services side) going through fundamental changes. These are the consequence of a ruling of the European Court of Justice in 2007 CASE C-465/05 regarding an Italian law from 1931. It states that the Italian Republic has failed to fulfil its obligations under Articles 43 EC and 49 EC. The ECJ argues that there are restrictive barriers to enter the Italian market which cause inequality between Italians and other EU citizen. On of the key issues causing in addition a regional fragmentation was that licenses to provide services needed to be requested at the Prefetto responsible for a region.
Following the ruling Italy started a reform process opening up the market which started in 2008 and is still on-going.

In addition to the changes due to the ruling of the ECJ, Italy is moving slowly away from a very strong public security focus allowing more private involvement (e.g. on airports). Ports e.g. are still under public security.

3.4 Cyber security

3.4.1 Cyber security products and services

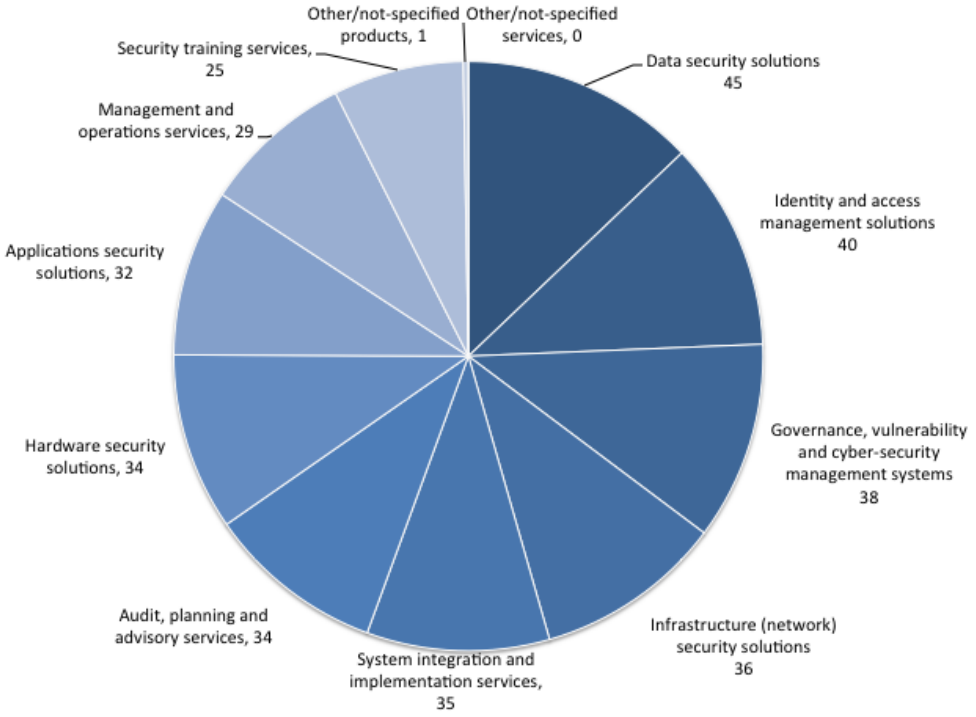
Respondents that indicated that they offer IT/cyber security products and services were requested to indicate the types of products and services offered (see Annex 0 for the segmentation of security products and services).

Note: multiple responses allowed. Where multiple categories were given, respondents were requested to indicate the three most important categories (using a ranking of most important category to 3rd most important category).

Figure 3.5 shows the number of respondents offering different categories of IT/cyber security products and services while Figure 3.6 further breakdowns this information according to whether respondents identify the category among the most important products or services offered. The most frequently cited products and services are '*data security solutions*', '*identity and access management solutions*' and '*governance, vulnerability and cyber-security management systems*', which are offered by two-thirds or more of respondents offering IT/cyber security products and services. Of these, the most common is '*data security solutions*', which is indicated by 78% of 'cyber security respondents' and constitutes the most important cyber security product or service offered by a third of respondents. The picture is not much changed when taking into account

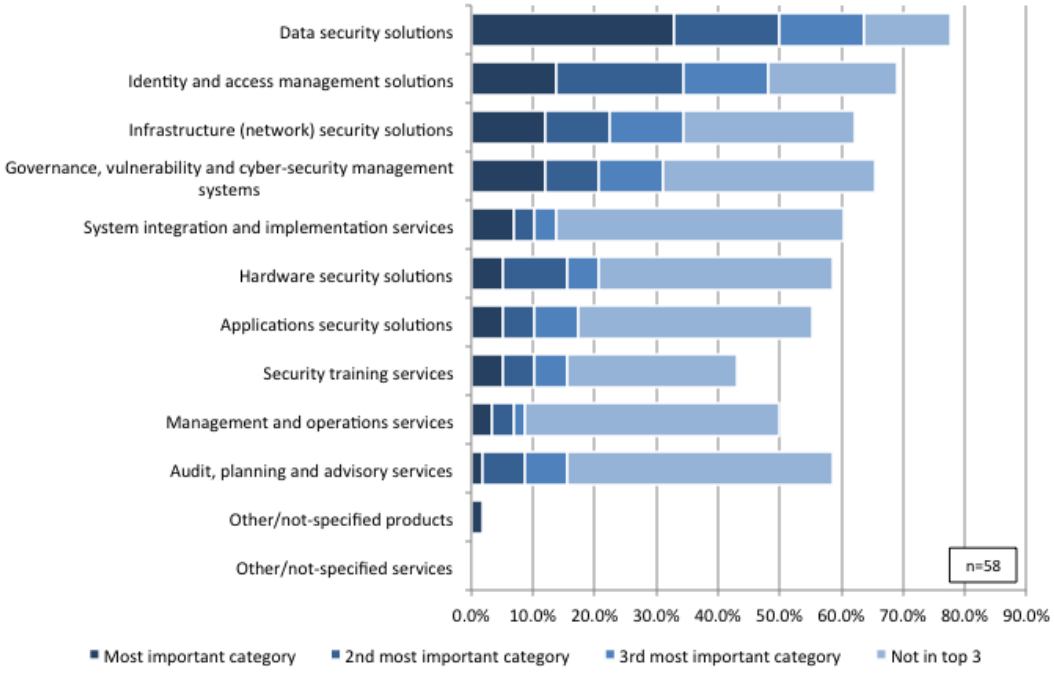
responses on the most important product or service offered: '*identity and access management solutions*' and '*governance, vulnerability and cyber-security management systems*' are also ranked second and third with respect to respondents' main (most important) product or service offered (e.g., 14% and 12%, respectively); '*infrastructure (network) security solutions*' is also indicated by 12% of organisations as their most important product or service.

Figure 3.5 Cyber-security products and services (number of respondents)



Source: Ecorys SSS (Italy)

Figure 3.6 Cyber security products and services (% of respondents)



Source: Ecorys SSS (Italy)

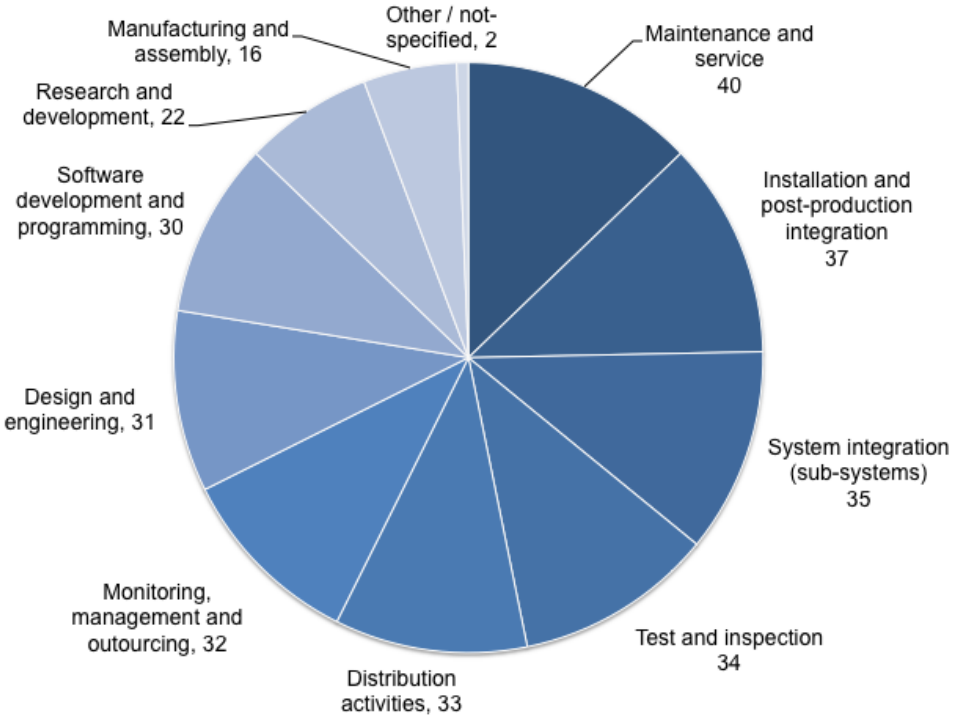
3.4.2 *Cyber/IT business activities*

Respondents that indicated that they offer IT/cyber security products and services were requested to indicate the types of business activities that they engage in.

Note: multiple responses allowed. Where multiple activities were given, respondents were requested to indicate the three most important activities (using a ranking of most important activity to 3rd most important activity).

Figure 3.7 and Figure 3.8 show respectively the number of respondents indicating that they engage in different categories of cyber security business activities and the breakdown according to their ranking of the importance of different activities. The most frequently cited activities are '*maintenance and service'* and '*installation and post-production integration*', both offered by more than 60% of respondents.

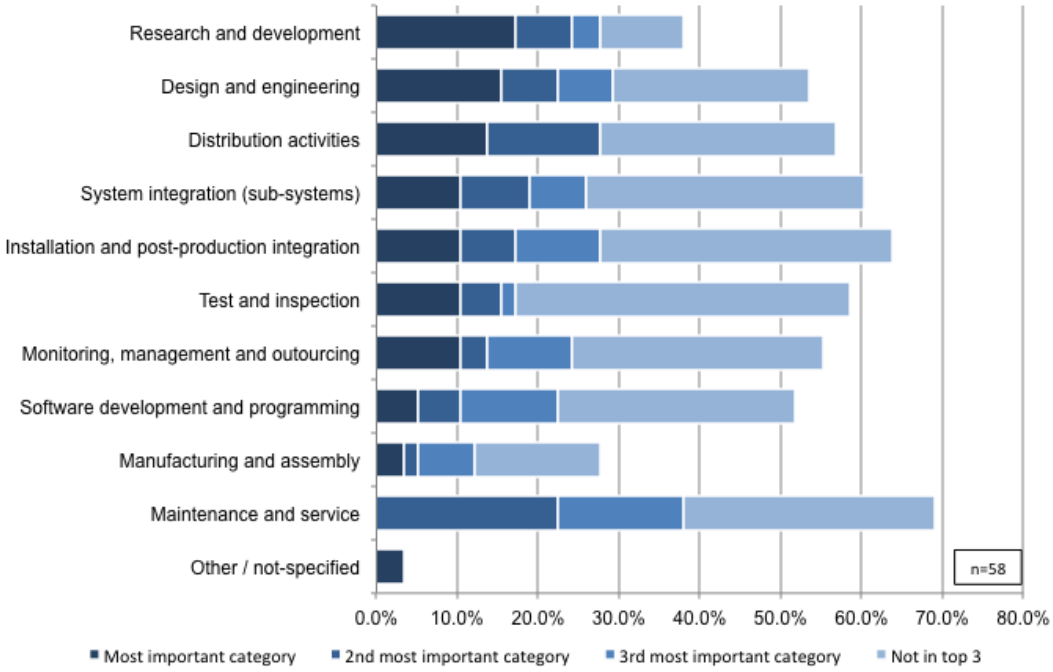
Figure 3.7 Cyber security business activities (number of respondents)



Source: Ecorys SSS (Italy)

Taking account of respondents' ranking of their main (most important) business activity, a different picture emerges. For example, although only 38% of respondents are engaged in '*research and development*' activities, this business activity is the most frequently cited by respondents as their most important business activity (17% of respondents). The second ranked business activity in terms of importance is '*design and engineering*', indicated by 16% of respondents as their most important business activity. Overall, just over half of cyber-security respondents engage in this activity. By way of contrast, '*maintenance and service*' activities are offered by 69% of respondents but represent the most important business activity of 0%; this category is, however, indicated as the second most important business activity for 22% of organisations. Similarly, '*installation and post-production integration*' is indicated by just under two-thirds of respondents (63%) but represents the most important activity type by only 10% of respondents offering IT/cyber-security products and services.

Figure 3.8 Cyber security business activities (% of respondents)



Source: Ecorys SSS (Italy)

3.5 'Other' security product providers

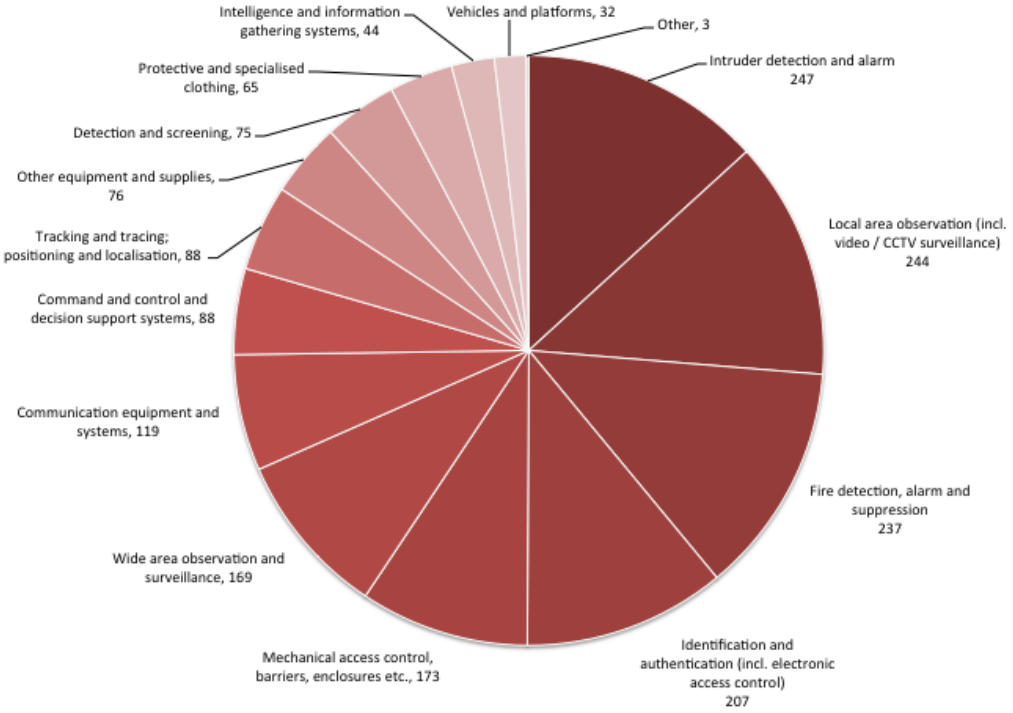
3.5.1 'Other' security products

Respondents that indicated that they offer 'other' security products were requested to indicate the types of products offered (see Annex 0 for the segmentation of security products and services).

Note: multiple responses allowed. Where multiple categories were given, respondents were requested to indicate the three most important categories (using a ranking of most important category to 3rd most important category).

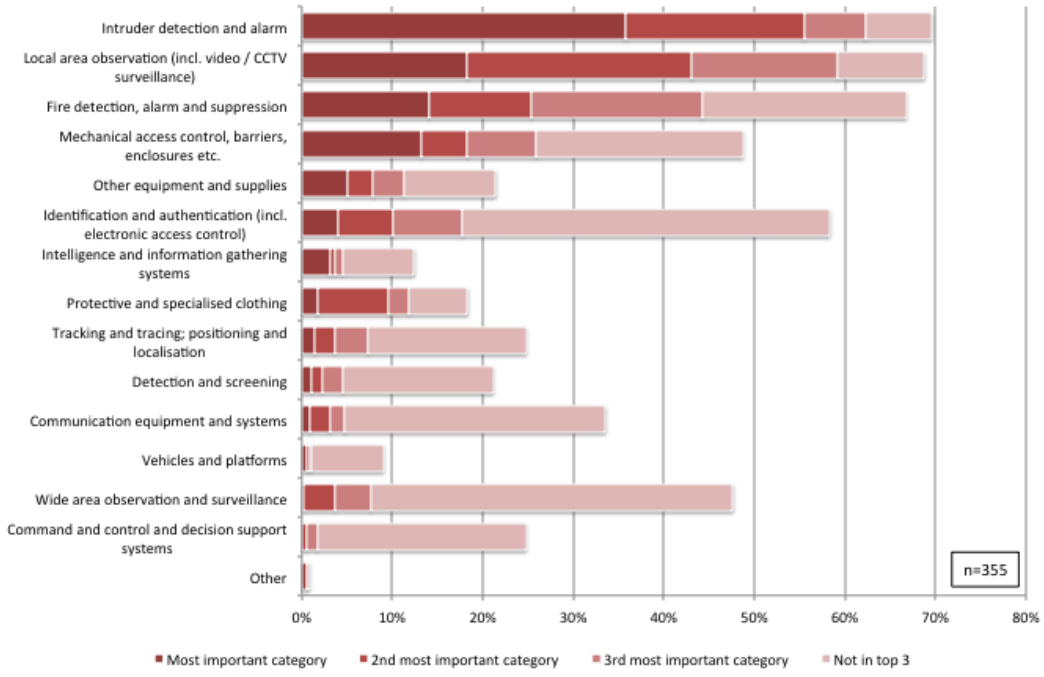
Figure 3.9 shows the number of respondents offering different categories of other security products, while Figure 3.10 further breakdowns this information according to whether respondents identify the category among the most important products offered. The most important product categories are '*intruder detection and alarm'*, '*local area observation (including video/CCTV surveillance)*' and '*fire detection, alarm and suppression'*, which are all cited by more than two-thirds of respondents. The picture was not much changed when taking into account responses on the main (most important) product category, with '*intruder detection and alarm*' as the most frequently cited (36% of respondents) followed by '*local area observation (including video/CCTV surveillance)*' (18%) and '*fire detection, alarm and suppression'* (14%). By way of contrast, '*identification and authentication (including electronic access control)'* is offered by 58% of respondents but represents the most important product category for only 4% of respondents.

Figure 3.9 'Other' security products (number of respondents)



Source: Ecorys SSS (Italy)

Figure 3.10 'Other' security products (% of respondents)



Source: Ecorys SSS (Italy)

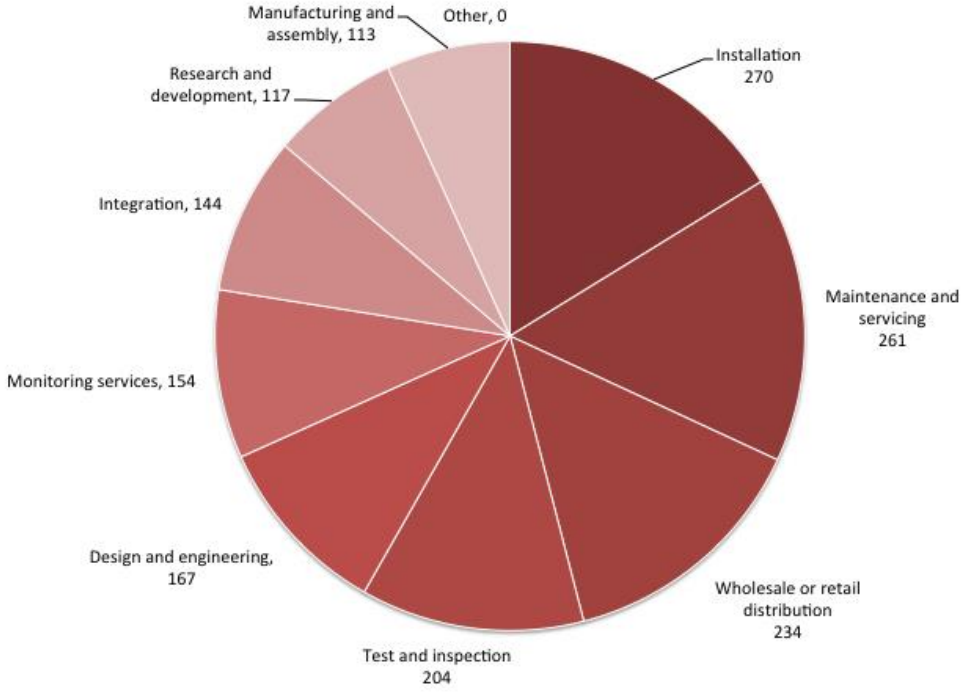
3.5.2 *'Other' security products business activities*

Respondents that indicated that they offer 'other' security products were requested to indicate the types of business activities that they engage in.

Note: multiple responses allowed. Where multiple activities were given, respondents were requested to indicate the three most important activities (using a ranking of most important activity to 3rd most important activity).

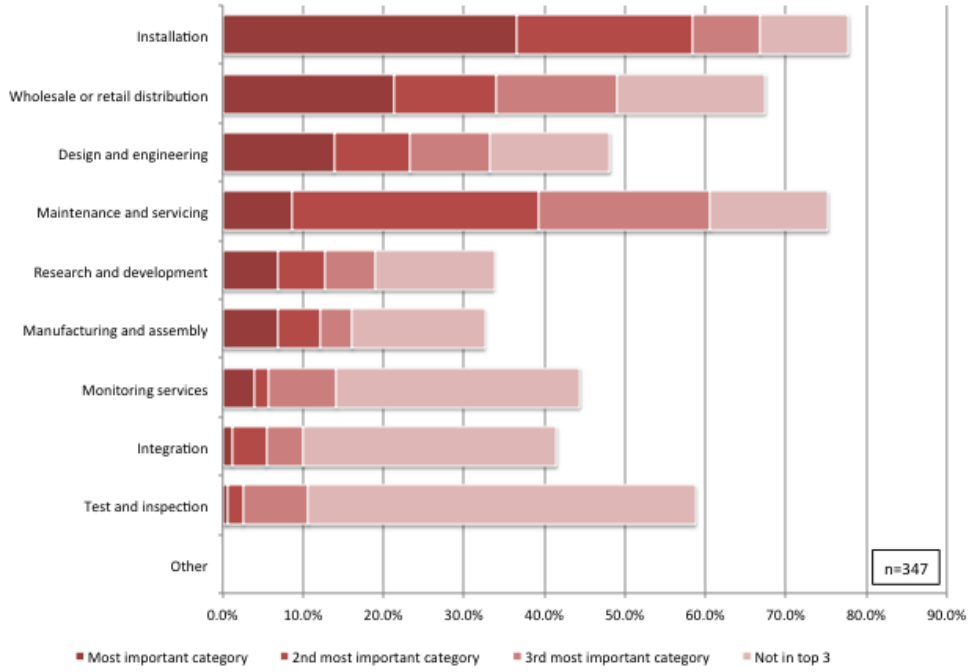
For respondents offering 'other' security products, the most common business activities are '*installation*', '*maintenance and servicing*' and *'wholesale or retail distribution'*, which are all cited by more than two-thirds of respondents. Of these, the most frequently cited main business activity is '*installation*', which is indicated by more than a third of respondents (37%), followed by '*wholesale or retail distribution'* with 21% despite it being indicated by less than a half of respondents overall. '*Design and engineering*' features prominently, with nearly a quarter of respondents indicating that this is either their most important or 2nd most important business activity. By contrast, only 9% of respondents rank '*maintenance and servicing*' as their most important business activity; however, taking into account the second most important business activity, more than a third of respondents (39%) indicate '*maintenance and servicing'* among their top two business activities.

Figure 3.11 'Other' security products business activities (number of respondents)



Source: Ecorys SSS (Italy)

Figure 3.12 'Other' security products business activities (% of respondents)



Source: Ecorys SSS (Italy)

3.6 'Other' security service providers

3.6.1 'Other' security services

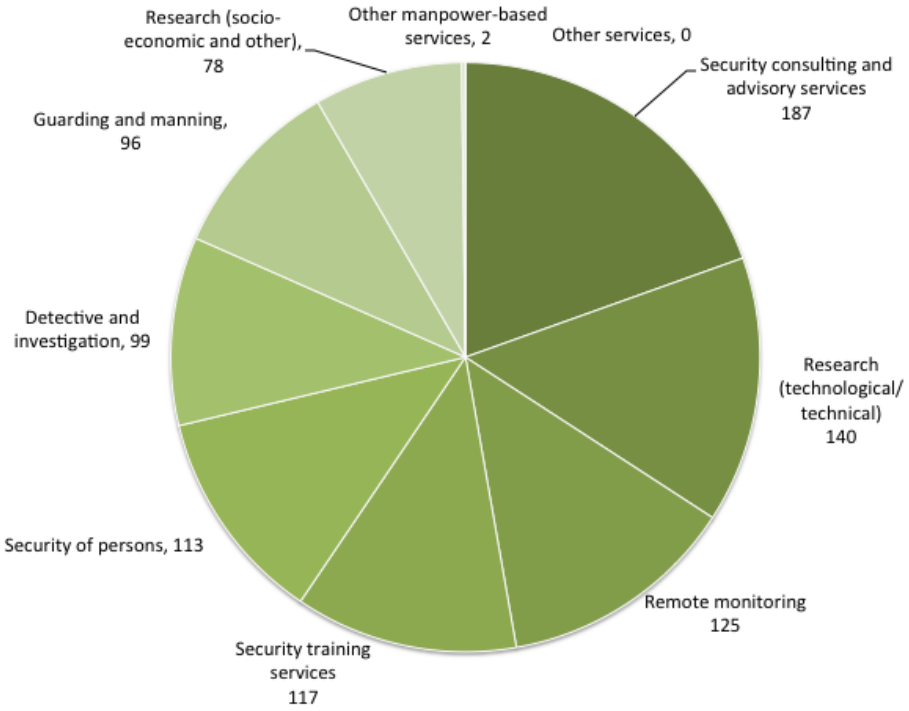
Respondents that indicated that they offer 'other' security services were requested to indicate the types of services offered (see Annex A.1 for the segmentation of security products and services.

Note: multiple responses allowed. Where multiple categories were given, respondents were requested to indicate the three most important categories (using a ranking of most important category to 3rd most important category).

Figure 3.13 shows the number of respondents offering different categories of 'other' security services while Figure 3.14 further breaks down this information according to whether respondents identify the category among the most important services offered. The most common service category is *'security consulting and advisory services',* which is indicated by approximately 66% of respondents offering 'other' security services. The second most common 'other' service offered is '*research (technological/technical)*', which is indicated by just under half of respondents (49%).

Taking into account respondents' ranking of their main (most important) security service offered, a slight different picture emerges. Fore example, although only just over a third of respondents (35%) indicate that they offer '*detective and investigation*' services, this category is the most frequently cited by respondents as their most important security service (26% of respondents). Similarly, although '*guarding and manning*' services are offered by only 33% of respondents, this is the second ranked most important category with 17%. By contrast, *'security consulting and advisory services'* represents the most important service category for only 15% of respondents while the corresponding figure for '*research (technological/technical)*' providers is 12%.

Figure 3.13 'Other' security services (number of respondents)

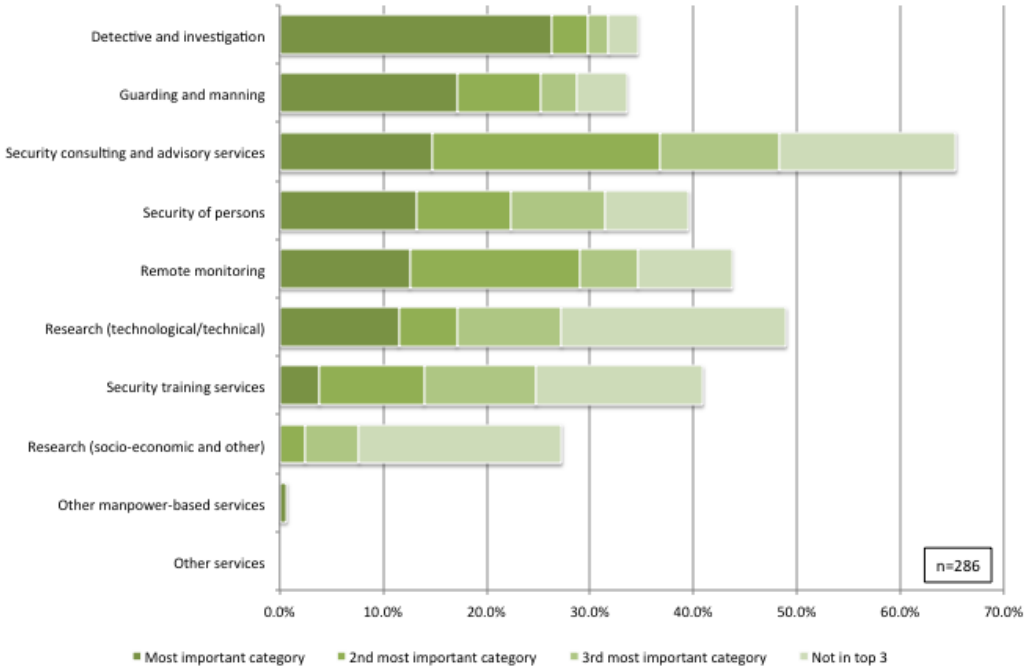


Source: Ecorys SSS (Italy)

Feedback from stakeholders

The fact that 'security of persons' was mentioned by 113 respondents is very surprising. According to Italian law the provision of 'security of persons' is an exclusive competence of the Italian state. Private security providers are not allowed to offer such services.

Figure 3.14 'Other' security services (% of respondents)



Source: Ecorys SSS (Italy)

Feedback from stakeholders

The result that the activity mentioned most is 'security consulting and advisory services' appears to be surprising at a first glance. Bringing it into order of importance it shows however that it is not perceived as the top main activity, but shows up as a second or third activity among security service providers.

3.7 Security market by economic sector (end-user)

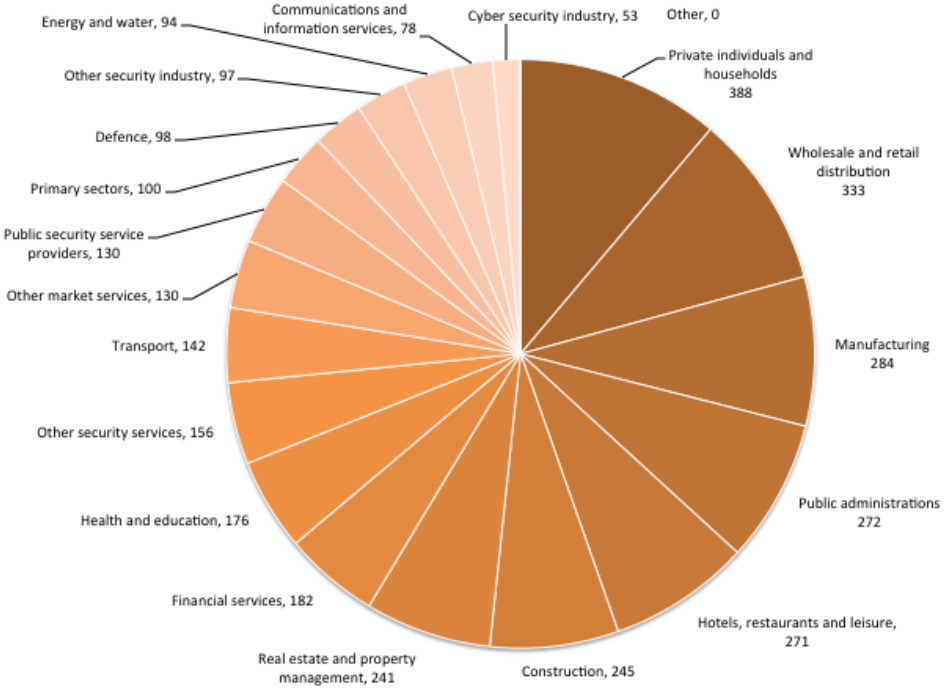
3.7.1 Overall – all products and services

Respondents to the survey were requested to indicate from which market segments (sectors) their customers come from (see Annex A.2) for the segmentation of the security market).

Note: multiple responses allowed. Where multiple segments were given, respondents were requested to indicate the three most important segments (using a ranking of most important category to 3rd most important category).

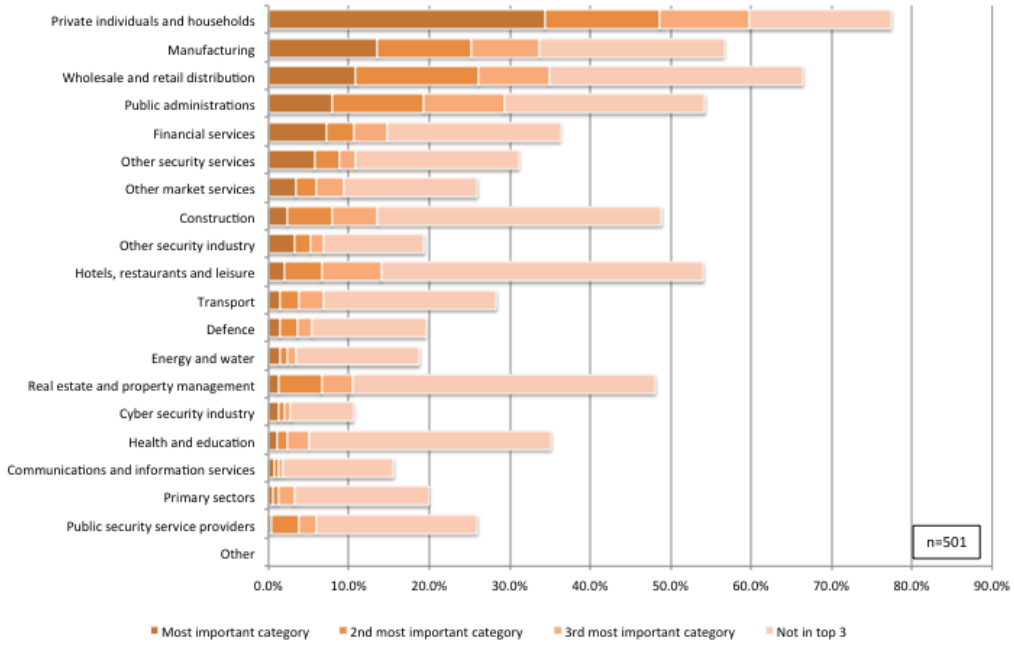
Figure 3.15 shows the number of respondents indicating having customers from each of the market segments. Figure 3.16 provides a further breakdown, taking into account respondents' ranking of the importance of different market segments. The most frequently cited market segment is *'private individuals and households'*, which was identified by 389 respondents, amounting to just over three-quarters of respondents that answered this question (77%). The next most frequently mentioned market segment is '*wholesale and retail distribution*' (66% of respondents) followed by '*manufacturing*' (57%), '*public administrations*' and *'hotels, restaurants and leisure'* (each mentioned by 54% of respondents). Of these, the most frequently cited main (most important) market segment is '*private individuals and households*' (34% indicate it as the most important customer segment), followed by '*manufacturing*' (14%) and '*wholesale and retail distribution*' (11%).

Figure 3.15 Market segmentation (number of respondents)



Source: Ecorys SSS (Italy)

Figure 3.16 Market segmentation (% of respondents)



Source: Ecorys SSS (Italy)

3.7.2 Breakdown by main broad category of security products and services

To examine differences in customer base for different broad categories of security products and services, respondents can be categorised according to their main broad industry category (see Section 3.3). For respondents whose main (most important) security business relates to the offer of cyber-security products and services, Figure 3.17 shows the share of respondents with customers in each market segment (with the breakdown according to their ranking of the importance of the segment); Figure 3.18 and Figure 3.19 show, respectively, the corresponding data for 'other' security products and 'other' security services.

Cyber-security products and services

As shown in Figure 3.17, 60% of respondents whose main security-related activities are in the area of cyber-security indicate having customers in the '*financial services*' sector and just under two-thirds (32%) indicate '*financial services*' among their top two most important market segments. The second most frequently identified market segments are '*wholesale and retail distribution*' and '*communications and information services*', although just 4% and 8% of respondents, respectively, identify them as their most important market segments. After '*financial services*', the second ranked 'most important' sector is '*public administrations*', identified by 16% of respondents, followed by '*private individuals and households*' with 12%. However, it is necessary to be cautious in interpreting findings for respondents whose main security activities are in the area of cyber-security due to the small sample size.

'Other' security products

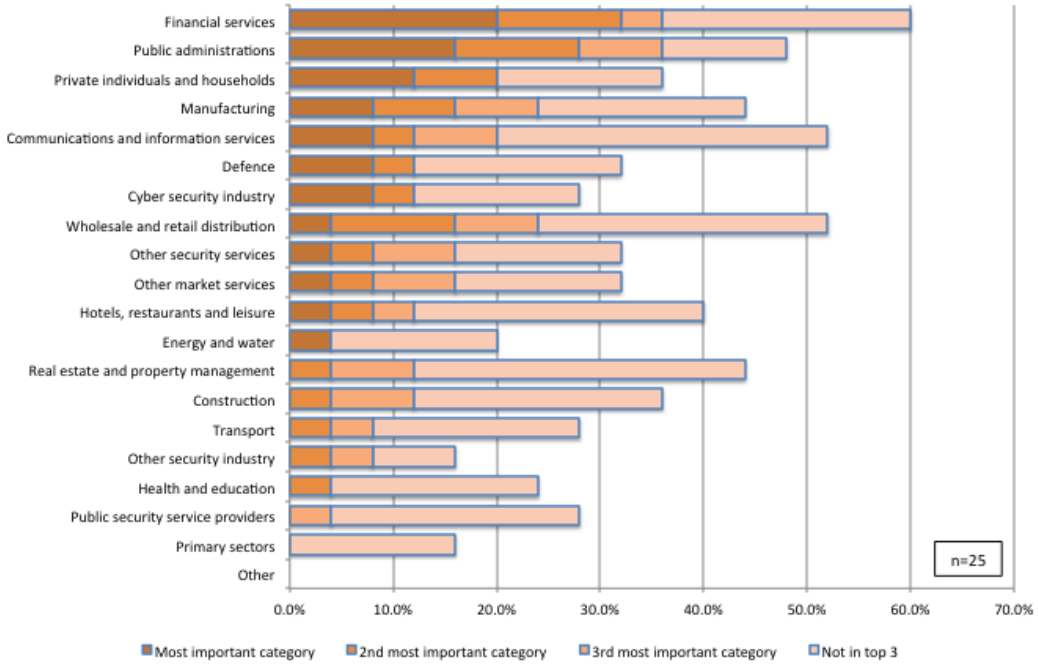
As shown in Figure 3.18, the most frequently mentioned market segment for suppliers of 'other' security products is '*private individuals and households*', which is indicated by 75% of respondents whose main security activity is in the supply of 'other' security products and constitutes the most important market segment for approximately one third of respondents. The second most common segment is '*wholesale and retail distribution*', cited by 69% of respondents. In terms of the most important product category, the second ranked most important category is '*manufacturing*',

identified by 14% of respondents having indicated it as the most important customer segment, followed by '*wholesale and retail distribution*' with 12%.

'Other' security services

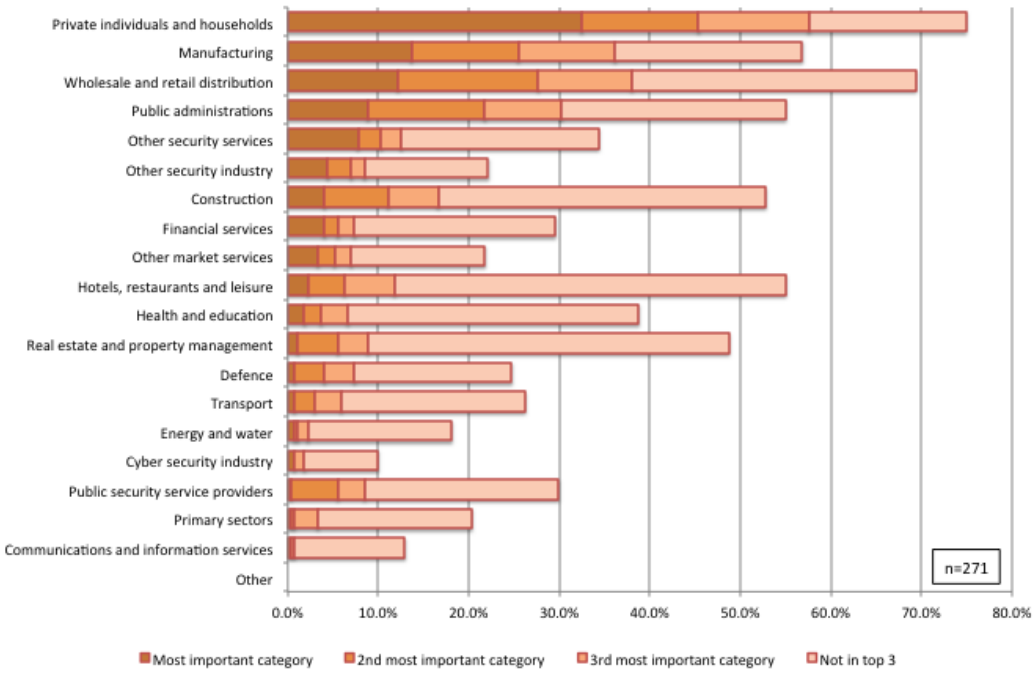
As shown in Figure 3.19, the most frequently mentioned market sectors for respondents whose main security activities relate to the supply of 'other' security services are – as with suppliers of 'other' security products – '*private individuals and households*' (86% of respondents), followed by '*wholesale and retail distribution*' (64% of respondents) and '*manufacturing*' (58% of respondents). Also as with 'other' security product providers, the picture is not much changed when taking into account responses on the main (most important) customer segments; the most frequently identified main (most important) market segment is '*private individuals and households*', identified by 40% of respondents, followed by '*manufacturing*' (14%), '*wholesale and retail distribution*' and '*financial services*' (10% each). By contrast, although '*hotels, restaurants and leisure*' is indicated by a little more than half of respondents whose main security business is in the provision of 'other' security services, it represents the most important market sector for less than 2% of 'other' security services respondents.

Figure 3.17 Market segmentation - cyber security (% of respondents)



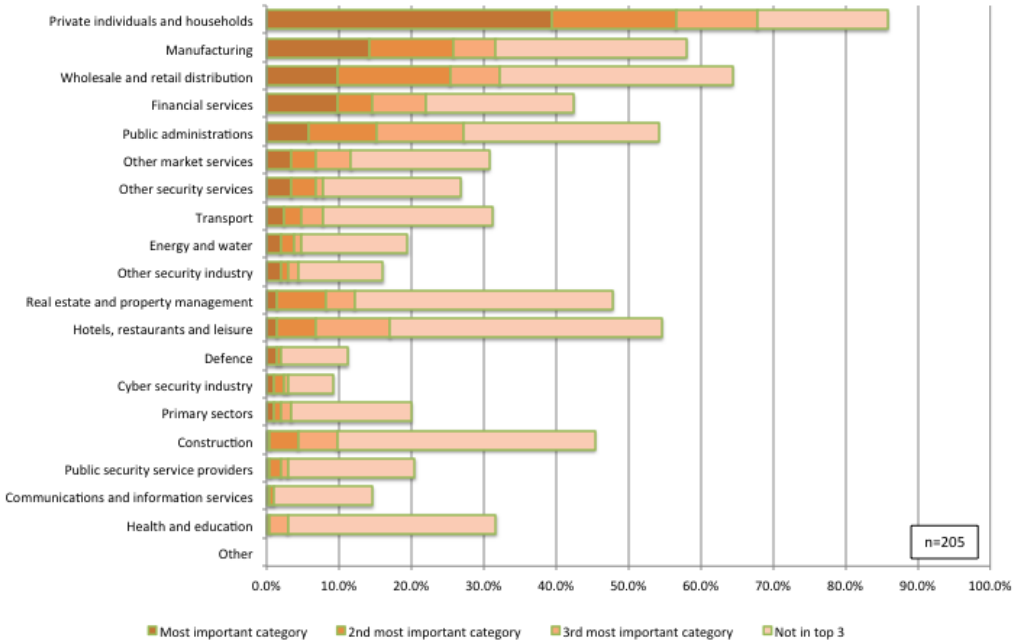
Source: Ecorys SSS (Italy)

Figure 3.18 Market segmentation - other security products (% of respondents)



Source: Ecorys SSS (Italy)

Figure 3.19 Market segmentation - other security services (% of respondents)



Source: Ecorys SSS (Italy)

3.8 Security market by geographical region

Respondents to the survey were requested to indicate the geographical markets in which they sell their security products and services using the following classification:

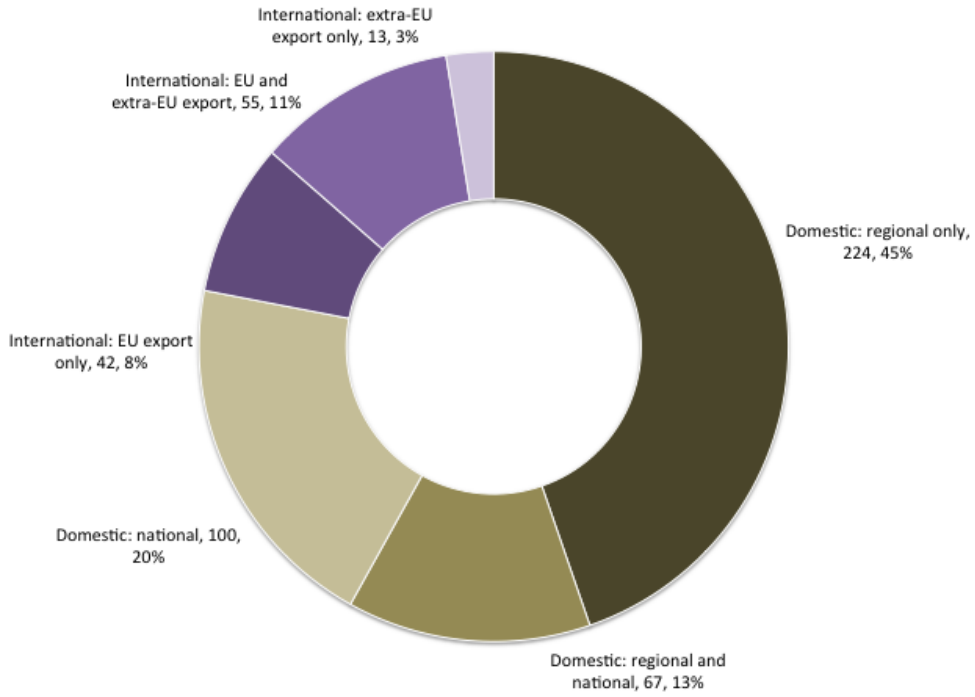
- Local/regional markets (i.e. sub-national level);
- EU Member States
- Outside the EU.

In addition, respondents were requested to indicate (approximately) the share of each geographical market in the total sales of security products and services.

3.8.1 Geographical markets – all products and services

Overall, as show in Figure 3.20, 78% of respondents indicate that they supply products and services only on the domestic market, of which 45% are active only at a regional level. Of the 22% of respondents that also market their products and services internationally, exactly half (11% of respondents) indicate that they export both to the EU and outside the EU.

Figure 3.20 Geographical market for security products and services (number and % of respondents)



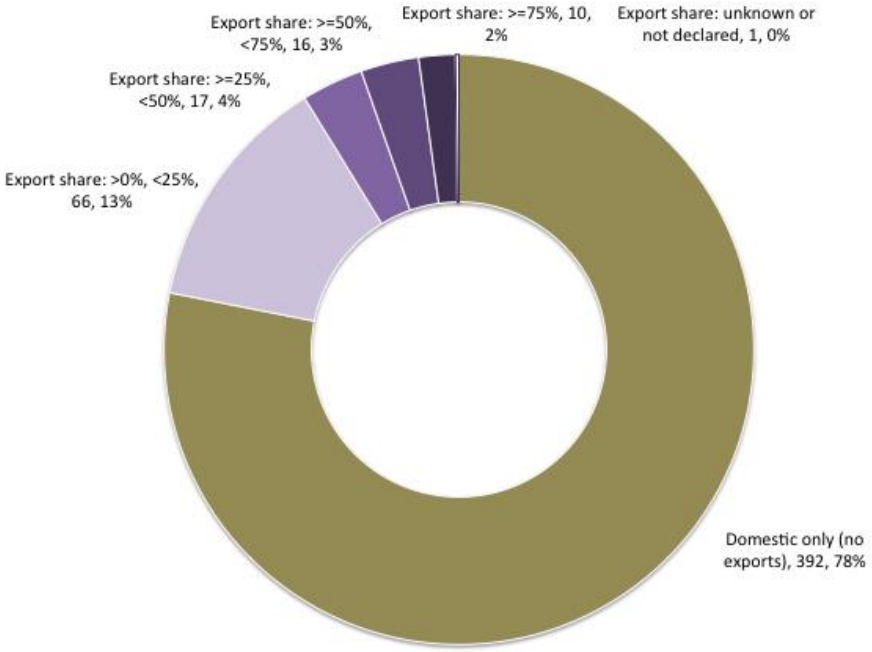
Source: Ecorys SSS (Italy)

Feedback from stakeholders

The result is not surprising as the Italian security market is a rather closed market. There are not many entrants from outside Italy (e.g. the big international service providers have not addressed the Italian market yet (which is also due to a more restrictive law until 2008), but also Italian companies usually only offer services in Italy or even mainly in a certain region.

With regard to the importance of international markets, Figure 3.21 indicates that 13% of respondents market their products and services internationally but with exports representing less than 25 percent of sales. On the other hand, just 5% of respondents indicate that exports represent the majority of their sales, and for 2% of these respondents, exports account for three-quarters or more of their total sales of security products and services.

Figure 3.21 Share of international markets in total sales of security products and services (number and % of respondents)



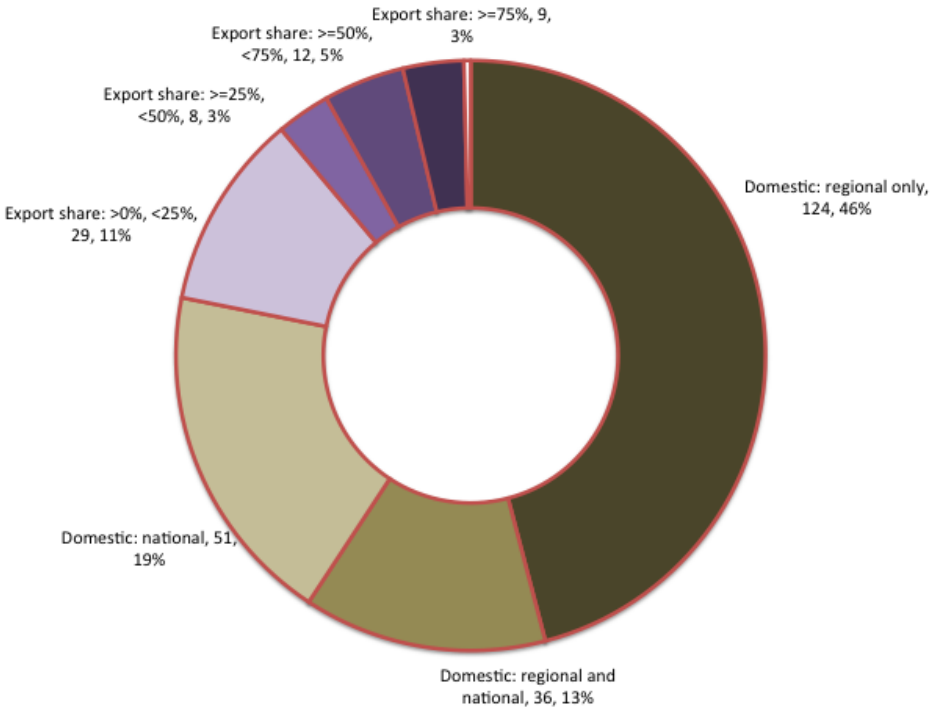
Source: Ecorys SSS (Italy)

3.8.2 Breakdown by main broad category of security products and services

To examine differences in customer base for different broad categories of security products and services, respondents can be categorised according to their main broad industry category (see Section 3.3). Owing to the small number of respondents, we do not report data for respondents whose main (most important) security business relates to the offer of cyber-security products and services.

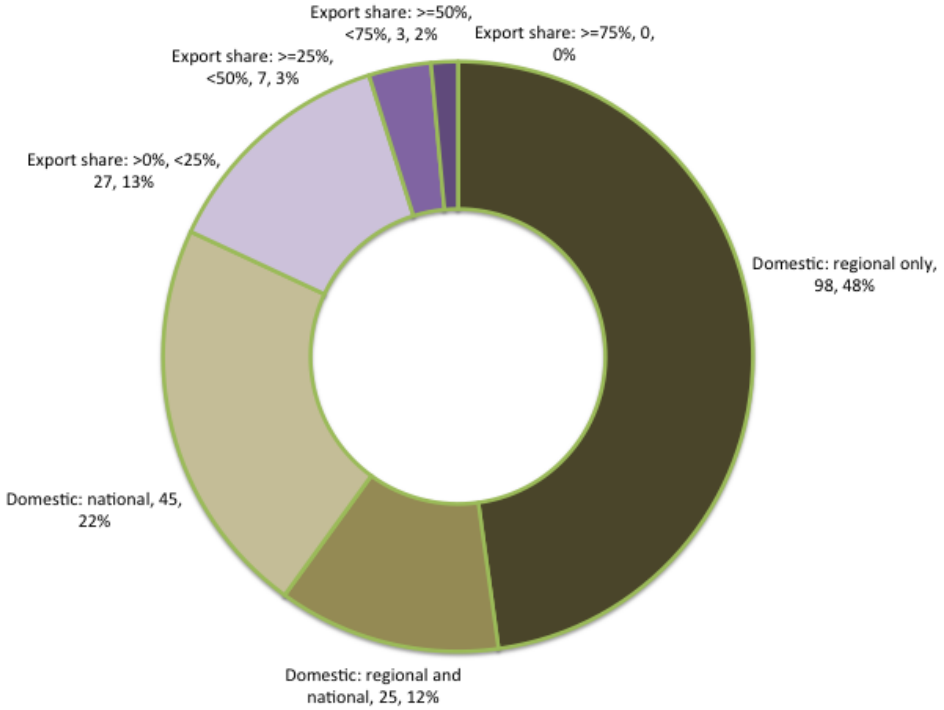
Figure 3.22 combines information on the geographical coverage (within country) and export share for respondents whose main security-related activities are in the area of 'other' security products and, similarly, Figure 3.23 provide this breakdown for respondents whose main security-related activities are in the area of 'other' security services. Comparing across the two figures, the outward orientations for 'other' security products and 'other' security services are very similar across geographical markets but there appears to be a slightly greater international orientation for respondents whose main activity is in 'other' security products. Just over a fifth (22%) of respondents whose main activity relates to the supply of 'other' security products are active in international markets, compared to 18% of respondents whose main activity is in the supply of 'other' security services. On the other hand, regarding the importance of international markets, approximately 8% of 'other' security product suppliers indicate having export shares of more than 50%, compared to just 2% of 'other' security services suppliers.

Figure 3.22 **'Other' security products: geographical market and share of international markets in total sales of security products (number and % of respondents)**



Source: Ecorys SSS (Italy)

Figure 3.23 **'Other' security services: geographical market and share of international markets in total sales of security products (number and % of respondents)**



Source: Ecorys SSS (Italy)

Feedback from stakeholders

Since the opening of the market (since 2008) there is a higher concentration of companies. There is however until now not a single service provider who offers its services in all Italian regions.

3.9 Firm structure: employment and turnover

Respondents to the survey were requested to indicate the number of employees in their company, with a distinction made between:
- Total number of employees (in Italy and abroad);
- Employees in Italy;
- Employees in Italy working in the field of security.

In addition, respondents were requested to indicate their company's turnover from the sale of security products and services.

3.9.1 Employment

Figure 3.24 shows the distribution of respondents according to their number of employees. With respect to the number of employees in Italy working in the field of security, 66% of respondents have fewer than 10 employees. The most frequent employee size category – whether for total, Italy or Italy-security employees – is '*1 to 4 employees'*, which covers approximately a third of respondents.

Analysis of differences in responses on total number of employees and number of employees in Italy indicates that the Italian activities of (at least) 3% of respondents are part of wider international company operations.[7] This is in line with the previous analysis regarding the overall low proportion of business conducted internationally by respondents to the survey. Similarly, the number of employees active in the field of security is less than the total number of Italy employees for (at least) 12% of respondents, indicating that for these companies the supply of security-related products and services is only part of their overall portfolio of activities.[8]

Categorising respondents according to their main broad industry category (see Section 3.3), Figure 3.25 shows the distribution of respondents by employee size class. Results need to be interpreted cautiously for companies whose main security activities are in the area of cyber-security due to the small number of respondents. Nevertheless, the data indicate that the proportion of respondents in the top employment size classes (cf. '*50 to 249*', '*250 to 999 employees*' and '*1000 or more employees*') is highest for those respondents whose main (most important) security business concerns the offer of cyber security products and services. The same is also observed for the lowest employee size class (cf. '*zero*'). By contrast, respondents whose main security business concerns the offer of '*other*' security products have the highest proportion of companies in the second and third lowest employment size classes (cf. '*1 to 4 employees*' and '*5 to 9 employees*'), while suppliers of 'other' security services have the highest proportion of companies in the middle-range employment size category (cf. '*50 to 249 employees*'). The data further shows that 'other' security services is the only main broad industry category represented in the top employment size class (cf. '*1000 or more employees*'), although such companies represent less than 1% of these respondents.

[7] 3% of respondents place themselves in a higher employee number category for total number of employees than they do for employees in Italy.

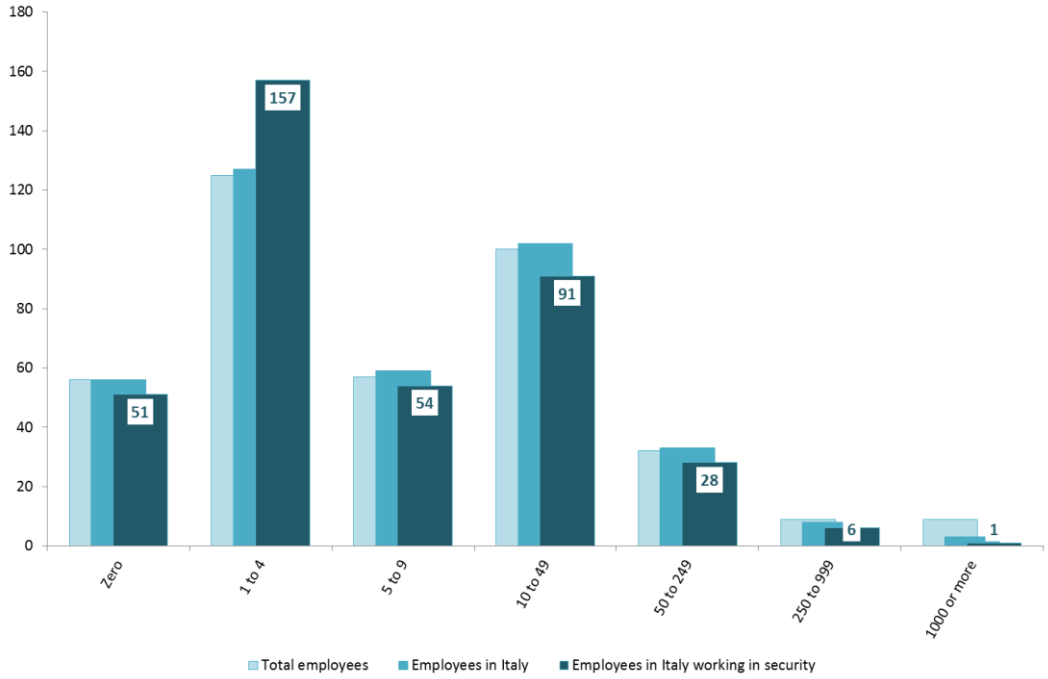
[8] 12% of respondents place themselves in a higher employee number category for number of employees in Italy than they do for number of employees in Italy working in the field of security.

3.9.2 *Turnover*

Figure 3.26 shows the distribution of respondents according to turnover from the sale of security products and services. Just under a fifth of respondents (19.6%) were unable or unwilling to provide information on the value of their sales. For those that did respond to the question, the most frequently cited turnover range was '*below € 250 thousand*', which was indicated by more than a third of respondents (37%) that provided information on the their turnover.

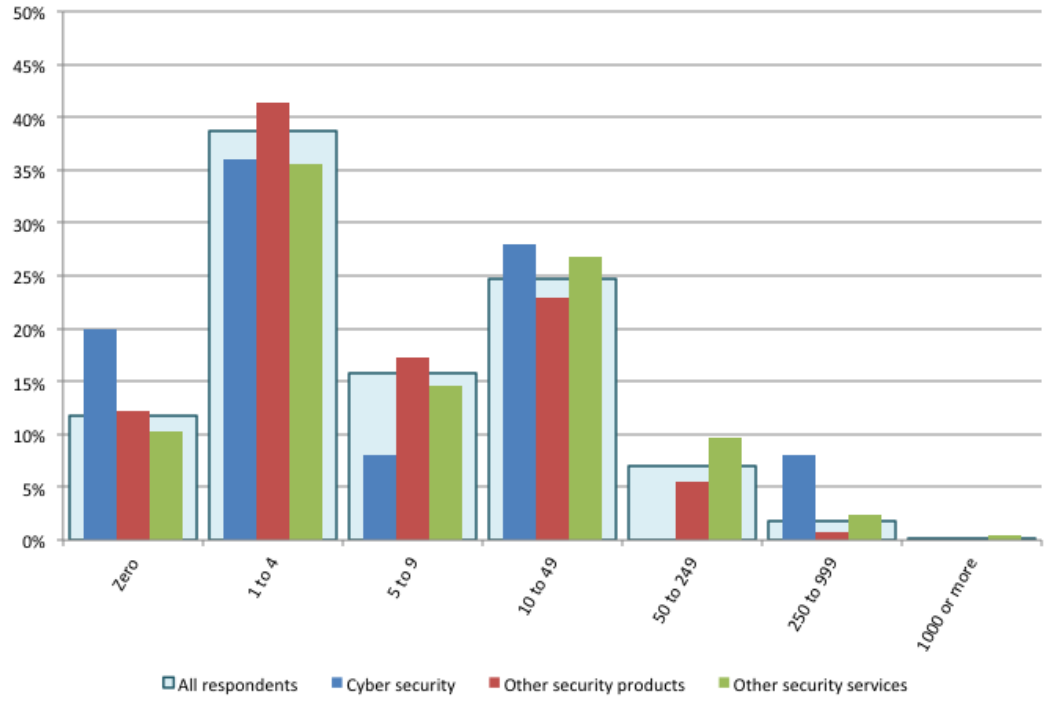
Categorising respondents based on their main broad industry category (see Section 3.3) , similarly to employment, Figure 3.27 indicates that respondents whose main security business relates to the supply of cyber security products and services are proportionally more prevalent in the top turnover sales class (cf.'*more than € 500 million)*', although such companies are more prevalent at the bottom of the turnover scale, with more than 40% of the respondents whose main security business relates to cyber security products and services indicating a turnover of less than € 250 thousand. By contrast, 'other' security products suppliers are, on balance, more prevalent at the high end of the turnover scale, with 12% of respondents whose main business is in the supply of 'other' security products indicating a turnover of more than € 5 million. The corresponding figure for cyber security and 'other' security services respondents are 6% and 8%, respectively.

Figure 3.24 Firm size based on number of employees (number of respondents)



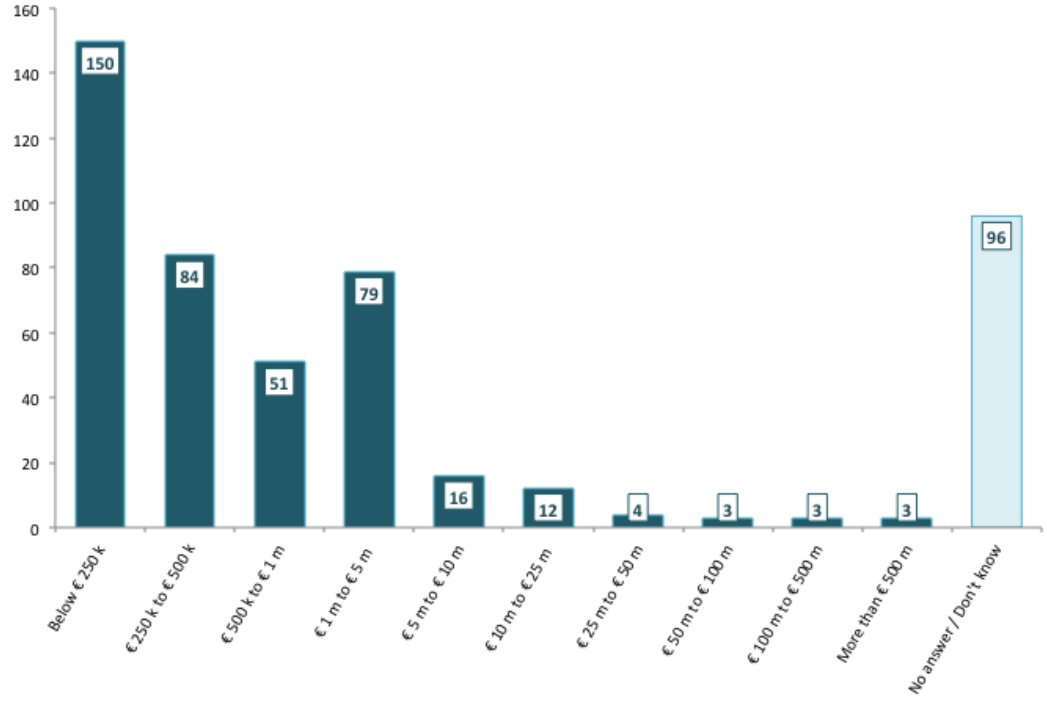
Source: Ecorys SSS (Italy)

Figure 3.25 **Distribution of number of employees in Italy working in security by main broad industry category (% of respondents in broad industry category)**



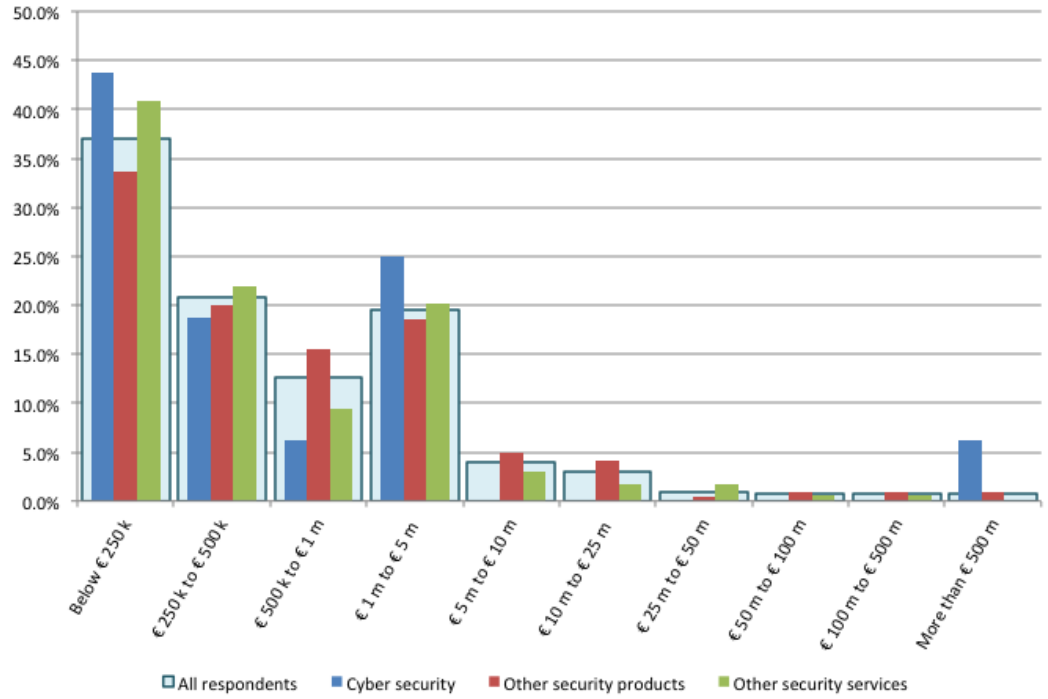
Source: Ecorys SSS (Italy)

Figure 3.26 **Firm size based on turnover from sales of security products and services (number of respondents)**



Source: Ecorys SSS (Italy)

Figure 3.27 Distribution of turnover from sales of security products and services by main broad industry category (% of respondents in broad industry category, *excluding no answer / don't know*)



Source: Ecorys SSS (Italy)

Feedback from Stakeholders

Companies in Italy are very often family companies which act at a local or regional level.

3.10 Growth performance and prospects

Respondents to the survey were requested to indicate the growth in their turnover from the supply of security products and services over the last 5 years and their expectations for growth in turnover for the next 5 years. In addition, respondents were requested to indicate their expectations for the development of demand for security products and services in the foreseeable future for different broad customer groups (cf. public sector, critical infrastructure sectors, business sector, and private individuals and households) and by geographical area (cf. national market, Europe, outside Europe).

3.10.1 Past turnover growth performance

Figure 3.28 and Figure 3.29 display data on the distribution of respondents according to their growth on turnover over the past 5 years. The most frequent growth range is '*remained more or less the same [+/- 2%]*', which is indicated by nearly a third of respondents that gave an answer to this question (31%). Although it is necessary to be cautious in interpreting findings for respondents whose main security activities are in the area of cyber-security owing to the small sample size, it nonetheless appears the case that growth in the cyber security area has been stronger than for 'other' security products and 'other' security services. Moreover, the data indicates that growth in 'other' security services has been slightly stronger than for 'other' security products; for example, 23% of respondents whose main security activities are in the area of 'other' security services report growth of more than 10% (i.e. '*increased by more than 25%*' or '*increased by between 11% and 25%*'), compared to only 19% of respondents whose main business is in the area of 'other' security

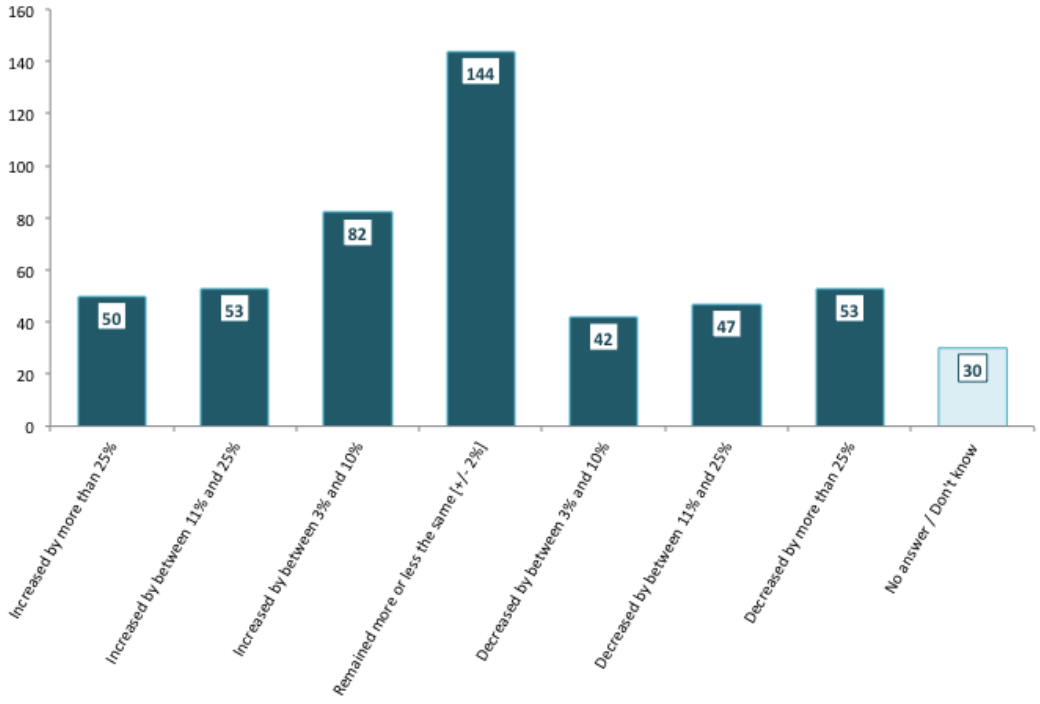
products.[9] At the other end of the growth distribution, 34% of respondents whose main area of business is in the supply of 'other' security products reported negative growth in the last 5 years, compared to 29% of 'other' security services respondents.

3.10.2 Future turnover growth prospects

Respondents offer a moderately positive outlook for turnover growth for the next 5 years, as shown in Figure 3.30 and Figure 3.31. Overall, a total of 28% of respondents[10] indicate that they expect turnover to increase by more than 10% (i.e. '*increase by more than 25%*' or '*increase by between 11% and 25%*') over the next 5 years and a further 30% expecting turnover to '*increase by between 3% and 10%*'. On the other hand, 10% of respondents expect their turnover from the supply of security products and services to decline over the coming 5 years.

As with past growth performance, cyber security is associated with the strongest turnover expectations, with exactly half of respondents whose main security activities are in the area of cyber-security indicating that they expect turnover to increase by more than 10% (i.e. '*increase by more than 25%*' or '*increase by between 11% and 25%*'), over the next 5 years. At the same time, there appears to be a positive outlook for both 'other' security products and 'other' security services. In fact, a comparison of responses on past turnover performance and future turnover expectations reveals that among respondents whose main security business relates to 'other' security products, 46% expect future turnover growth to exceed that of the past 5 years, and just under a fifth (19%) expect it to decrease.[11] The corresponding percentages for 'other' security services are 48% and 21%.

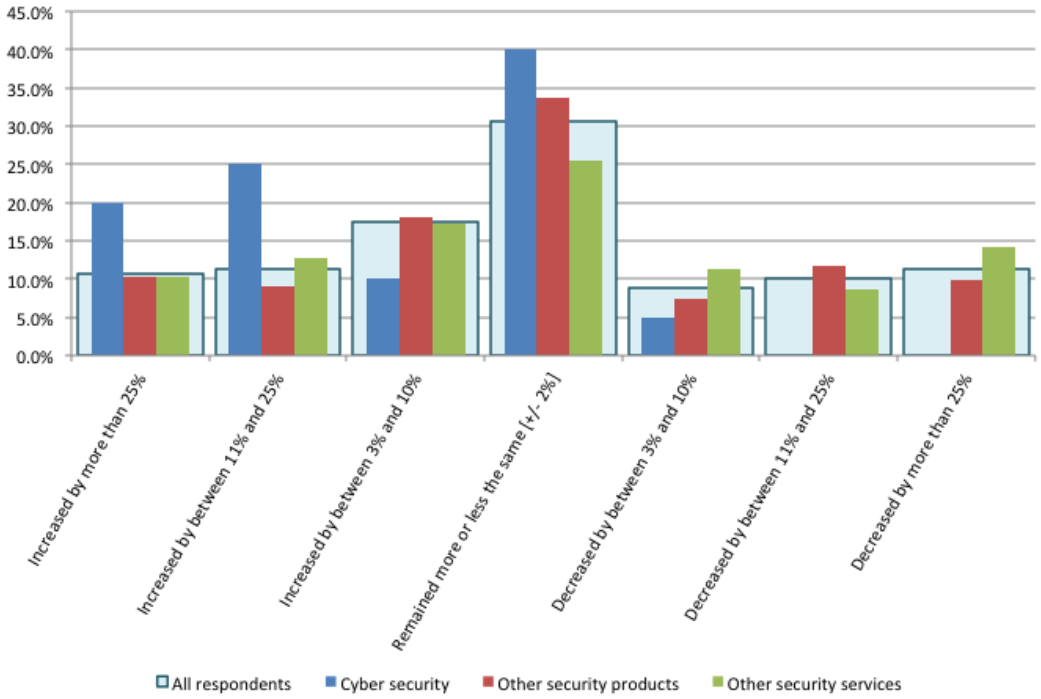
Figure 3.28 Turnover growth over past 5 years (number of respondents)



Source: Ecorys SSS (Italy)

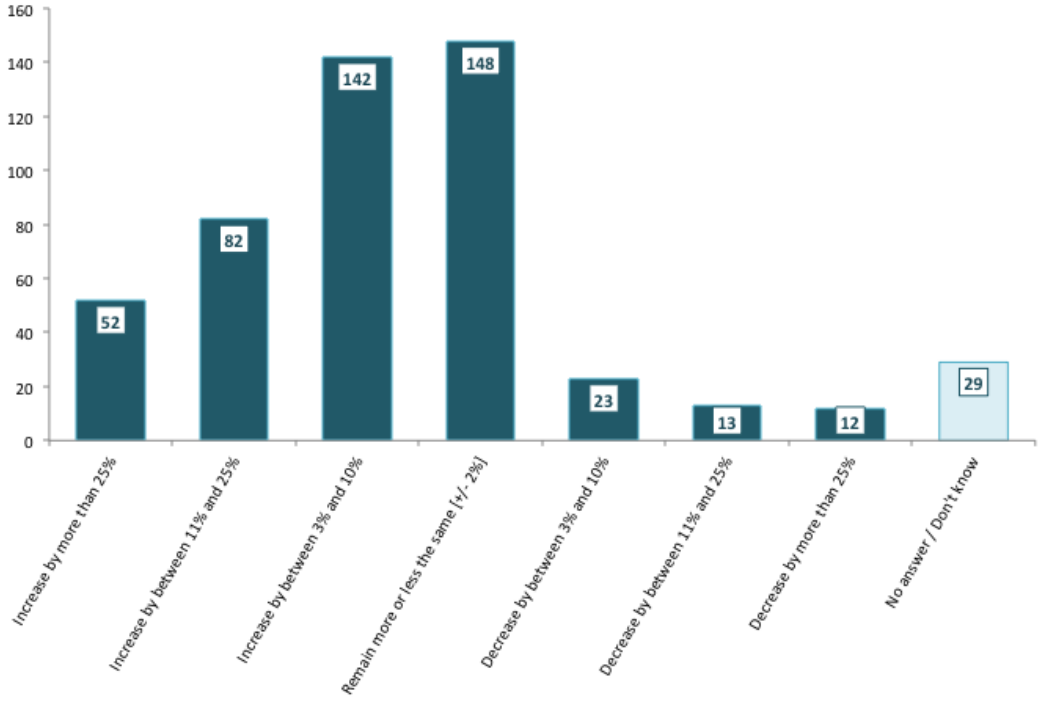
[9] Excluding respondents that did not provide information on their turnover growth for the past 5 years.
[10] Excluding respondents that did not provide information on their turnover growth expectations for the next 5 years.
[11] These percentages are calculated on the sample of respondents that provided both information on their turnover growth for the past 5 years and on their expectations for turnover growth the next 5 years. The percentage reflects the proportion of respondents that indicate a higher future turnover growth class than they do for their turnover growth over the past 5 years.

Figure 3.29 **Distribution of turnover growth by main broad industry category (% of respondents in broad industry category, *excluding no answer / don't know*)**



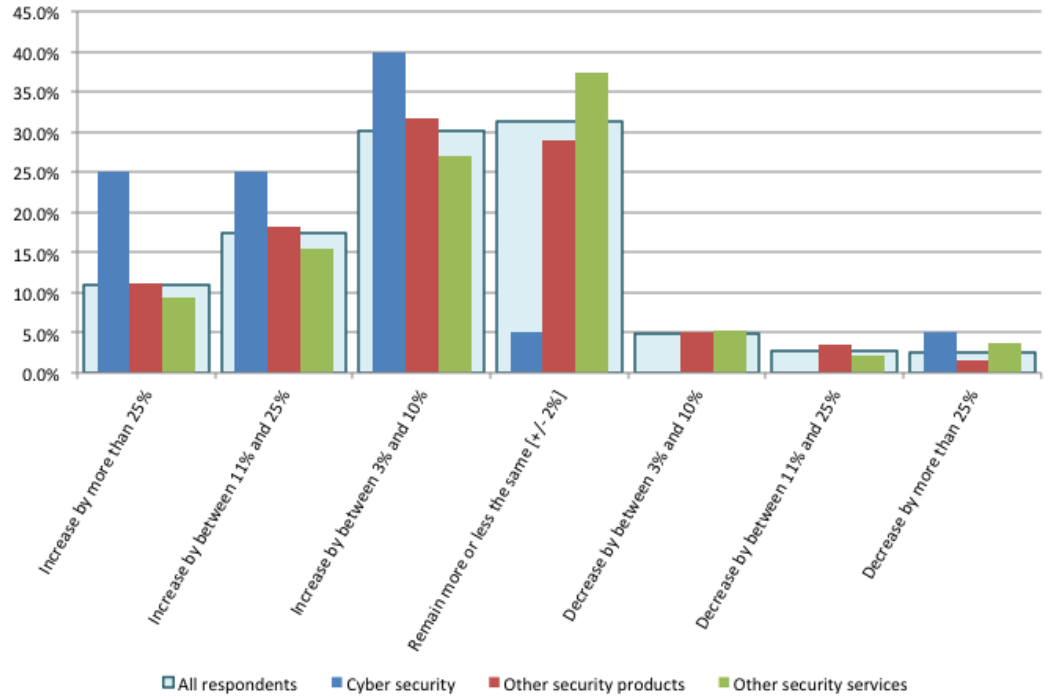
Source: Ecorys SSS (Italy)

Figure 3.30 **Turnover growth expectation for next 5 years (number of respondents)**



Source: Ecorys SSS (Italy)

Figure 3.31 Distribution of turnover growth expectations for next 5 years by main broad industry category (% of respondents in broad industry category, *excluding no answer / don't know*)



Source: Ecorys SSS (Italy)

Feedback from stakeholders

Traditionally many security related tasks were covered by the state. In recent years there is a trend towards a further opening of the market to private providers. Policies aim at creating synergies of private and public security providers. This leaves opportunities for growth in the sector in upcoming years.

3.10.3 Future demand prospects by broad customer group and geographical area

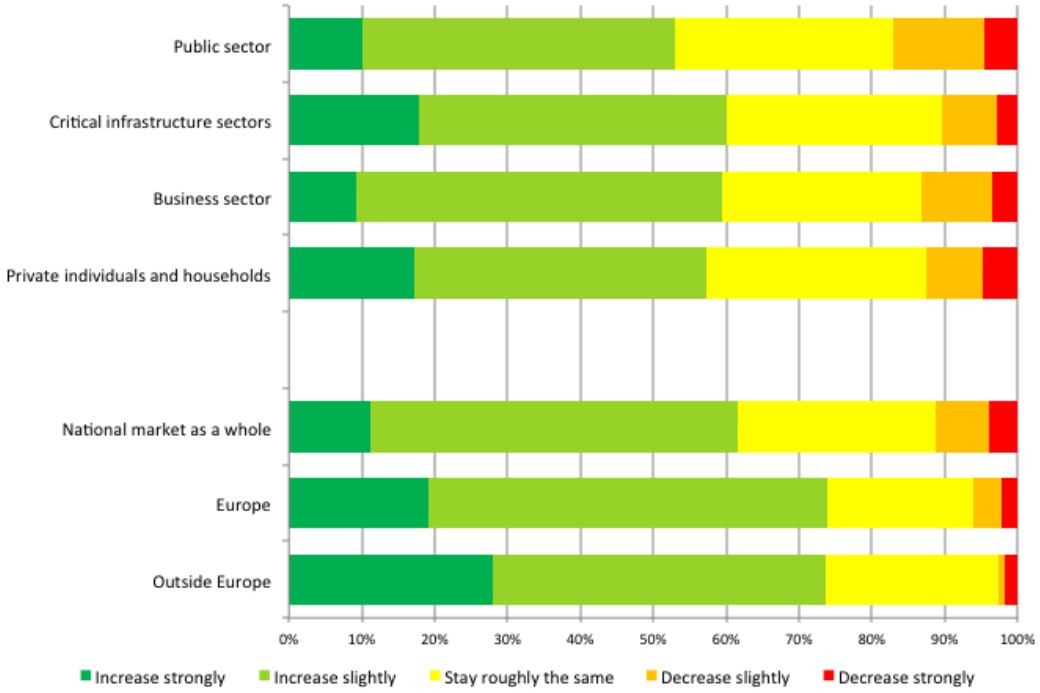
Respondents offer a generally positive outlook for future demand prospects for security products and services with more than 50% indicating that they expect positive growth in demand across all broad customer groups and geographical regions; see Figure 3.32.[12] Overall, taking account of the balance of expectations for different customer groups, the strongest positive expectations are for the '*critical infrastructure sectors*' and weakest for the '*public sector*'. At the same time, fore geographical areas, demand expectations are strongest for international markets, both for the European market (EU and non-EU) and for '*outside Europe*', in equal measure. By default, demand expectations are weakest for the domestic market (i.e. *national market as a whole*').

Figure 3.33 and Figure 3.34 provide a breakdown based on respondents main broad industry category (see Section 3.3). As with turnover growth expectations, respondents whose main security activities are in the area of cyber-security have (on balance) the strongest positive expectations for future demand growth, with more than two-thirds indicating that they expect positive growth in demand across all geographical areas and all broad customer groups with the exception of '*private individuals and households*' (45% of respondents). Although it is necessary to be cautious in interpreting findings for respondents in the area of cyber-security due to the small

[12] Excludes respondents that did not provide an opinion on demand prospects. Non-response rates vary significantly for different customer groups and geographical areas; for the sample as a whole, the percentage of respondents that did not offer an opinion on specific customer groups and geographical areas are as follows: public sector 6%, critical infrastructure sectors 14%, business sector 3%, private individuals and households 6%, national market as a whole 4%, Europe 22%, outside Europe 31%.

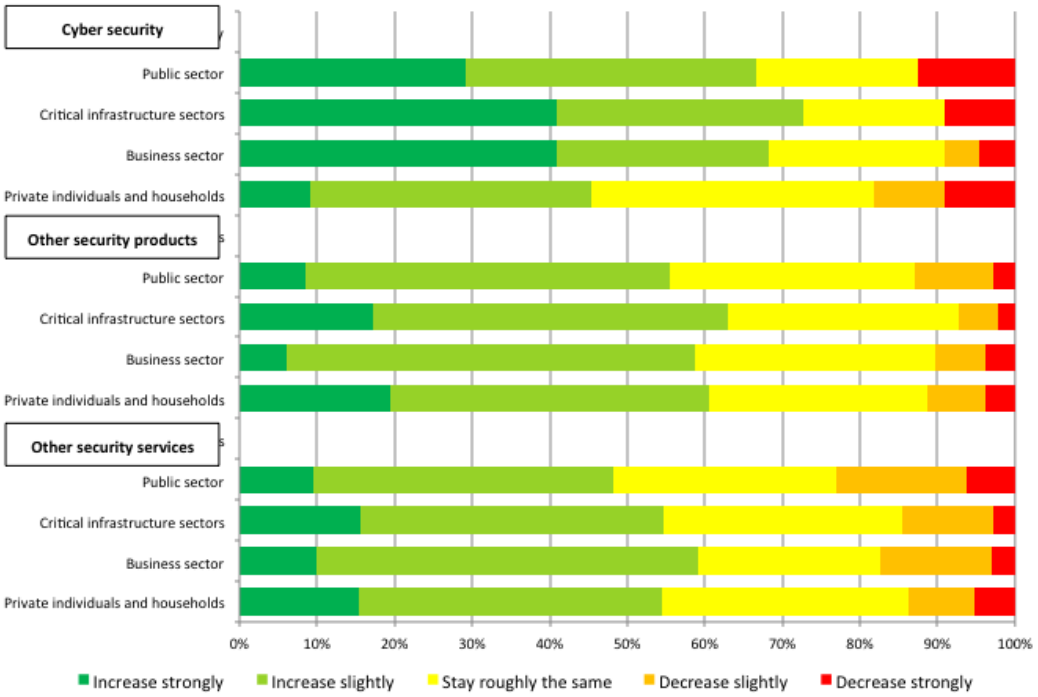
sample for this question, it nevertheless appears that cyber-security respondents have (on balance) a relatively positive outlook on future demand prospects. For 'other' security products the patterns of demand expectations appear to be slightly higher across all broad customer groups and geographical regions compared with 'other' security services. For example, 76% of 'other' security products respondents expect positive future growth in international markets, compared with 69% of 'other' security services; similarly, the corresponding figures regarding expectations for future growth in the '*critical infrastructure sectors*' are 63% and 55%, respectively.

Figure 3.32 **Distribution of demand growth expectations by customer groups and geographical area (% of respondents, *excluding no answer / don't know*)**



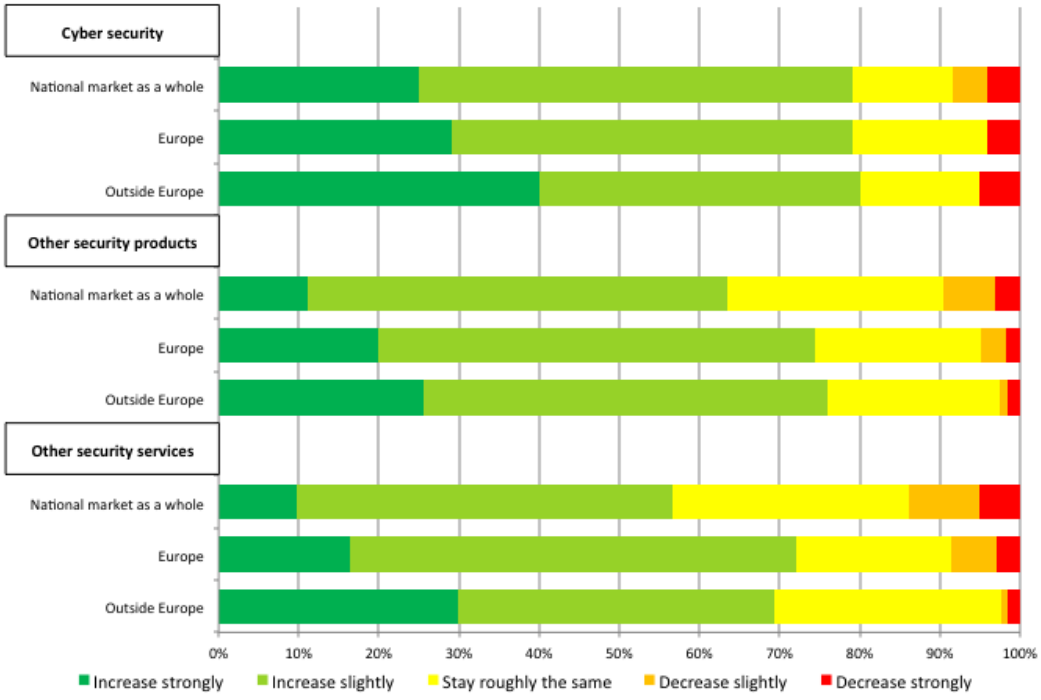
Source: Ecorys SSS (Italy)

Figure 3.33 **Distribution of demand growth expectations by customer groups and by main broad industry category (% of respondents, *excluding no answer / don't know*)**



Source: Ecorys SSS (Italy)

Figure 3.34 **Distribution of demand growth expectations by geographical area and by main broad industry category (% of respondents, *excluding no answer / don't know*)**



Source: Ecorys SSS (Italy)

Feedback from stakeholders

A strength and weakness at the same time of the Italian market is a strong national and local demand for security services. Companies are therefore strongly focused on serving local needs. This guarantees stability, but growth opportunities may lie outside the country.

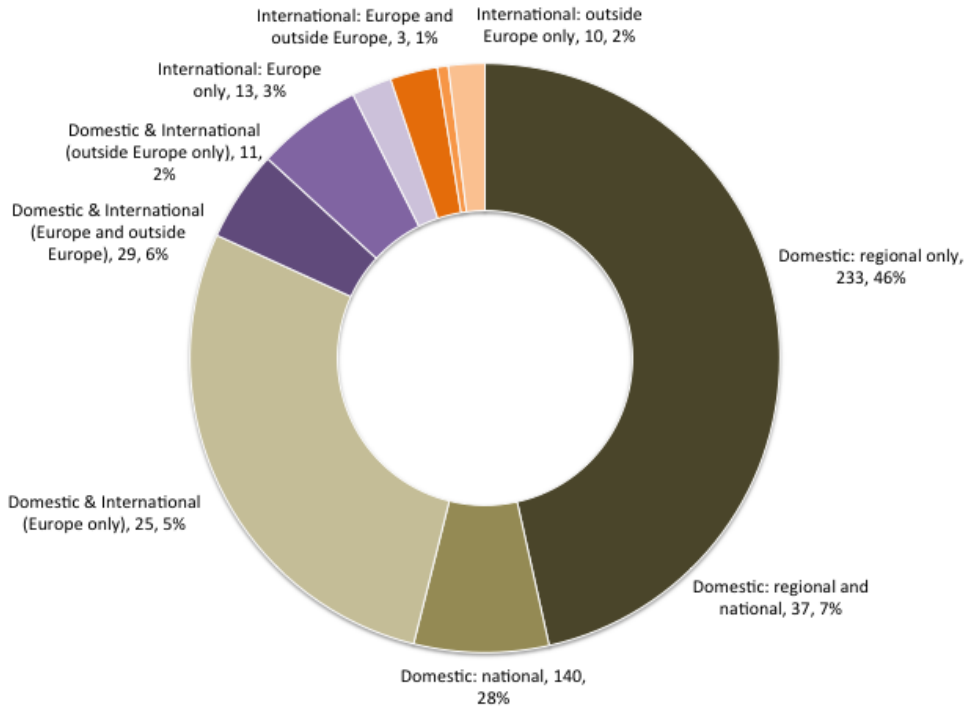
3.11 Competitors

Respondents to the survey were requested to indicate the geographical region from which their main competitors come from, using the following classification: Local/regional area (i.e. sub-national level); National area (i.e. from within the country as a whole); European countries (EU and non-EU); Outside of Europe.
In addition, where respondents indicated that they faced competition from companies from a particular geographical region they were requested to indicate their expectations for development of competition from that geographical region in the future (i.e., over the next 5 years).

3.11.1 Geographical origin of main competitors – all products and services

Overall, as show in Figure 3.35, approximately 82% of respondents indicate that their main competitors come from within the domestic sector only, of which nearly half (47%) indicate that their main competitors are only at a local (sub-national) level (i.e. '*Domestic: regional only*'). By contrast, 13% of respondents indicate that their main competitors come from both the domestic sector and from abroad (i.e. '*Domestic and international*' sub-categories), while just 5% of companies indicate that their main competitors come exclusively from outside the domestic sector.

Figure 3.35 Geographical origin of main competitors (number and % of respondents, *excluding no answer / don't knows*)



Source: Ecorys SSS (Italy)

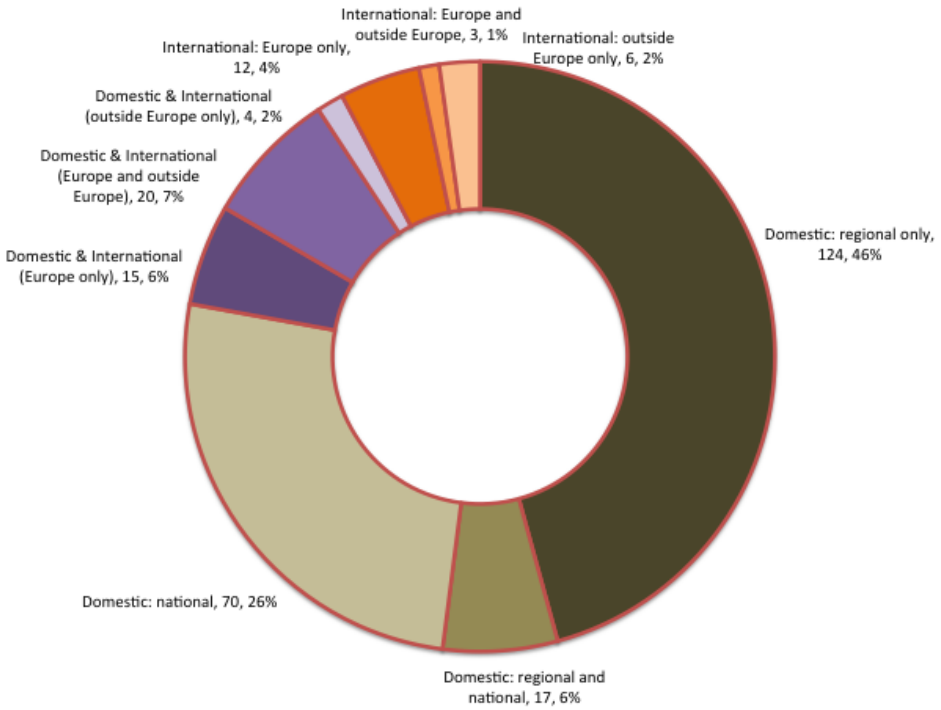
Feedback from stakeholders

Given the regional structure of companies and the low number of international companies entering the market, it is not surprising that the result of the survey shows that most competition comes from internal sources.

3.11.2 Breakdown by main broad category of security products and services

Figure 3.36 and Figure 3.37 provide a breakdown of main competitors for, respectively, respondents whose main security-related activities are in the areas of 'other' security products and 'other' security services.[13] Comparing across these two groups, while 91% of respondents whose main security-related activities are in the area of 'other' security services indicate that their main competitors come only from the domestic market (either at regional or national level, or both), the corresponding share for 'other' security products is 78%. In terms of international competition, respondents whose main security-related activities are in the supply of 'other' security products have the highest proportion of 'main' competitors coming exclusively form abroad; 8% of 'other' security product suppliers indicate that their main competitors come from abroad, compared to just 2% for 'other' security service providers.

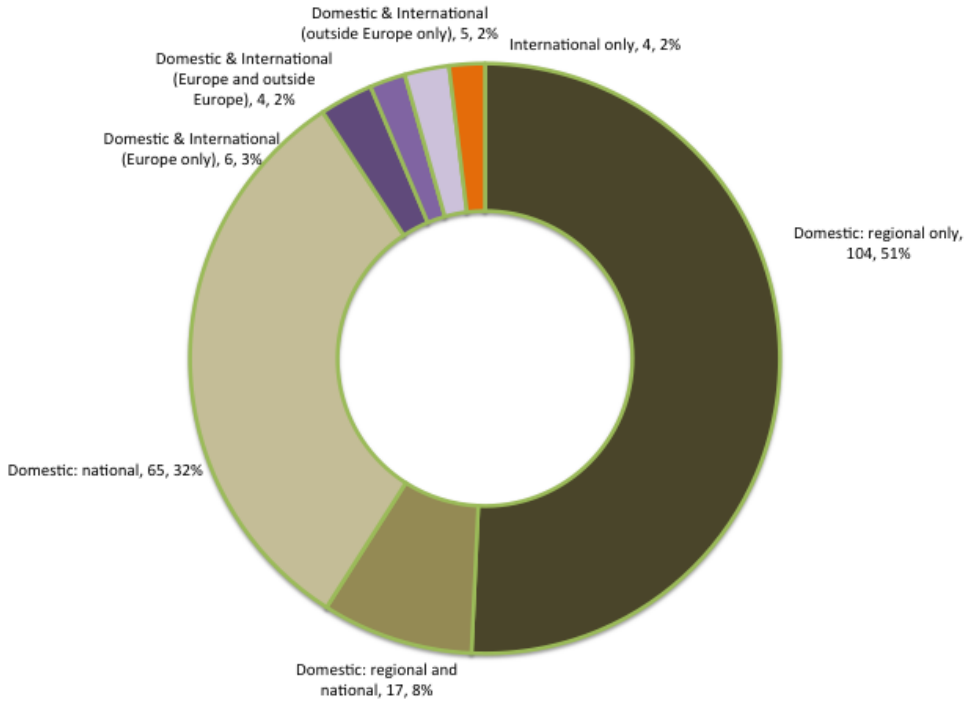
Figure 3.36 **'Other' security products: geographical origin of main competitors (number and % of respondents, *excluding no answer / don't knows*)**



Source: Ecorys SSS (Italy)

[13] Owing to the small number of respondents, we do not report data for respondents whose main (most important) security business relates to the offer of cyber-security products and services.

Figure 3.37 'Other' security services: geographical origin of main competitors (number and % of respondents, *excluding no answer / don't knows*)



Source: Ecorys SSS (Italy)

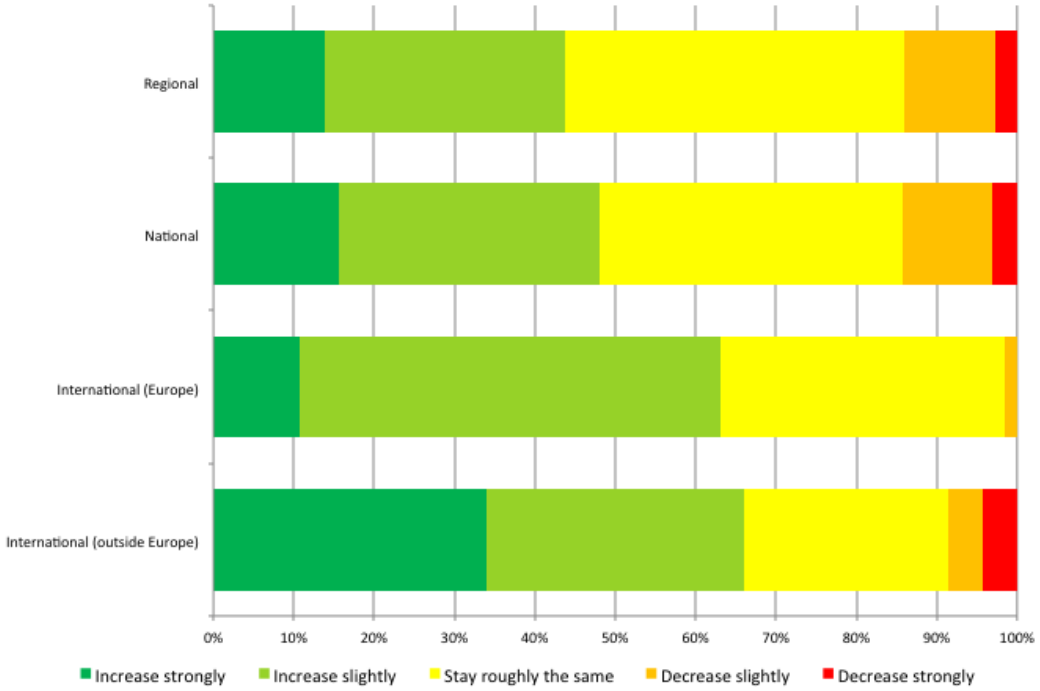
3.11.3 Future competition prospects by geographical origin of main competitors

Conditional on respondents' identification of the geographical origin of their main competitors, Figure 3.38 and Figure 3.39 show the distribution of respondents' expectation for the future development of competition based on the geographical origin of competitors.

Overall, the general pattern is that respondents expect (on balance) stronger increases in competition from foreign companies – particularly from outside Europe – than from domestic rivals. This is especially the case for cyber security; however given the small sample size of respondents and low response-rate among respondents whose main business is in the area of cyber-security, these finding should be interpreted cautiously. The patterns of expectations on future competition for 'other' security products and 'other security services are very similar across most geographical origins but there appear to be stronger expectations for increases in competition from abroad for respondents whose main activity is in 'other' security products (i.e., 72% of respondents, compared with 44%).[14] Looking at expectations on domestic competition, 45% of respondents whose main security related activities are in 'other' security products expect domestic competition to increase in the future. The corresponding figure for 'other' security services is 42%.

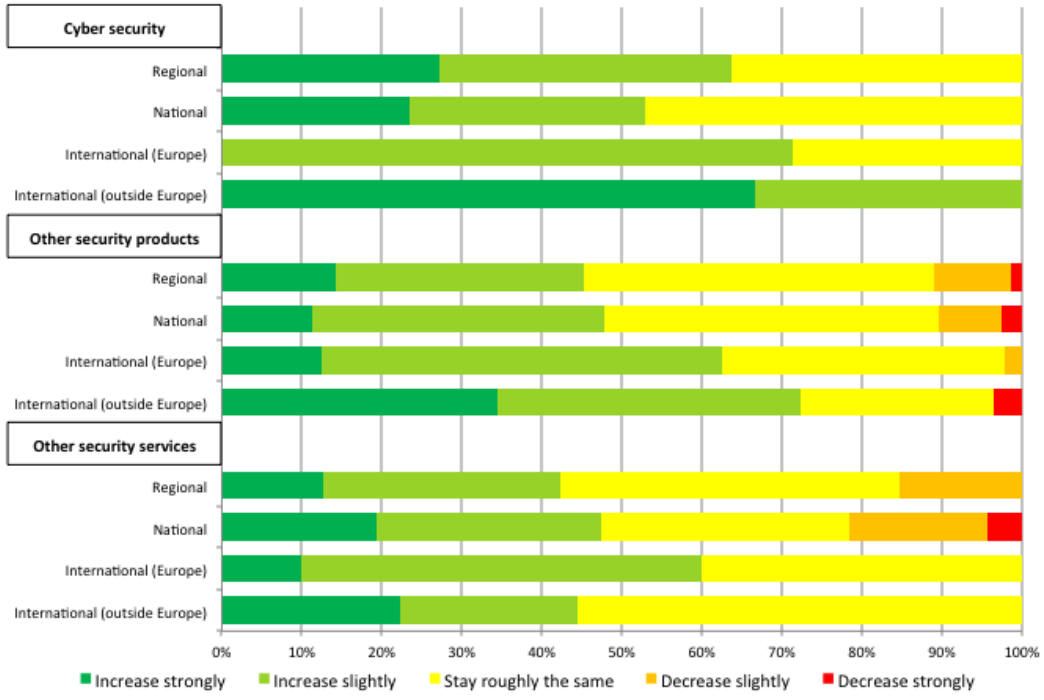
[14] Non-response rates for expectations on future competition prospects for different geographical origins of main competitors vary significantly. The response rate across all three main broad categories for expectations on future competition from international competitors ('Europe' and 'Outside Europe') are consistently low, and therefore difficult to interpret.

Figure 3.38 Distribution of expectations of change in competition by geographical origin of competitors (% of respondents, *excluding no answer / don't know*)



Source: Ecorys SSS (Italy)

Figure 3.39 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*)



Source: Ecorys SSS (Italy)

4 Aggregate estimates of the size of the security industry

4.1 Overview of approach

In this section we outline the approach used to extrapolate findings from the survey so as to obtain estimates of the overall size of the security sector in terms of turnover and employment. Briefly, the basic approach involves the following main steps (with breakdowns by main industry categories):

1. Estimation of turnover levels for non-declaring survey respondents.
2. Estimation of total turnover and employment levels for the survey sample.
3. Estimation of the average size of security firms (in terms of turnover and employment) derived from the survey results.
4. Estimation of the 'population' of security firms derived from the list of companies established for the survey and on the incidence level of the survey.
5. Combination of estimated average size of security firms and estimated population of firms to derive initial estimates of aggregate turnover and employment levels.
6. Review of initial aggregate estimates through consultation with national stakeholders and sector experts and through cross-country comparisons of implied relative industry size.
7. Revision of initial aggregate estimates, implemented through revisions to estimated size of the population of security firms.

For reference, Table 4.1 shows the underlying composition of the survey sample using a cross-tabulation of turnover and number of employees working in security.

Table 4.1 Composition of the survey sample by employee and turnover-size classes

Turnover	Number of employees working in security							Total
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more	
Below € 250 k	39	91	11	8	1			**150**
€ 250 - € 500k	3	45	23	12	1			**84**
€ 500 - € 1 m	1	10	20	15	4	1		**51**
€ 1 m to € 5 m		6	10	48	15			**79**
€ 5 m - € 10 m				11	5			**16**
€ 10 m - € 25 m		2		6	2	2		**12**
€ 25 m - € 50 m		1		1		2		**4**
€ 50 m - € 100 m					1	1		**2**
€ 100 m - € 500 m					2			**2**
More than € 500 m							3	**3**
Don't know	16	39	15	21	4	2	1	**98**
Total	**59**	**194**	**79**	**122**	**35**	**8**	**4**	**501**

Source: Ecorys SSS (Italy)

4.2 Method for the estimation of turnover and employment for the survey sample

4.2.1 Underlying assumptions

The following underlying assumptions are used in the calculation of aggregate turnover and employment for the survey sample:

1. To provide an aggregate turnover estimate, the mid-point of each turnover interval (i.e. turnover-size class) is used[15], with the exception of the top turnover interval (cf. '*More than € 500 million*') for which the turnover is set at the lower bound of the interval (i.e. € 500 million)[16];
2. To provide an aggregate employment estimate, the mid-point of each employment interval (employment-class size) is used[17], with the exception of the top employment interval (cf. '*1000 or more employees*') for which each companies employment is set at the maximum of either (i) the lower bound employment level (i.e. 1000 employees) or (ii) an estimated number of employees calculated under the assumption that their turnover per employee is equivalent to the average turnover per employee of firms with less than 1000 employees[18]; see Section 4.2.3;
3. Irrespective of their declared employment–size class, all companies 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. *1000 or more employees*').[19]

4.2.2 Estimation of turnover for non-declaring respondents

As noted in Section 3.9.2, just under a fifth (19.6%) of respondents were unable or unwilling to provide information on the value of their turnover. The basic approach used to correct for non-declaration of turnover is as follows:

- For companies in all employment-size classes except for the employment-size class of '*1000 or more employees*' we assume that turnover of non-declaring companies corresponds to the average turnover of companies belonging to the same employment-size class;
- For non-declaring companies in the employment-size class of '*1000 or more employees*' a modified approach is used whereby:
    - An allocation of non-declaring companies between the turnover-size class of '*More than € 500 million*' and '*other*' (i.e. less than € 500 million) is made on the basis of the corresponding proportion among declaring companies (with more than 1000 employees) that indicate belonging to the turnover-size class of '*More than € 500 million*'.
    - Those companies allocated to the turnover-size class of '*More than € 500 million*' are assumed to have a turnover of € 500 million. The turnover of the remaining '*other*' non-declaring companies is assumed to be equivalent to the average turnover of declaring companies with more than 1000 employees, excluding companies in the turnover-size class of '*More than € 500 million'*.

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

[16] Estimation of the average size of security firms (in terms of turnover and employment) is particularly sensitive to the approach applied to those companies that identify themselves as being in the highest employment-size and turnover-size classes (cf. '1000 or more employees' and 'More than € 500 million'). In particular, the estimation of the number of firms with turnover of 'More than € 500 million' and the level of turnover attributed to these firms has a large impact on the estimation of aggregate turnover of the security industry. In this regard, a cautious approach is adopted for the estimation of the contribution of companies at the higher end of the turnover distribution to the aggregate turnover of the security industry. To this end, the turnover of companies that indicate a turnover of 'More than € 500 million' is assumed to be limited to the lower bound of € 500 million. At the same time, a breakdown of aggregate turnover (and employment) estimates is provided for companies with a turnover of less than € 500 million and companies with a turnover above € 500 million.

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

[18] Excluding companies with zero employees.

[19] For Italy, this adjustment affects 3 companies, of which 2 companies indicate being in the employment-size class of *'10 to 49 employees*' and one company indicate being in the employment-size class of '250 to 999 employees'

4.2.3 *Estimation of employment levels for employment-size class '1000 or more employees'*

To provide an estimate of employment levels for companies in the highest employment-size class (cf. *'1000 or more employees'*), a 'hypothetical' estimate of each company's number of employees is made under the assumption that their turnover per employee is equal to the average turnover per employee for companies having between 1 and 999 employees[20]; i.e. the 'hypothetical' estimate of the number of employees equals the company's turnover[21] divided by the calculated average turnover per employee for companies having between 1 and 999 employees. If the 'hypothetical' employment estimate is greater than one thousand then it is taken as the company's employment level, otherwise the employment level is set at 1,000 (i.e. the lower bound of the interval '*1000 or more employees*').

4.2.4 *Estimation of sample average values of employment and turnover per firm*

To calculate average values of employment and turnover per firm, two approaches have been used:

- **Simple (normal) arithmetic mean**. The first approach is to simply use the arithmetic mean values from the survey sample. These are derived by summing estimated company employment or turnover levels for all companies and divided by the number of firms in the survey.
- **Log-normal arithmetic mean**. A feature of firm data, which can be clearly be observed in our survey findings, is that the distribution of firms by size tends to be 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).[22] Accordingly, the second approach used is to calculate alternative estimators under the assumption that the distribution of firms by size (i.e. employment or turnover) is log-normal.[23]

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. Following from this, we use the two approaches to provide an upper and lower level estimator of average employment and turnover per firm.

[20] Companies with zero employees are excluded from the calculation of the average turnover per employee.

[21] The turnover is set at the mid-point of the company's turnover-size class if below the class '*More than € 500 million*' and € 500 for the class '*More than € 500 million*'.

[22] See also Section 3.9.

[23] 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]

4.3 Method for the initial estimation of aggregate turnover and employment

4.3.1 Underlying assumptions

The following underlying assumptions are used in the extrapolation of survey data to obtain estimates of the aggregate (national) turnover and employment:

1. The list of 'security companies' established as the basis for the survey (i.e. the company list) is assumed to constitute the broad population of potentially relevant companies within the country; [24]
2. The incidence level[25] of the survey is assumed to be applicable for the broad population of potentially relevant companies (i.e. the company list). 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.

4.3.2 Calculation of the initial estimate of the population of security companies

For Italy, the incidence rate for the survey is calculated as follows:[26]

$$Incidence = \frac{Surveys\ achieved\ (501)}{[Surveys\ achieved\ (501) + Screening\ failures\ (100)\ ]} = \ 83.4\%$$

Applying the incidence rate to the initial list of 'security companies' yields a relevant population estimate, as follows:

$$Relevant\ population = \ Initial\ list\ (4{,}497) * 83.4\% \ = \ 3{,}749$$

Essentially, this implies that the sample of surveyed companies (501) accounts for approximately 13% of the estimated 'relevant population' of companies in the security sector in Italy.

4.3.3 Calculation of initial estimates of aggregate (national) turnover and employment

To obtain an extrapolation of the survey data to obtain initial estimates of aggregate (national) turnover and employment, the estimated sample average values of employment and turnover per firm (see Section 4.2.4) are multiplied by the estimated relevant population of security companies (see Section 4.3.2).

[24] The list of companies established for the survey is primarily collected from published lists of members of relevant business associations available from the internet, together with supplementary searches of the internet based on relevant search criteria. We make the strong assumption that the list is sufficiently complete to encompass the full population of companies in the security industry. To the extent that the initial company list does not capture the full population of relevant companies in the security industry then *ceteris paribus* the extrapolation to an aggregate level will tend towards an underestimation of the size of the security industry.

[25] 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].

[26] It should be noted that the numbers for 'survey achieved' applied here is different from the number indicated in the description of the survey coverage and response rate described in Section 2.3. This reflects the fact that 2 companies have been excluded from the analysis due to the incomplete information for some key questions. Consequently the net sample used in the subsequent analysis is n = 501.

4.4 Variants and sub-groups

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

Although the survey has been designed to exclude companies that supply security-related products and services exclusively to the defence sector, companies that are active in both civil and defence markets are included (see Section 3.2). Further, companies are requested to indicate the level of their employment (cf. 'number of employees working in the field of security') and turnover (cf. 'turnover from the sale of security 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.[27]

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 companies' 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 (see Section 3.2); conversely, this implies reducing their turnover and employment by the proportion of 'non-civilian' related business activities.

Practically, the adjustment of individual companies' 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 for each individual company their turnover per employee is the same for both civilian and defence-related activities.[28]

4.4.2 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*', see Section 3.3), the methodology outlined above for whole survey sample is applied separately for the three sub-samples of companies 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 companies' own selection of their main broad industry category and are not adjusted to take into account the possibility that companies may be active in more than one broad industry category.

The following underlying assumptions are used in the extrapolation of survey data to obtain estimates of the aggregate (national) turnover and employment for each broad industry category:

[27] See also Section 3.2 which identifies the role of 'defence' in the customer base (market segmentation) of companies covered by the survey.

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

1. The distribution of companies between broad industry categories observed in the survey sample is assumed to be representative of the distribution of companies in the 'relevant population' of companies (Section 4.3.2);
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 (Section4.3.2).

It should be noted that the survey sample contains relatively few companies that indicate that their main broad area of security activity is in '*cyber security products and services*' (see Section 3.3) 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*'.

4.5 Size of the security industry: survey estimates and aggregate (national) extrapolation.

4.5.1 Estimates of the population of security companies

In the following sub-sections we outline the main findings on the estimated overall size of the security sector in terms of turnover and employment. As described above, initial estimates of the overall size of the security sector have been derived through the application of a relatively 'mechanical' extrapolation approach to the underlying survey data. These initial estimates have been reviewed through consultation with national stakeholders and sector experts and through cross-country comparisons of implied relative industry size. On this basis, revision of the initial aggregate estimates has been implemented through adjustments to the estimated size of the population of security firms and corresponding breakdown by broad industry categories; the comparison of these estimates is shown in **Table 4.2**.

Table 4.2 Comparison of 'initial' and 'final' estimates of the population of security companies (number of companies)

	Cyber security	Other security products	Other security services	Total
Initial estimates	187	2,028	1,534	**3,748**
Final estimates	200	2,000	1,500	**3,700**

Source: Ecorys SSS (Italy)

4.5.2 Comparison of estimators

As noted in Section 4.2.4, two approaches have been used to calculate average turnover and employment per company, which are subsequently used to derive aggregate estimates. The first approach is based on the simple arithmetic mean (hereafter, referred to as 'linear extrapolation') and the second approach is derived under the assumption the distribution of firms by size is log-normal (hereafter, referred to as 'log normal extrapolation'). The estimates derived using the two approaches are treated as if they represent upper and lower aggregate measures, while the mid-point between the two measures is treated as a single 'representative' estimate of aggregate size.

Baseline (full sample) estimates

Based on a 'relevant population' estimate of 3,700 companies, Table 4.4 provides a summary of underlying key data calculated from the whole survey sample of companies – with a breakdown by employee-size class – together with the corresponding estimates for the extrapolation to the

aggregate national level. The extrapolation yields the following mid-point estimates for total turnover and number of employees for the Italian security industry (approx.):

- Turnover: € 19 billion;
- Employees: 159 thousand.

Table 4.5 provides the data estimates obtained after adjustment to exclude possible defence-related activities. The overall aggregate mid-point estimates for turnover and employees are (approx.):

- Turnover: € 17 billion;
- Employees: € 138 thousand.

Sub-group (main broad industry category) estimates

Table 4.6 to Table 4.11 provide details on the data estimates obtained using separate estimations for the three sub-samples of companies based on their indicated main broad category of security activity. Summing the estimates for each sub-sample yields the following mid-point estimates for turnover and employees (approx.):

- Turnover: € 19 billion;
- Employees: 163 thousand.

After adjustment to exclude possible defence-related activities, the corresponding mid-point estimates are (approx.):

- Turnover: € 17 billion;
- Employees: 133 thousand.

Table 4.3 provides an overview of the mid-point estimates of turnover and employees. **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-sections.**

Table 4.3 Estimated size of the security industry (turnover and employees) by sub-group

	Baseline (full sample) estimates	Sub-group (main broad industry category) estimates			
		Cyber security	Other security products	Other security services	Total (sum of sub-groups)
Unadjusted					
Turnover	**€ 18.6 billion**	€ 2.6 billion	€ 11.3 billion	€ 5.4 billion	**€ 19.3 billion**
Employees	**159 thousand**	30 thousand	60 thousand	73 thousand	**163 thousand**
Adjusted for defence					
Turnover	**€ 16.5 billion**	€ 2.5 billion	€ 9.8 billion	€ 4.8 billion	**€ 17.1 billion**
Employees	**138 thousand**	16 thousand	51 thousand	66 thousand	**133 thousand**

Source: Ecorys SSS (Italy)

Table 4.4 Estimated size of the security industry (turnover and employees) – Base method

BASE ESTIMATES	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION LINEAR		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	59	194	79	122	35	8	4		501		**3,700**		**3,700**	
							1	3	498	3	**3,678**	**22**		
Employees per company		2.5	7	30	150	625	3,564		58		**58**		**28**	
							2,376	3,960	35	3,960	**35**	**3,960**		
Turnover per company (€ million)	0.2	0.8	0.9	3.8	25.7	31.0	450.0		7.3		**7.3**		**2.8**	
							300.0	500.0	4.3	500.0	**4.3**	**500.0**		
Turnover per employee (€ thousand)		326	123	127	171	50	126		125		**125**		**100**	
							126	126	124	126	**124**	**126**		
Total employees		485	553	3,660	5,250	5,000	14,255		29,203		**215,700**		**102,000**	**158,900**
							2,376	11,879	17,324	11,879	**127,950**	**87,740**		
Total turnover (€ million)	9.3	158.0	67.9	466.0	898.7	247.7	1,800		3,648		**27,000**		**10,200**	**18,600**
							300	1,500	2,148	1,500	**15,860**	**11,080**		

Source: Ecorys SSS (Italy)

Table 4.5 Estimated size of the security industry (turnover and employees) – Base method (adjusted for defence)

BASE ESTIMATES (ADJUSTED FOR DEFENCE)	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	59	194	79	122	35	8	4		501		**3,700**		**3,700**	
							1	3	498	3	**3,678**	**22**		
Employees per company		2.4	7	27	139	523	2,897		50		**50**		**25**	
							1,612	3,326	30	3,326	**30**	**3,326**		
Turnover per company (€ million)	0.1	0.8	0.8	3.4	24.2	26.0	377.5		6.4		**6.4**		**2.5**	
							210.0	433.3	3.8	433.3	**3.8**	**433.3**		
Turnover per employee (€ thousand)		315	121	124	174	50	130		128		**128**		**100**	
							130	130	127	130	**127**	**130**		
Total employees		462	514	3,336	4,875	4,188	11,589		24,963		**184,400**		**92,100**	**138,300**
							1,612	9,978	14,986	9,978	**110,680**	**73,690**		
Total turnover (€ million)	8.8	145.6	61.9	414.4	848.6	207.9	1,510		3,197		**23,700**		**9,200**	**16,500**
							210	1,300	1,897	1,300	**14,020**	**9,610**		

Source: Ecorys SSS (Italy)

Table 4.6 Estimated size of supply of 'cyber security products and services' (turnover and employees) – Sub-group method

CYBER ESTIMATES	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION LINEAR		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	5	9	2	7		1	1	1	25	24 1	**200**	**192 8**	**200**	
Employees per company		2.5	7	30		625	5,308	5,308	247	36 5,308	**247**	**36 5,308**	**48**	
Turnover per company (€ million)	0.2	0.2	3.0	2.3		0.8	500.0	500.0	21.0	1.1 500.0	**21.0**	**1.1 500.0**	**4.2**	
Turnover per employee (€ thousand)		67	429	78		1	94	94	85	29 94	**85**	**29 94**	**84**	
Total employees		23	14	210		625	5,308	5,308	6,180	872 5,308	**49,500**	**6,980 42,470**	**9,500**	**29,500**
Total turnover (€ million)	1.0	1.5	6.0	16.4		0.8	500	500	526	26 500	**4,300**	**210 4,000**	**800**	**2,600**

Source: Ecorys SSS (Italy)

Table 4.7 Estimated size of supply of 'cyber security products and services' (turnover and employees) – Sub-group method (adjusted for defence)

CYBER ESTIMATES (ADJUSTED FOR DEFENCE)	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	5	9	2	7		1	1	1	25	1	**200**	**8**	**200**	
Employees per company		2.4	7	24		188	2,732	2,732	125	2,732	**125**	**2,732**	**34**	
Turnover per company (€ million)	0.2	0.2	2.9	1.8		0.2	500.0	500.0	20.8	500.0	**20.8**	**500.0**	**3.5**	
Turnover per employee (€ thousand)		66	429	73		1	183	183	167	183	**167**	**183**	**103**	
Total employees		22	13	171		188	2,732	2,732	3,126	2,732	**25,100**	**21,860**	**6,800**	**16,000**
Total turnover (€ million)	0.9	1.4	5.7	12.5		0.2	500	500	521	500	**4,200**	**4,000**	**700**	**2,500**

Source: Ecorys SSS (Italy)

Table 4.8 Estimated size of supply of 'other security products' (turnover and employees) – Sub-group method

OTHER SECURITY PRODUCTS ESTIMATES	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION LINEAR		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	33	112	47	60	15	2	2	2	269	2	**1,985**	**15**	**2,000**	
Employees per company		2.5	7	30	150	625	2,707	2,707	22	2,707	**22**	**2,707**	**19**	
Turnover per company (€ million)	0.1	0.8	0.9	5.4	39.6	46.3	500.0	500.0	4.3	500.0	**4.3**	**500.0**	**3.4**	
Turnover per employee (€ thousand)		313	135	179	264	74	185	185	194	185	**194**	**185**	**180**	
Total employees		280	329	1,800	2,250	1,250	5,415	5,415	5,909	5,415	**43,610**	**39,970**	**37,200**	**60,400**
Total turnover (€ million)	4.9	87.7	44.5	322.8	593.4	92.5	1,000	1,000	1,146	1,000	**8,460**	**7,390**	**6,700**	**11,300**

Source: Ecorys SSS (Italy)

Table 4.9 Estimated size of supply of 'other security products' (turnover and employees) – Sub-group method (adjusted for defence)

OTHER SECURITY PRODUCTS ESTIMATES (ADJUSTED FOR DEFENCE)	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	33	112	47	60	15	2	2	2	271	269	2	**2,000**	**1,985**	**15**	**2,000**	
Employees per company		2.4	6	27	136	438	2,063	2,063	34	19	2,063	**34**	**19**	**2,063**	**17**	
Turnover per company (€ million)	0.1	0.7	0.8	4.7	37.7	26.6	400.0	400.0	6.7	3.8	400.0	**6.7**	**3.8**	**400.0**	**3.0**	
Turnover per employee (€ thousand)		303	133	175	277	61	194	194	198	202	194	**198**	**202**	**194**	**179**	
Total employees		265	293	1,623	2,040	875	4,127	4,127	9,223	5,096	4,127	**68,100**	**37,610**	**30,460**	**33,500**	**50,800**
Total turnover (€ million)	4.6	80.2	39.0	284.1	565.9	53.3	800	800	1,827	1,027	800	**13,500**	**7,580**	**5,910**	**6,000**	**9,800**

Source: Ecorys SSS (Italy)

Table 4.10 Estimated size of supply of 'other security services' (turnover and employees) – Sub-group method

OTHER SECURITY SERVICES ESTIMATES	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION LINEAR		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	21	73	30	55	20	5	1		205		**1,500**		**1,500**	
							1		205		**1,500**			
Employees per company		2.5	7	30	150	625	3,127		55		**55**		**42**	
							3,127		55		**55**			
Turnover per company (€ million)	0.2	0.9	0.6	2.3	18.0	30.8	300.0		5.0		**5.0**		**2.1**	
							300.0		5.0		**5.0**			
Turnover per employee (€ thousand)		371	91	78	120	49	96		92		**92**		**49**	
							96		92		**92**			
Total employees		183	210	1,650	3,000	3,125	3,127		11,294		**82,700**		**63,000**	**72,900**
							3,127		11,294		**82,640**			
Total turnover (€ million)	3.4	67.7	19.2	129.2	360.9	154.2	300		1,035		**7,600**		**3,100**	**5,400**
							300		1,035		**7,580**			

Source: Ecorys SSS (Italy)

Table 4.11 Estimated size of supply of 'other security services' (turnover and employees) – Sub-group method (adjusted for defence)

OTHER SECURITYSERVICES ESTIMATES (ADJUSTED FOR DEFENCE)	SURVEY (by employee-size class)								SURVEY (ALL)		EXTRAPOLATION		EXTRAPOLATION LOG NORMAL	EXTRAPOLATION MID-POINT
	Zero	1 to 4	5 to 9	10 to 49	50 to 249	250 to 999	1000 or more							
							Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m	Turnover < € 500 m	Turnover > € 500 m		
Number of companies	21	73	30	55	20	5	1		205		**1,500**		**1,500**	
							1		205		**1,500**			
Employees per company		2.4	7	28	142	625	2,262		49		**49**		**39**	
							2,262		49		**49**			
Turnover per company (€ million)	0.2	0.9	0.6	2.1	16.5	30.8	210.0		4.4		**4.4**		**1.9**	
							210.0		4.4		**4.4**			
Turnover per employee (€ thousand)		359	92	76	116	49	93		88		**88**		**50**	
							93		88		**88**			
Total employees		176	207	1,542	2,835	3,125	2,262		10,147		**74,300**		**57,900**	**66,100**
							2,262		10,147		**74,250**			
Total turnover (€ million)	3.4	63.1	19.0	117.9	329.9	154.2	210		897		**6,600**		**2,900**	**4,800**
							210		897		**6,570**			

Source: Ecorys SSS (Italy)

Annexes

Product and services segmentation

Cyber Security: broad segmentation of products, technologies and services	
Cyber security products and solutions	*Examples:*
Governance, vulnerability and cyber-security management	• Information security management systems • SIEMS (security information and event management) systems
Identity and access management	• Electronic access control (identification and authentication) for IT and communications equipment (hardware), systems and networks
Data security	• 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	• Security of IT software and applications (design, coding development and testing)
Infrastructure security	• System and network security software (e.g. firewalls, antivirus, anti-DDoS[29], 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	• Secure personal portable devices and identity documents • Hardware security modules • Enrolement 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	*Examples*
Audit, planning and advisory services	• 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	• 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	• 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	• IT / cyber-security education and training

[29] Distributed Denial of Service (DDoS)

Other Security Products: broad segmentation of products, technologies and services	
Other security products	*Examples:*
Mechanical access control, barriers, enclosures and physical resilience	• 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	• 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	• Intruder detection and alarm systems (with or without remote monitoring)
Fire detection, alarm and suppression	• 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	• 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)	• 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)	• 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	• 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	• 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	• 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	• Intelligence and information gathering systems for security-related purposes; • Equipment and materials for security forensics
Vehicles and platforms	• 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	• 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	• (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	• Specific activities related to the integration of functional security systems (as separate from the supply of associated equipment and platforms)

Private security services sector: broad segmentation	
Private security services	**Manpower based security services**
Guarding and manning	• 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	• Remote monitoring and surveillance services
Security of persons	• Protection of individuals or groups of persons (e.g. VIP protection services)
Detection and investigation	• Security investigation and detective service activities
Security consultancy services	**Consultancy, advisory and training services**
Security consulting and advisory services	• Risk assessment and advisory services • Threat assessment and analysis • Security engineering and design services • Other security related consultancy and advisory services
Security training services	• 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	• Educational, academic and private institutions engaged in security-related research activities concerning the development of technologies and technical solutions.
Other research	• Educational, academic and private institutions engaged in security-related research activities concerning, for example, social, behavioural, organisational, economic and legal aspects of security

Market Segmentation

Security market: broad segmentation			
Security industry (supply chain)		**Providers of security systems, sub-systems, products, equipment and technologies and associated services***	
	Cyber security industry	• Providers of products used for the security of IT systems, electronic data storage, and electronically processed or communicated information	
	Other security industry	• Providers of products used for the (physical) security of persons, tangible property and assets, infrastructures and environments	
	Private security services sector	• Private security services, security consultancy services and security research services	
		** 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	• Administration, supervision and operation of military defence affairs and land, sea, air and space defence forces	84.22
	Public security service providers	• Public security services, public security intelligence and preparedness services	See List 4
	Public administrations	• Public administrations (central, regional or local) other than defence, public order, safety and fire service activities (*above*)	84 (ex. 84.22, 84.24, 84.25)
	Health and education	• 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	• 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)
		• 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	• Electricity generation and distribution • Gas transport, storage and distribution • Water capture, storage, treatment and distribution	35, 36, 37
	Communications and information	• Telecommunication infrastructure and systems • Public broadcasting (radio and television)	60, 61
	Finance	• Banking, securities and investment services • Insurance and reinsurance	64 - 66
Other economic sectors		**Other economic sectors**	**NACE**
	Primary sectors	• Agriculture, forestry, fishing, • Mining and quarrying	01 - 03 05 - 09

	Manufacturing	• Manufacturing sectors other than:
		  ○ Physical security industry (*above*)
		  ○ Cyber security (hardware) industry (*above*)
			10 - 33

	Construction	• Construction of buildings • Civil engineering • Specialised construction activities	41 - 43
	Real estate and property management	• Buying, selling, renting and operating real estate	68
	Wholesale and retail distribution	• Wholesale and retail sale (i.e. sale without transformation) of goods	45 - 47
	Hotels, restaurants and leisure services	• 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	• Professional and other business services other than:
		  ○ Cyber security services (*above*)
		  ○ Private security services (*above*)
		• 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	• Private individuals and households	N.A.

P.O. Box 4175
3006 AD Rotterdam
The Netherlands

Watermanweg 44
3067 GG Rotterdam
The Netherlands

T +31 (0)10 453 88 00
F +31 (0)10 453 07 68
E netherlands@ecorys.com

W www.ecorys.com

Sound analysis, inspiring ideas