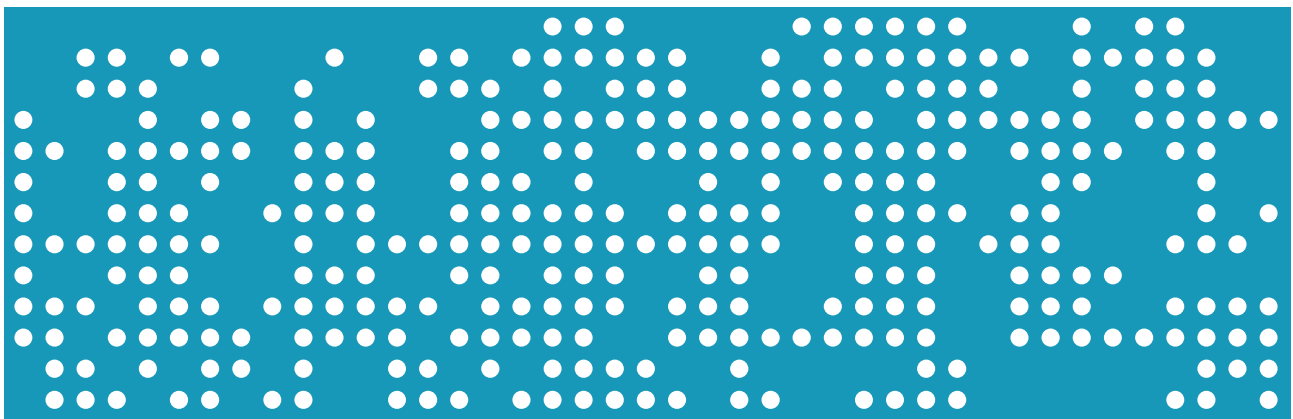




Information and Communication Technologies in SMEs and large companies in Spain

2011 Edition



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1. HIGHLIGHTS

- **Virtually all large companies have computers, Internet connection and e-mail.** Additionally, almost 100% of those with Internet access connect via fixed or mobile broadband.
- **The computer, Internet connection and e-mail have a larger penetration rate than mobile phones.** Of businesses with 10 or more employees, 91.5% have company mobile telephones. 98.6% of these companies have personal computers, 97.2% have Internet connection and 96.5% have e-mail.
- **Wireless local area networks (WLANs) show an increase of approximately 5 percentage points in the last year, representing the infrastructure and connectivity indicator with the most growth.** With this increase of 4.6 points, the penetration rate has risen to 39.3%. Local area networks (LANs) are present in a greater number of SMEs and large companies and record an increase of 2.6 points. Other technologies (GPS, POS, etc.) have experienced an increase of 2 percentage points up to 29%.
- **100% of SMEs and large enterprises in the financial sector have computers and Internet access.** Professional activities, wholesale, sale and repair of vehicles, hotels and travel agencies show ICT infrastructure and connectivity indicators above 95%.
- **(Fixed or mobile) broadband shows a high and homogeneous penetration rate in all sectors.** (Fixed or mobile) broadband, computers, fixed broadband, Internet access and e-mail, in that order, are the indicators that show smaller differences between the maximum and minimum penetration level, always lower than 7 percentage points.
- **98.7% of SMEs and large companies with Internet access have (fixed or mobile) broadband.** In the case of fixed broadband the percentage is 98.2% and in mobile broadband 36.7%. Traditional modem and ISDN access are a minority, only used in less than 20% of these companies.
- **Over 95% of companies with 10 or more employees with Internet access connect via DSL technology.** Other fixed broadband connections such as cable are used by 12.3% of SMEs and large companies with Internet. In the case of large companies with 250 or more employees, almost 5 out of 10 use other types of fixed broadband connection (cable, LMDS, etc.).
- **4 out of 10 SMEs and large companies with Internet access connect via mobile telephones, which represents an increase of more than 7 points compared to the previous year.** The percentage rises to 79.6% in the case of large companies. The largest leap, of more than 12 points, occurs in companies of between 50 and 249 employees. In the case of large companies with 250 or more employees the increase is of 8.4 points, followed by the increase of 6.6 points in companies with between 10 and 49 employees.

- **Mobile broadband reaches 36.7% of SMEs and large companies with Internet access.** 27.9% connect via a PC with a 3G modem and 25.2% via a mobile phone with 3G technology. There are no significant differences between devices but there are some differences based on the size of the company.
- **Half of large companies provide their employees with ICT training.** In the case of those with 10 or more workers, the percentage stands at 18.8%. In the case of medium-sized and small businesses, percentages are 16.7% and 29.3%, respectively. Notwithstanding, small companies offer ICT training to their employees to a greater degree than large ones.
- **All sectors have Internet penetration rates of over 90%, and in the financial sector it is of 100%.** 97.2% of all SMEs and large enterprises have Internet access. Searching for information and using financial and banking services are the most common activities for companies with Internet, with percentages of 96.4% and 90.2%, respectively. The Web is used as a communication platform on 86.8% of occasions.
- **The availability of a website is especially common among small companies.** 60.8% of small companies with Internet have their own website, 5.6 points more than the previous year. Among SMEs and large companies the availability of a web page has increased globally by 5 points in a year, up to 63.9%, highlighting the increase of 3.3 points reported by medium-sized companies and the continuity of their web pages reported by large companies. The main aim of the website is still to present the company.
- **Over 90% of large and medium-sized companies interact with the public administration via the Internet.** If we include small companies (66.6% of which use this interaction), the percentage for companies with 10 or more employees is 70.1%. The two main reasons for interacting are to obtain information and to obtain forms. However, the most notable growth has been observed in bidirectional procedures between companies and the public administration (specifically, complete electronic management has risen by 5.2 points).
- **The digital signature continues to rise with almost half of SMEs and large companies using it.** There are some differences based on the size of the company. More than 80% of large and medium-sized companies use digital signatures while for small companies the percentage is 51.4%.
- **The percentage of companies making e-Commerce purchases is higher than that of those selling by the same means.** On the one hand, 24.1% of SMEs and large companies purchase via e-Commerce, which represents an increase of 3.8 points over the previous year. On the other hand, the percentage of those selling by the same means is 13.1%, which also represents an increase of 2 points over the previous year.
- **E-Commerce sales are still led by hotels and travel agencies, with 63.4% of the sector's companies selling by these means.** The IT, telecommunications and audiovisual sector stands out in e-purchases with 51% of the sector's companies buying by this means.

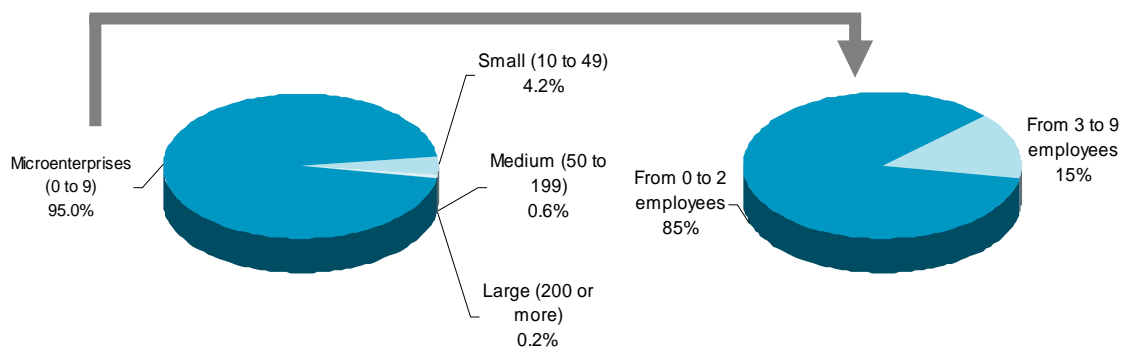
- **B2B commerce represents 88.9% of e-sales and B2C commerce grows by around 2 points.** The transactions between companies and the public administration (B2G) represent 2% of the total. In the case of transactions between companies and end consumers (B2C) the percentage stands at 9.2%. The presence of both end consumers and the public administration in e-Commerce transactions has grown compared to the previous year.
- **The industry (with 54.3%) and the wholesale trade (with 23%) account for 77% of the amount of e-Commerce sales.** The other sectors represent 22.7% of the total, with real estate activities (0.6%) and retail trade (1.5%) at the very bottom.
- **The destruction or alteration of information caused by software or hardware failures affects 19.1% of SMEs and large enterprises, and becomes the most common incident among companies with Internet.** 6.2% of the incidents associated to ICT security systems are external attacks, while 11.1% are viruses or unauthorised accesses.
- **Over 67% of large companies have security policies that are periodically updated.** The global percentage for SMEs and large companies is 33.1%, and at a disaggregated level, the percentages are 30.3% for small companies and 40.7% for medium ones. By sectors, companies dedicated to financial activities lead the way; 87% of them have security policies that are periodically updated.

2. BUSINESS STRUCTURE IN SPAIN

2.1. Companies according to number of employees

According to data published by the National Statistics Institute (INE), contained in the Central Companies Directory (DIRCE 2010), the total number of companies in Spain amounts to 3,291,263, 95% of which have a maximum of 9 employees. Small companies (10 to 49 employees) represent 4.2 %, followed by medium-sized companies (50 to 199 employees) with 0.6% and, lastly, large companies (with 200 or more employees) which account for 0.2% of the total number of companies in Spain. Among companies with less than 10 employees or microenterprises, those with 0 to 2 employees stand out, with more than 2.6 million companies of this type which comprise 85% of all microenterprises in the country.

Figure 1. Distribution of companies and micro-companies in Spain by number of employees



All companies: 3,291,263

Total number of microenterprises: 3.128.181

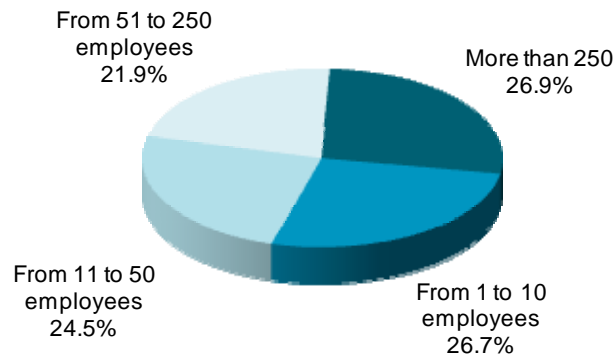
Source: ONTSI based on DIRCE 2010

2.2. Representation of the workforce

According to data from the Survey on the Labour Situation conducted by the Ministry of Labour and Immigration, in the third quarter of 2010 the total workforce of the country was distributed in similar percentages among small, medium and large companies.

Although microenterprises account for 94.5% of the Spanish business fabric, these companies only employ around 26.7% of the country's workers, while large companies (with more than 250 employees) that only represent 0.2% of the Spanish business fabric, account for 26.9% of the total workforce. These are followed by small companies (of 11 to 50 employees) that employ 24.5% of the country's workforce and medium companies (of 51 - 250 employees) employing 21.9% of it.

Figure 2. Distribution of the workforce (2010)



Source: ONTSI based on the Labour Situation Survey 2010 3Q2010

Members of the company not considered employees, in other words, partners or owners of microenterprises or the self-employed are not included. If they were, the percentage of workers in microenterprises would rise.

2.3. Companies per Autonomous Region

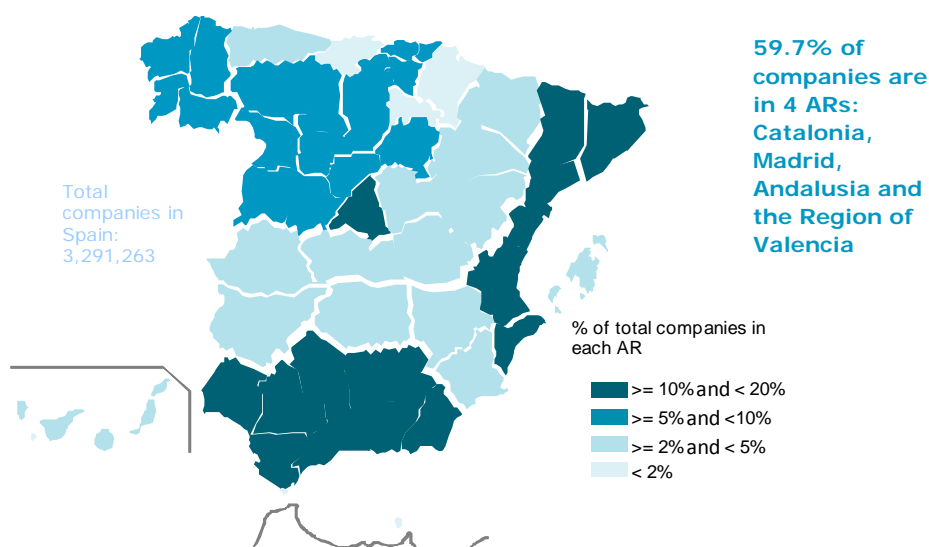
Four Autonomous Regions concentrate 59.7% of the almost 3.3 million companies in Spain: Catalonia (18.5%), Madrid (15.3%), Andalusia (15.1%) and the Autonomous Region of Valencia (10.7%). These are followed by Galicia (6%), the Basque Country (5.2%) and Castile-Leon (5.1%). The others account for less than 5% of the total, as shown in the following table and map.

Table 1. Companies per Autonomous Region

	Total companies (micro, SMEs and large)	% of total companies in each AR	Total microenterprises (0 to 9 employees)	% of total microenterprises in each AR	Total SMEs and large companies (10 employees or more)	% of total SMEs and large companies in each AR
Total Spain	3,291,263	100.0%	3,128,181	100.0%	163,082	100.0%
Andalucía	498,579	15.1%	476,772	15.2%	21,807	13.4%
Aragón	92,205	2.8%	87,118	2.8%	5,087	3.1%
Asturias	70,362	2.1%	67,245	2.1%	3,117	1.9%
Baleares	89,562	2.7%	85,520	2.7%	4,042	2.5%
Canarias	135,954	4.1%	129,598	4.1%	6,356	3.9%
Cantabria	39,024	1.2%	37,140	1.2%	1,884	1.2%
Castilla and Leon	168,972	5.1%	161,509	5.2%	7,463	4.6%
Castile-La Mancha	131,836	4.0%	125,659	4.0%	6,177	3.8%
Cataluña	609,670	18.5%	577,561	18.5%	32,109	19.7%
Autonomous Region of Valencia	352,366	10.7%	335,288	10.7%	17,078	10.5%
Extremadura	65,573	2.0%	62,891	2.0%	2,682	1.6%
Galicia	198,874	6.0%	189,881	6.1%	8,993	5.5%
Madrid	503,501	15.3%	476,327	15.2%	27,174	16.7%
Murcia	92,196	2.8%	87,242	2.8%	4,954	3.0%
Navarra	42,347	1.3%	39,598	1.3%	2,749	1.7%
Basque Country	169,782	5.2%	160,001	5.1%	9,781	6.0%
La Rioja	23,190	0.7%	21,883	0.7%	1,307	0.8%

Source: ONTSI based on DIRCE 2010

Figure 3. Distribution of companies per Autonomous Region



Source: ONTSI based on DIRCE (Central Companies Directory) data for 2010

2.4. Sectoral grouping of companies

This study will go into detail on Information and Communication Technologies in SMEs and large companies in Spain, in other words, those companies with more than 10 employees. Therefore, it is important to take the Spanish small, medium and large business structure into account, as the reference and starting point.

The following table shows the distribution of Spanish SMEs and large companies by sector, based on the 10 sector groups indicated in the National Classification of Economic Activities 2009 (NACE-2009). This classification allows for a greater disaggregation of results. The sector groups have been made up of the target sectors of the Survey on the Use of ICT and Electronic Commerce in Companies conducted by the INE (Spanish National Statistical Institute), which is the statistical source of the present study and covers 80% of the Spanish small, medium and large business fabric.

Distribution of Spanish companies by sector varies according to whether they are micro-enterprises (business with between 0 and 9 employees) or SMEs and large companies (with 10 or more employees); although, in both cases the financial sector has the least number of businesses, against construction, with the most.

In 2010, the industry concentrated the highest percentage of companies with 10 or more employees of Spain (21.9%), similarly to the previous year. It is followed by the construction sector (with 17.6%), that has experienced a drop of 5.4 points with respect to the previous year. These two sectors are the only ones that record double-digit percentages. The wholesale trade, a prominent sector in the Spanish business fabric, has fallen by almost two points, down to 8.4%. In contrast, hotels, camping sites and travel agencies, transport and storage, the IT, telecommunications and audiovisual sector, real estate and administrative activities, and professional activities have increased their representativeness slightly over the last year.

Table 2. Sectoral grouping of companies with 10 or more employees in Spain

No.	Category name	NACE (Spanish Economic Activity Code) 2009	Category description	Total companies (DIRCE 2010)	% of total companies
1	Industry	10 to 39	10-33: Manufacturing industry; 35: Supply of electricity, gas, steam and a/c; 36-39: Supply of water, sanitation, waste and decontamination	35,780	21.9%
2	Construction	41 to 43	Construction	28,771	17.6%
3	Sale and repair of motor vehicles	45	Sale and repair of motor vehicles and motorcycles	4,945	3.0%
4	Wholesale trade	46	Wholesale trade	13,723	8.4%
5	Retail trade	47	Retail trade (except motor vehicles)	8,367	5.1%
6	Hotels, campsites and travel agencies	55 to 79	Hotels and campsites; travel agencies	3,564	2.2%
7	Transport and storage	49 to 53	Transportation and storage (including postal service)	9,816	6.0%
8	IT, telecommunications and audiovisual activities	58 to 63	Information and Communications (including audiovisual services)	4,153	2.5%
9	Real estate and administrative activities	68 + (77 to 82 (excluding 79))	68: Real estate activities; (77 to 82 excluding 79) Administrative activities and auxiliary services (excluding 79, travel agencies)	11,187	6.9%
10	Professional activities	69 to 74	(69 to 74) Scientific and technical professional activities (without 75: veterinary)	9,479	5.8%
11	Financial*	64.19 + 64.92 + 65.1 + 65.2 + 66.12 + 66.19	Financial and insurance activities	706	0.4%
Total companies in sectors covered by the survey (Universe)				130,491	80.0%
Other companies (from sectors not covered by the survey)				32,591	20.0%
TOTAL SPANISH COMPANIES				163,082	100.0%

* The companies of the financial sector have been grouped using the 3-digit NACE classification-codes 641, 649, 651, 652 and 661-, since there are no specific 4-digit NACE codes for the sample

Source: ONTSI based on DIRCE 2010

3. ICTS IN SPANISH SMES AND LARGE COMPANIES

This study will go into detail on Information and Communication Technologies in SMEs and large companies in Spain, in other words, those companies with more than 10 employees, and is structured around the following main axes: Firstly, technological infrastructure resources in companies and use of these by employees. Secondly, a very important point is the Internet. Indicators such as availability of Internet access and webpages, and interaction with the e-Administration are analysed here. Another big axis is e-Commerce, which includes concepts such as digital signatures, electronic data exchange and ERP¹ and CRM² tools. Finally, ICT security issues are explored.

The results are presented based on the number of employees and the sectors in which the companies are mainly engaged, and in some cases they are disaggregated by autonomous region.

3.1. Infrastructure and connectivity

3.1.1. Access and network devices

Personal computers continue to be one of the most widely used infrastructures, with a penetration rate of 98.6% of SMEs and large companies. Internet access also stands out, with a penetration rate of 97.2% of companies with 10 or more employees, and records an increase of 1 point over the previous year. Out of these, 98.7% connect via broadband, whether mobile or fixed. E-mail and mobile telephones are also present in over 90% of SMEs and large companies, with penetration rates of 96.5% and 91.5% respectively.

In growth terms, computer networks, especially WLANs (wireless networks) have seen the most growth in a year. With an increase of 4.6 percentage points, their penetration rate has risen to 39.3%. Local area networks (LANs) are present in a greater number of SMEs and large companies (85.6%) and record an increase of 2.6 points over the last year. Other technologies (GPS, POS, etc.) have experienced an increase of 2 percentage points up to approximately 29%.

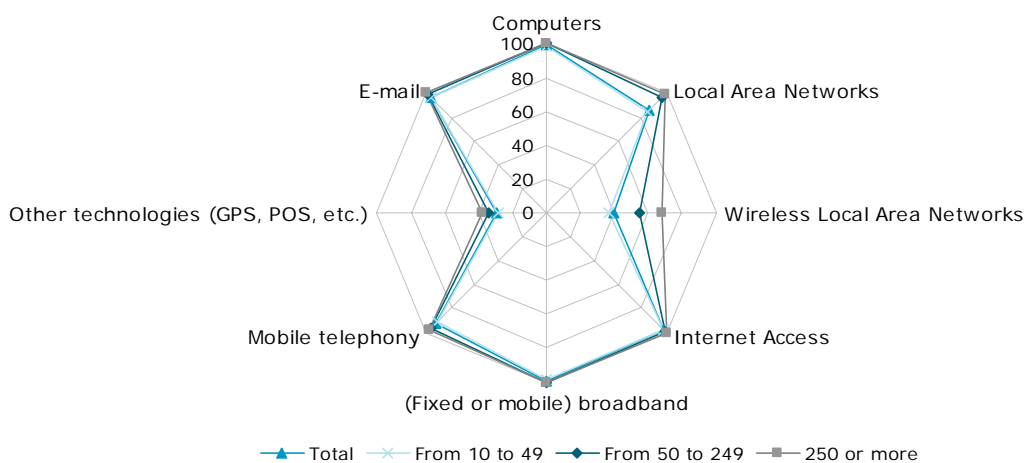
Wireless local area networks (WLANs) show an increase of approximately 5 points in the last year, representing the infrastructure and connectivity indicator with the most growth

As has occurred over the last years, mobile telephony and personal computers are the infrastructures with the lowest variations with respect to the previous year, since they already recorded high penetration rates. On the contrary, the infrastructures that had the lowest penetration rates are the ones experiencing the greatest growth.

¹ Enterprise Resource Planing (see definition in point 3.4.4)

² Enterprise Resource Planing (see definition in point 3.4.4)

Figure 4. ICT infrastructure and connectivity by type of company



Base: all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

Breakdown of data according to company size shows a direct proportion between the number of employees and the penetration of the different information and communication technologies analysed.

Almost all large companies have computers, Internet connection and e-mail

In the large companies segment (those with 250 or more employees), ICT infrastructure indicators reveal significant penetration levels. In fact, virtually all these companies have computers, Internet connection and e-mail. Additionally, almost 100% of those with Internet access connect via fixed or mobile broadband. Local Area Networks (LANs) are present in 98.3% of large companies, slightly above the percentage of mobile telephones (97.3%). Wireless local area networks (WLANs) are less common and are present in 68.4% of these companies. As for intranets and extranets, they are available in 72.2% and 45.7% of these companies respectively. Other technologies like GPS or POS show the lowest penetration levels, reaching only 37.8% of large companies.

Over 95% of companies with 50 to 249 employees (medium-sized) have computers, Internet connection and e-mail. Of the 98.8% percent of those with Internet, 99.6% of them have broadband access. Additionally, around 96% of these companies have mobile telephones and local area networks (LANs). The penetration rate of LANs in this type of companies is 40 points greater than the penetration rate of WLANs (55.1%). Intranet and extranet penetration in companies with 50 to 249 employees reach values of 43.2 % and 27.9%, respectively.

98.5% of small companies have personal computers and around 97% have Internet access, out of which 98.6% connect via broadband. Local area networks (LANs) are present in 83.8% of these companies, while wireless local area networks (WLANs) reach 36.5% of companies with 10 to 49 employees. In this segment, we observe the smallest difference between intranets (22%) and extranets (14.3%), of 8 points as compared to the 15 to 26 point differences of other categories.

Table 3. Availability of ICT infrastructure by company size

% of companies that had:	Total	From 10 to 49	From 50 to 249	250 or more
(Fixed or mobile) broadband*	98.7	98.6	99.6	99.9
Mobile telephony	91.5	90.8	96.1	97.3
Computers	98.6	98.5	99.8	99.8
Internet Access	97.2	96.9	98.8	99.7
E-mail	96.5	96.2	98.5	99.7
Local Area Networks	85.6	83.8	96.7	98.3
Other technologies (GPS, POS, etc.)	28.8	27.9	33.7	37.8
Wireless Local Area Networks	39.3	36.5	55.1	68.4
Intranets	25.6	22.0	43.2	72.2
Extranets	16.6	14.3	27.9	45.7

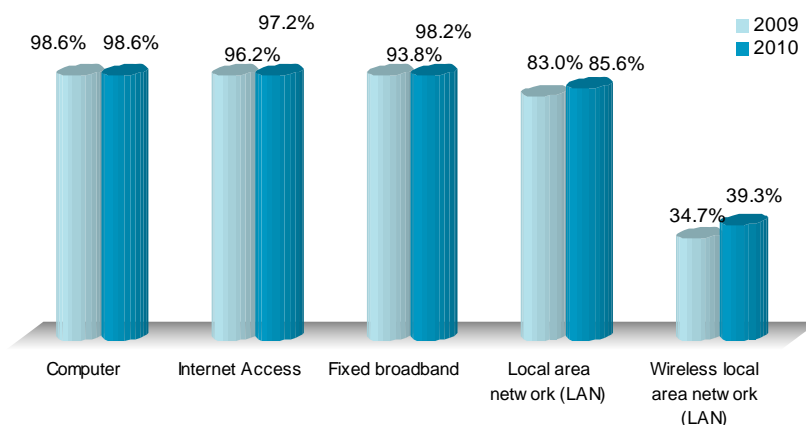
Base: all companies with 10 or more employees

**Base for the broadband indicator: companies with 10 or more employees with Internet connection*

Source: ONTSI using data from the INE 2010

The percentages of SMEs and large companies with fixed broadband and wireless computer networks show the greatest increases as compared to the previous year. They have recorded increases* of 4.4 and 4.6 points respectively, reaching penetration rates of 98.2% and 39.3%. Computer networks (LAN) have increased by 2.6 points (85.6%) and the Internet by 1 point (97.2%). Personal computers remain flat with a penetration rate of 98.6%.

Figure 5. Evolution of the main ICT indicators 2009-2010



Base: all companies with 10 or more employees

**Base for the fixed broadband indicator: companies with 10 or more employees with Internet connection*

Source: ONTSI using data from the INE 2010

Access and use of ICTs by economic activity sector

The analysis of ICT access and use in companies is based not only on their size (number of employees) but also on the activity sector in which they operate. While in general ICT equipment and connectivity indicators show high penetration rates, there are some differences between sectors that must be taken into consideration.

In the top of the ranking, with the highest penetration rates, we find the financial, and the IT, telecommunications and audiovisual sectors. Specifically, 100% of companies with ten or more employees in the financial sector have computers and Internet access. Additionally, 100% of those with Internet access connect via (fixed or mobile) broadband, and 99.8% via fixed broadband. Infrastructures like the e-mail (99.6%), local area networks (99.3%) and mobile phones (96.1%) present also high percentages. In this sector intranets (70.1%) and extranets (75.1%) record notably high percentages, far ahead of the penetration rates of these infrastructures in the construction sector. The financial sector records no minimal values for any of the indicators, as compared with the other sectors.

100% of SMEs and large enterprises in the financial sector have computers and Internet access

The values for the IT, telecommunications and audiovisual sector are very similar to those of the financial sector but slightly lower, nearly reaching 100%. The most notable difference is found in the indicator "extranets" that, with a value of 44.5%, is placed in the second interval of the table below.

Another group of sectors with good infrastructures and technological connectivity is formed by professional activities, wholesale traders, sale and repair of vehicles, and hotels and travel agencies. In these cases, basic indicators on availability of computers, access to the Internet, e-mail and broadband connection reach values of over 95% in all cases.

Professional activities, wholesale, sale and repair of vehicles, hotels and travel agencies show ICT infrastructure and connectivity indicators above 95%

Lastly, the industry, construction, retail trade, real estate and administrative activities, and transport and storage, are the sectors with the lowest percentages in all indicators.

(Fixed or mobile) broadband shows high and homogeneous penetration rates in all sectors

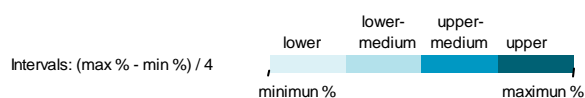
The analysis by indicators evidences that (fixed or mobile) broadband, computers, fixed broadband, Internet access and e-mail, in that order, are the indicators that show smaller differences between the maximum and minimum penetration level, always lower than 7 percentage points. We could say that penetration rates are more

homogeneous in these sectors.

The greatest differences between maximum and minimum penetration rates (of 56 to 69 points) are found in the cases of intranets and extranets. The indicator “other technologies” also records a difference of almost 43 points between sectors. In the cases of local area networks (LANs) and wireless LANs, the differences are of around 27 and 33 points, while in mobile telephony it is of 15 points.

Table 4. Infrastructure and ICT access by sector

% of companies that had:	Total Spain	Industry	Construction	Sale and repair of vehicles	Wholesale trade	Retail trade	Hotels and travel agencies	Transport and storage	IT, telecommunications and audiovisual activities	Real estate and administrative activities	Professional activities	Financial
Mobile telephony	91.5	91.2	92.3	92.7	96.1	81.4	85.5	93.7	96.5	92.4	88.3	96.1
Computers	98.6	98.6	97.5	100.0	100.0	97.9	100.0	98.9	99.6	97.5	100.0	100.0
Internet Access	97.2	96.6	96.2	99.9	99.4	95.2	99.3	97.5	99.6	94.1	99.7	100.0
E-mail	96.5	96.0	95.6	99.4	98.9	94.0	99.2	96.8	99.5	92.9	99.1	99.6
(Fixed or mobile) broadband	98.7	98.3	98.5	99.1	99.6	98.8	99.4	98.6	99.8	97.8	99.8	100.0
Fixed broadband	98.2	97.6	98.0	98.3	98.8	98.7	99.2	97.9	99.7	96.9	99.5	99.8
Local area network (LAN)	85.6	86.8	75.3	95.8	94.4	86.6	92.3	85.5	97.4	72.7	97.8	99.3
Wireless Local Area Networks	39.3	38.1	30.8	54.0	45.7	37.4	50.9	35.8	63.7	32.5	49.4	43.1
Intranets	25.6	25.1	13.8	30.8	31.0	19.0	34.5	26.6	59.3	24.5	41.4	70.1
Extranets	16.6	15.2	5.9	23.2	24.2	12.2	22.0	22.0	44.5	11.6	29.2	75.1
Other technologies (GPS, POS, etc.)	28.8	19.7	19.3	52.7	40.2	60.1	62.0	35.0	24.0	19.1	21.7	34.4



Base: all companies with 10 or more employees

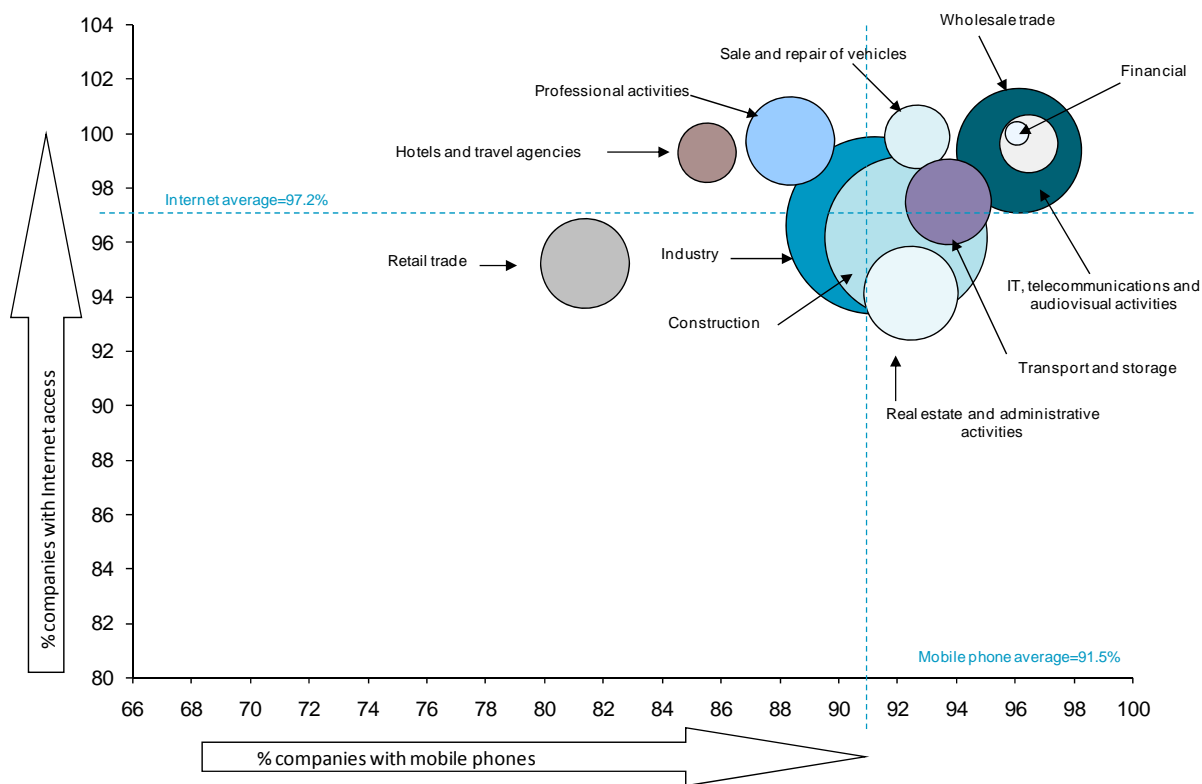
*Base for the broadband indicator and the fixed broadband indicator: companies with 10 or more employees with Internet connection

Source: ONTSI using data from the INE 2010

The following figure shows the position of each sector based on the availability of mobile phones and Internet. The position of each sector in the different quadrants is determined by the average percentage of SMEs and large companies with Internet (97.2%) and the average percentage of SMEs and large companies with mobile telephones (91.5%). The upper right hand quadrant is the ideal situation, and includes sectors with the greatest penetration of both mobile phones and Internet.

In this sense the best positioned sectors are: the financial sector, the IT, telecommunications and audiovisual sector, the wholesale trade, the sale and repair of vehicles, and the transportation and storage sector. The construction sector and the industry record values close to the average. Real estate and administrative activities show mobile telephone penetration rates above the average and Internet penetration rates below the average. On the contrary, professional activities and hotels and travel agencies have Internet penetration rates above the average and mobile telephone penetration rates below the average. Retail trade is the only sector in the lower left hand quadrant, showing low penetration rates for both infrastructures.

Figure 6. Companies with Internet access vs. companies with mobile telephony



Note: the size of the bubble is proportional to the number of sector companies

Base: all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

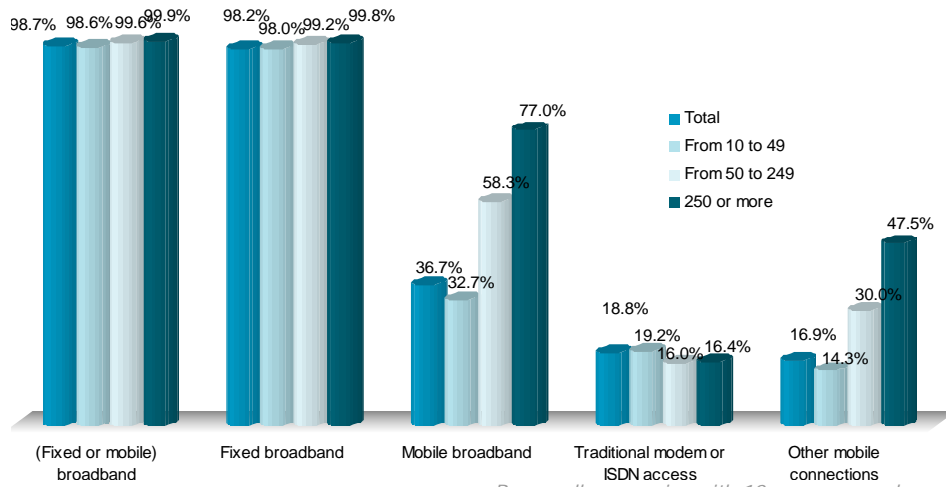
3.1.2. Type of Internet connection

The most popular type of Internet connection chosen by SMEs and large companies is broadband. Specifically, 98.7% of companies with 10 or more employees with Internet access connect via fixed or mobile broadband. If we only consider those companies using fixed broadband the percentage is 98.2%, while for mobile broadband the percentage is 36.7%. Traditional modem and ISDN access are a minority, only used in less than 20% of these companies.

98.7% of SMEs and large companies with Internet access have fixed or mobile broadband

By company size, no significant differences are observed in classical indicators such as access to (fixed or mobile) broadband, fixed broadband and traditional modem or RDSI. On the contrary, we find variations in Internet access via mobile broadband and via other mobile technologies, based on the number of employees of the company.

Figure 7. Type of Internet connection



Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

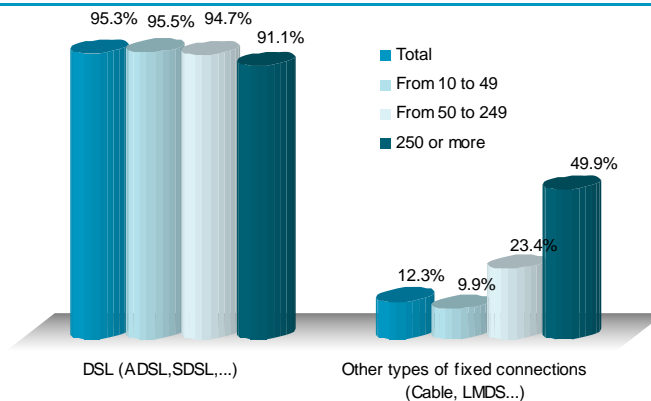
Fixed broadband Internet access

As already mentioned, 98.2% of the companies with 10 or more employees that had Internet access connected via fixed broadband, which is the most widely-used Internet access technology. Specifically, DSL technology is present in 98.6% of these companies, while other fixed broadband connections, like cable, are hardly present in 12% of SMEs and large companies.

Over 95% of SMEs and large companies with 10 or more employees with Internet access connect via DSL technology

The analysis based on the number of employees evidences that smaller companies have higher DSL penetration rates and fewer cable or other types of fixed connections than companies with 250 or more employees, while these last show higher penetration levels of cable and other type of fixed connections.

Figure 8. Types of fixed broadband by connection technology



Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

Mobile Internet access

Since the last years, mobile telephones are used not only for voice services, but also to access and browse the Internet. In general, 4 out of 10 SMEs and large companies have Internet access via the mobile telephony network (broadband or other types of connections). In the case of companies with 250 or more employees the proportion rises to 8 out of 10. More in detail, 36.7% of companies with 10 or more employees with Internet access connect via a mobile phone and 16.9% do it via other mobile telephone connections at lower speeds. These two modalities are not mutually exclusive, therefore some companies connect both via mobile broadband and other mobile connections.

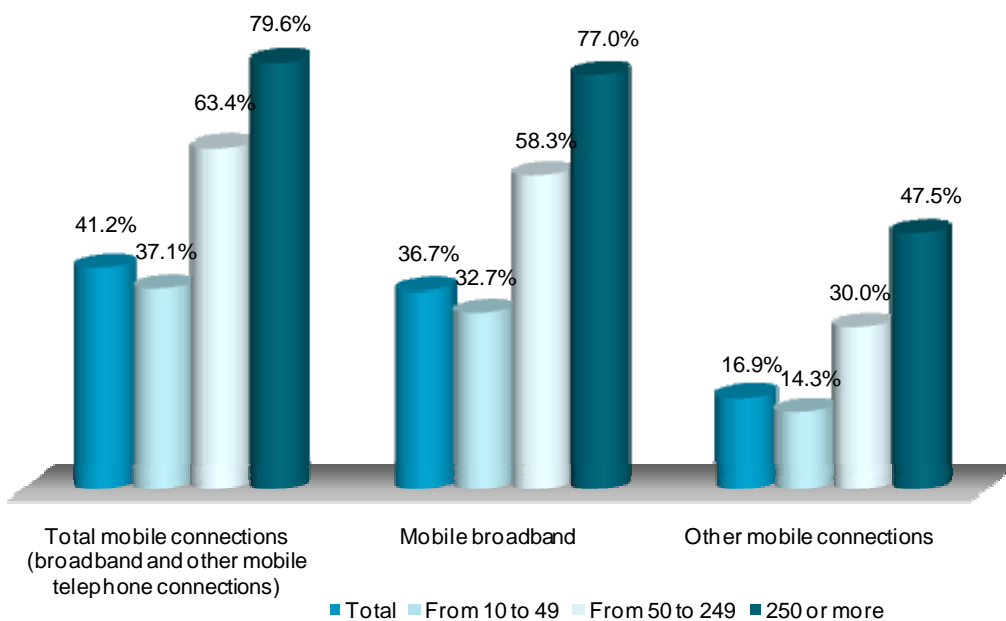
4 out of 10 SMEs and large companies with 10 or more employees with Internet access connect via mobile telephones, showing an increase of more than 7 points in a year

36.7% of SMEs and large companies with Internet access have mobile broadband

In this sense, we can assert that, as it happens with fixed connections, broadband is the most widely used technology for mobile access.

There is a positive and direct relation between the number of employees and the percentage of companies connecting to the Internet via the different modalities shown in the graph below. For example, the percentage of large companies with mobile broadband telephones is 77%.

Figure 9. Types of mobile Internet access



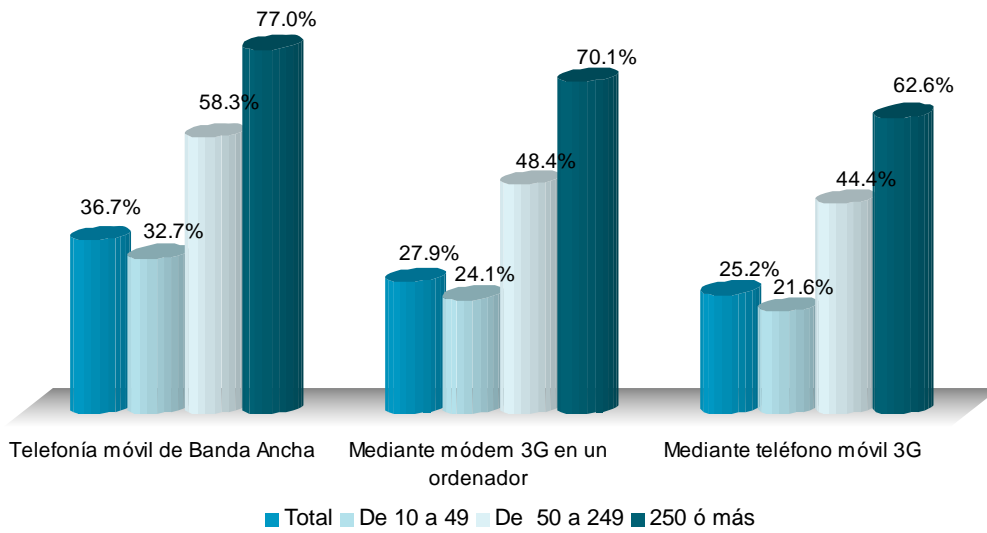
Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

As for devices used to access mobile broadband, around 28% of SMEs and large companies with Internet connect via a PC with a 3G modem and over 25% via a mobile phone with 3G technology. There are no significant differences between devices but there

are important differences based on the size of the company. In fact, while 70.1% of large companies with Internet access connect via a PC with a 3G modem, only 48.4% of medium-sized and 24.1% of small companies connect that way. At the same time, 62.6% of companies with 250 or more employees with Internet access connect via a 3G mobile phone, as compared to 44.4% of those with 50 to 249 employees and 21.6% of those with 10 to 49.

Figure 10. Mobile broadband Internet access



Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

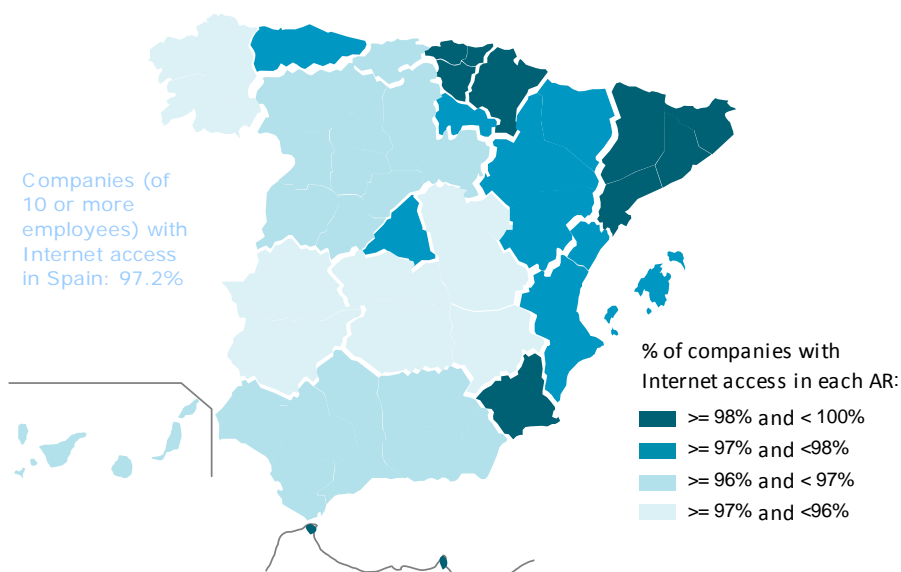
3.1.3. Infrastructure by Autonomous Region

Once the infrastructure and connectivity indicators have been analysed based on the company size and the activity sector in which they operate, this section analyses the results in each autonomous region to obtain a regional approach of ICTs in SMEs and large companies.

Availability indicators of broadband and personal computers are those presenting the most homogeneous picture in all the autonomous regions, with differences between maximum and minimum penetration rates below 2.5 percentage points. On the contrary, the greatest differences between maximum and minimum penetration rates (of more than 23 and 20 percentage points respectively) are found in the cases of LANs and WLANs.

Considering the indicators selected in the table below, we can see that the autonomous regions with the highest penetration levels in general are Ceuta and Melilla (with 5 indicators in the upper interval) and Basque Country, Murcia and Catalonia (with 4 indicators in the upper interval). Additionally, the indicators with the highest penetration rates are computers, Internet access and e-mail.

Figure 11. Companies with Internet connection by Autonomous Region.

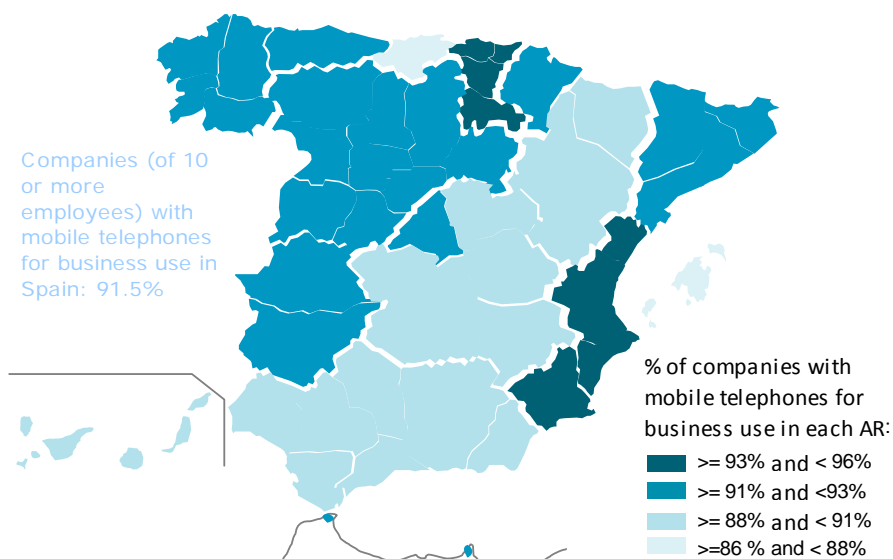


Base: all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

Comparing the availability of mobile telephones, which on average reaches 91.5% of companies with 10 or more employees, it can be seen that La Rioja, Murcia, the Basque Country and the Region of Valencia lead the field.

Figure 12. Companies with mobile phone by Autonomous Region

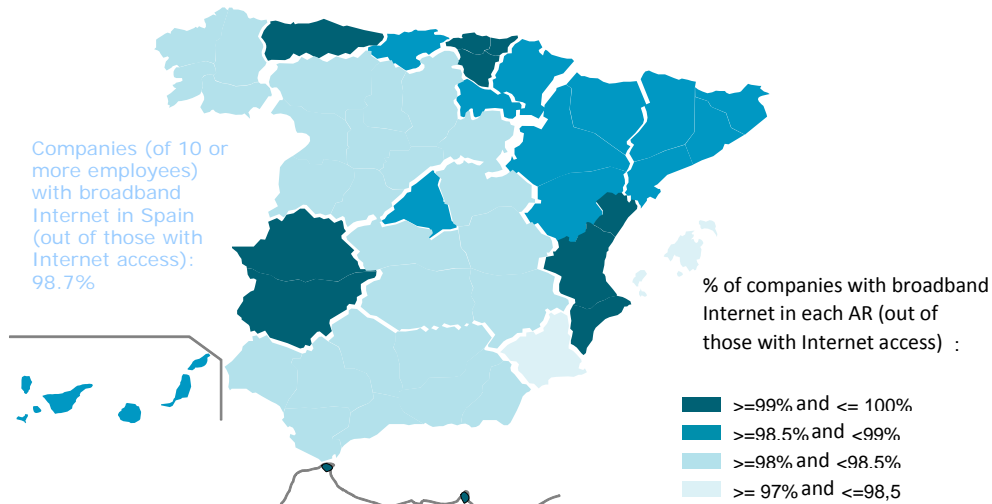


Base: all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

With regard to broadband (whether fixed or mobile), it is used by 98.7% of SMEs and large companies with Internet access, with the Regions of Ceuta, Melilla, Extremadura, Asturias, the Basque Country and Valencia at the top of the ranking.

Figure 13. Companies with broadband by Autonomous Region



Base: companies with 10 or more employees with Internet access

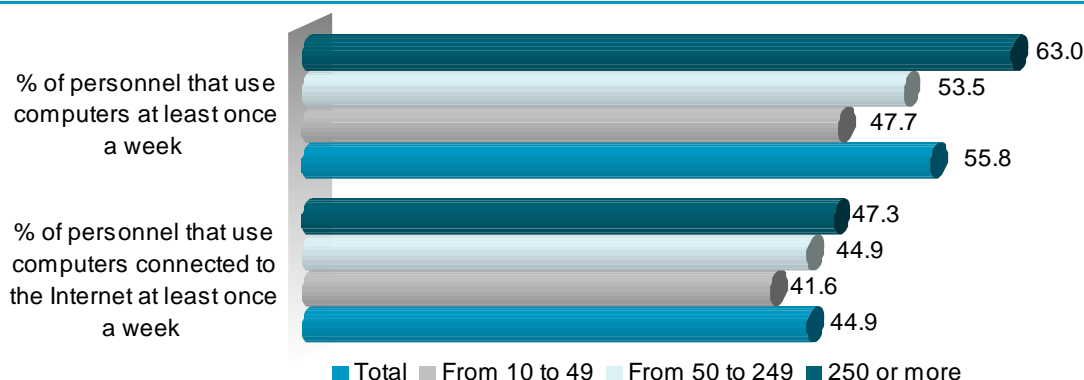
Source: ONTSI using data from the INE 2010

3.2. ICT use by employees

Once the availability of ICT infrastructure and connectivity in companies has been analysed, this section analyses the use of it by employees.

In general terms, around 56% of the employees in SMEs and large companies use personal computers in their work. If results are disaggregated by company size, the percentage for small enterprises (those with 10 to 49 employees) falls down to 47.7%. In the case of medium sized companies (50 to 249 employees) it is 53.5%, 9.5 percentage points less than in large companies with 250 or more employees (with 63%).

Figure 14. Personnel who use computers and computers with Internet access at least once a week



Base: all employees in companies with 10 or more employees

Source: ONTSI using data from the INE 2010

The business activity carried out by the company has an influence on the levels of use of ICT infrastructures by employees. In this sense, the use of computers by employees, whether connected to the Internet or not, depends on the sector in which the company operates.

Companies with 10 or more employees in the IT, telecommunications and audiovisual sector, the financial sector and the professional activities sector lead the way in percentage of use of

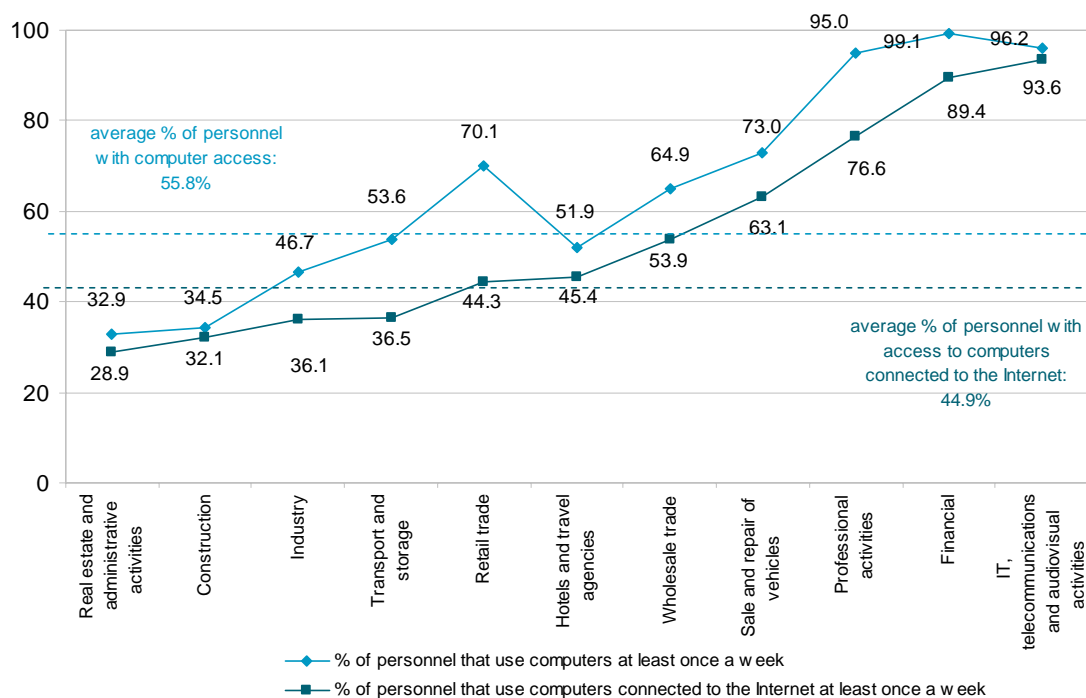
Computers have a large presence in the IT, telecommunications and audiovisual sector, professional activities sector, financial sector and hotels and travel agencies

computers and computers connected to the Internet. These are followed by the sale and repair of vehicles and the retail trade, with penetration rates above the average.

Construction and real estate, and administrative activities record low ICT penetration levels as previously stated. The percentage of employees who use computers in the construction sector is 34.5%, and 32.1% in the case of computers connected to the Internet. In the real estate and administrative activities sector, 29% of the employees use computers connected to the Internet and 33% use unconnected computers.

In fact, in the construction, the IT, telecommunications and audiovisual sector, and the real estate and administrative activities sector –in this order- the differences in use of computers and use of computers connected to the Internet are the lowest. On the contrary, the retail sector records the greatest difference in this sense, of almost 26 points.

Figure 15. Personnel who use computers and computers with Internet access at least once a week, by sector



Base: all employees in companies with 10 or more employees

Source: ONTSI using data from the INE 2010

ICT training

To foster a greater, more efficient and more intensive use of ICTs by employees, it is essential that companies invest in ongoing training for employees in this area.

5 out of 10 large companies provide their employees with ICT training

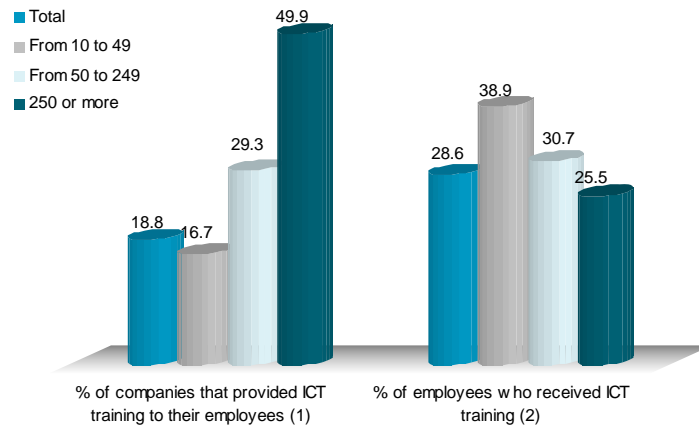
18.8% of all companies with 10 or more employees provide ICT training activities to their employees. The disaggregation by company size indicates that around 5 out of 10 large companies provide this type of training. In the case of medium companies the percentage is 29.3% and in small companies 16.7%. Therefore, it can be asserted that

the greater the size of the company, the greater the percentage of those offering ICT training.

If we take into account only those companies that offer ICT training, we observe that the percentage of employees who have been IT-trained is greater in small companies (38.9%), than in medium companies (30.7%) and large companies (25.5%). The average for the three types of companies is 28.6%.

Small companies offer ICT training to their employees to a greater degree than large ones

Figure 16. ICT training for employees



Base 1: all companies with 10 or more employees
Base 2: all employees from companies with 10 or more employees that provided ICT training

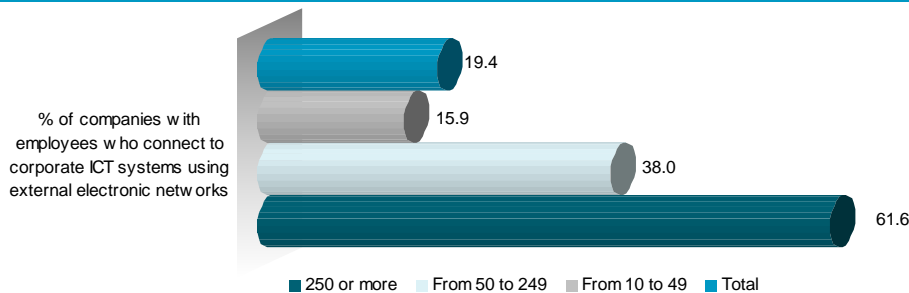
Source: ONTSI using data from the INE 2010

Remote working

The number of employees who use ICTs to work remotely via external telematic networks has increased in the last years. The benefits offered by this option are the reason of it spreading, since it helps reducing the barriers of space and time. In fact, the number of companies that have employees who connect to corporate ICT systems using external telematic networks has increased by more than 3 percentage points in one year, up to 19.4%.

However, this modality is mainly used in large companies of 250 or more employees, where 6 out of ten employees connect to corporate ICT systems using external telematic networks. This type of companies has better ICT infrastructures and resources, which facilitates the incorporation of remote working to a greater extent than in smaller companies. In medium sized companies, the use rate of this modality is 38%, while in small companies is only 16%.

Figure 17. Companies with employees who connect to the company's ICT systems via external telematic networks in the course of their work, at least half a working day



Base: total companies with 10 or more employees

Source: ONTSI using data from the INE 2010

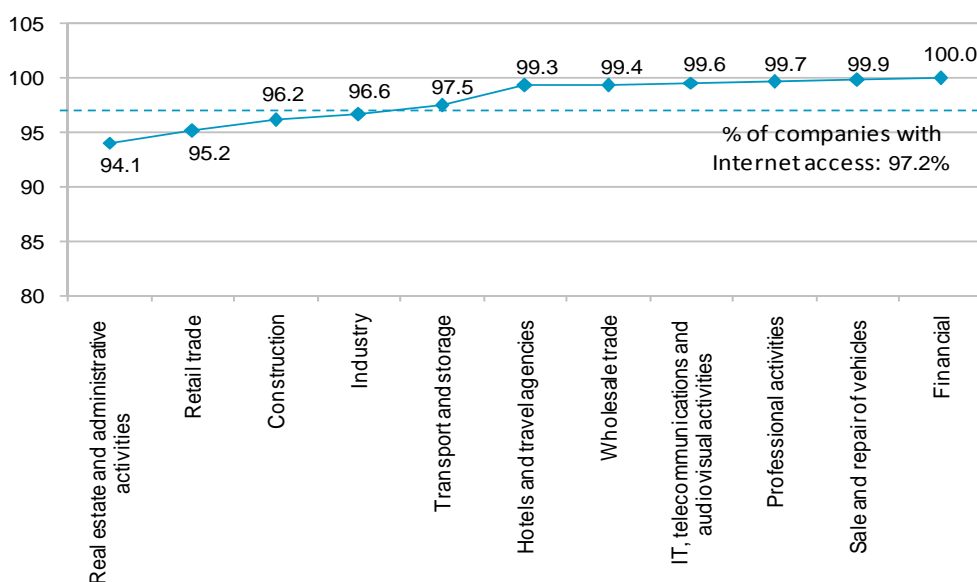
3.3. Internet

All the companies of the financial sector have access to the Internet. In the sale and repair of vehicles, professional activities, IT, telecommunications and audiovisual activities, wholesale trade, hotels and travel agencies also almost all companies with 10 or more employees have Internet access, with penetration rates above 99% in all cases.

The retail trade and the real estate and administrative activities sectors are slightly behind with 95.2% and 94.1% of their SMEs and large companies, respectively, having access to the Internet. Thus, all sectors have an Internet penetration rate of over 90 percent.

All sectors show Internet penetration rates above 90%

Figure 18. Internet access by sectors



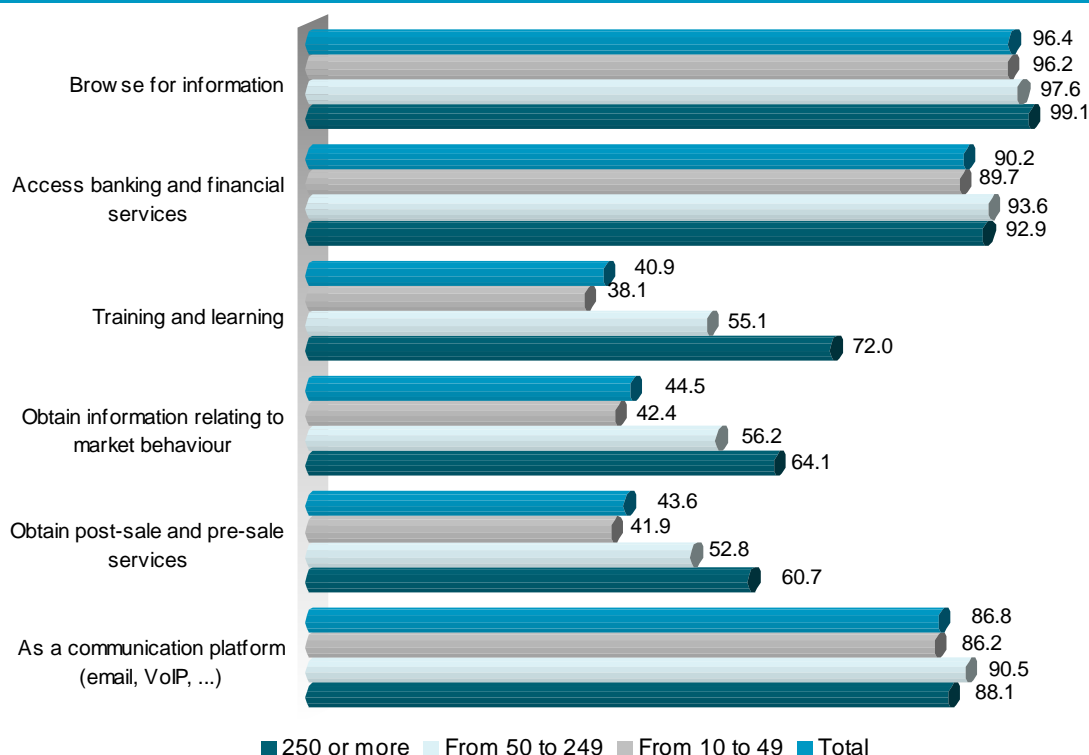
Base: all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

3.3.1. Uses of the Internet

96.4% of companies with 10 or more employees use the Internet to search for information. This and using financial and banking services (90.2%) are the most common uses of the Internet in companies with Internet access, both with percentages above 90%. Also important is the use of the Web as a communication platform –for example, email and IP voice- by 86.8% of SMEs and large companies. Obtaining post-sale and pre-sale services, training and learning, and information relating to market behaviour are other uses that record percentages between 40% and 45%. This pattern of use remains stable regardless of the company size. However, in general terms, the larger the size of the company the higher the percentages of use.

Figure 19. Internet services used by companies (%)



Base: companies with 10 or more employees with Internet access

Source: ONTSI using data from the INE 2010

3.3.2. Webpage

Another important indicator is the availability of webpages, which are present in 64% of all SMEs and large companies. A more detailed analysis shows that in the case of small companies (of 10 to 49) this percentage stands at 60.8%. The percentage in medium companies (50 to 249 employees) is 20 points greater (81.3%). This difference is bigger than that between medium and large companies. In the last segment (companies with 250 or more employees) web pages are available in 91% of the companies.

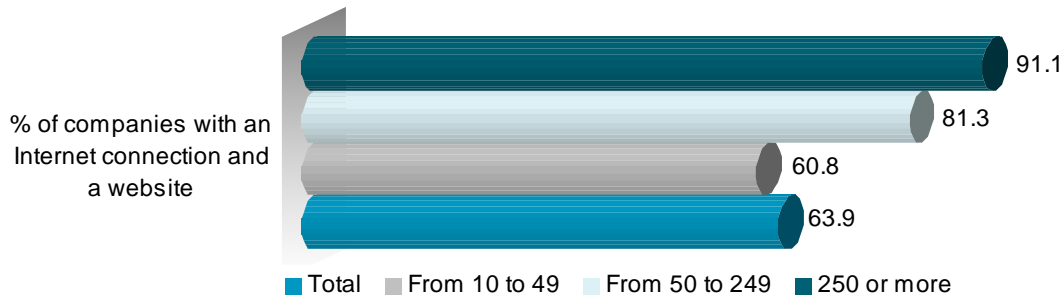
63.9% of SMEs and large companies have webpages

The highest growth in number of companies with webpages is found in the small companies segment

medium-sized companies and the

In growth terms, small companies experienced the most substantial increase, of 5.6 points in a year, with 60.8% of them having web pages. Among SMEs and large companies the availability of a web page has increased globally by 5 points in a year, highlighting the increase of 3.3 points reported by large companies.

Figure 20. Companies with website

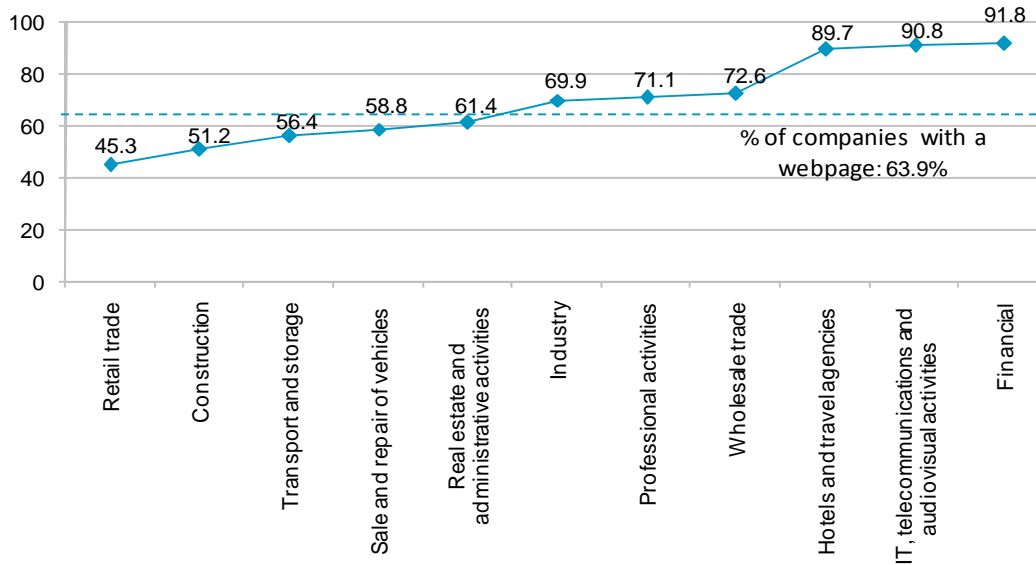


Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

Over 90% of companies with 10 or more employees with Internet in the financial and in the IT, telecommunications and audiovisual sector have a web page. These are followed by 89.7% of the companies in the hotel and travel agency sector. The industry (69.9%), professional activities (71.1%) and wholesale trade (72.6%) have levels above the average, which is 63.9%. The value that is closest to the average is that of companies of the real estate and administrative activities sector (61.4%). Finally, retail trade is the only sector with less than 50% of its SMEs and large companies having a web page.

Figure 21. Companies with websites by sector



Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

Among the purposes and services provided by corporate websites, there are three that stand out. Specially, 91% of companies with 10 or more employees use their web pages for presenting the company, with a difference of 37 percentage points from the use of accessing to product catalogues or price lists (58.3%), and of 40 percentage points from the use of stating the privacy policy or security certification of the webpage (50.9%). Website personalisation for frequent users is the objective with less priority, with only 5.7% of companies with 10 or more workers confirming this. Tracking orders online, making online payments, and offering customers the possibility to customise or design products are other uses with percentages below 10%.

The main aim of the website is still to present the company

So, in summary, the distribution of the purposes or services offered by company websites remains stable in the last few years with presentation of the company, access to product catalogues or price lists, and privacy policy statement or certification –in that order- as the main ones.

Figure 22. Purposes /services offered on company websites



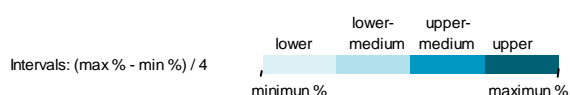
Base: companies with 10 or more employees with Internet access and website

Source: ONTSI using data from the INE 2010

The greatest variety of services are found on the websites of companies dedicated to financial activities and hotels and travel agencies. Hotels and travel agencies lead the field in providing services that enable customers to purchase or book their products, with 70% of companies offering online ordering or booking and 34.8% accepting payment via the Internet. With a different set of objectives, the IT, telecommunications and audiovisual sectors are notable for using websites to advertise job offers and receive job applications, in 37% of occasions.

Table 6. Objectives / services offered by company websites by sector

% of SMEs and large companies	Total Spain	Industry	Construction	Sale and repair of vehicles	Wholesale trade	Retail trade	Hotels and travel agencies	Transport and storage	IT, telecommunications and audiovisual activities	Real estate and administrative activities	Professional activities	Financial
Present their company	91.0	91.4	87.0	90.7	90.3	88.3	97.9	92.9	95.6	90.3	95.2	94.7
Privacy policy statement or certification of website security	50.9	46.4	43.0	51.9	55.0	53.4	73.4	52.9	60.8	47.7	60.4	83.7
Product catalogues or price lists	58.3	64.5	43.3	62.9	68.0	62.4	88.0	45.0	65.4	45.9	45.4	79.7
Offer customers the possibility to customise or design products	6.7	6.1	1.5	18.7	5.8	7.9	23.5	8.7	10.0	5.5	5.2	25.6
Make online orders or reservations	14.1	9.7	5.1	15.2	18.5	20.6	70.2	19.2	18.3	7.5	7.4	45.2
Online payment	6.8	4.0	2.4	4.9	7.0	18.6	34.8	6.0	16.0	1.7	4.9	27.5
Track orders online	7.7	4.9	2.5	8.9	9.7	17.0	23.5	20.7	7.5	3.4	6.0	25.3
Personalisation of the website for regular users	5.7	4.1	3.2	6.0	6.8	6.9	11.5	11.0	8.8	7.6	3.1	17.8
Advertise job offers and receive job applications	20.5	11.9	20.0	13.7	17.3	28.0	25.0	23.7	37.4	31.1	34.5	43.8



Base: companies with 10 or more employees with Internet access and website

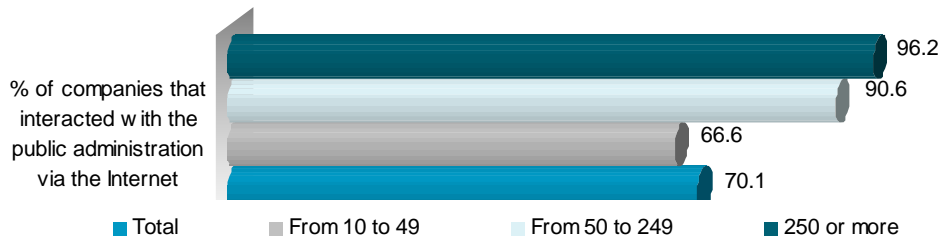
Source: ONTSI using data from the INE 2010

3.3.3. Interaction with the public administration

The percentage of companies interacting with the public administration via the Internet continues to grow and stands, on average, at 70.1% of companies with Internet access. This represents an increase of 2.3 percentage points as compared to the previous year. A size-based breakdown highlights that the difference between large and medium sized companies is not great, and over 90% of companies in these segments interact with the public administration via the Internet. Telematic contact with the public administration is not as much common among small companies, recording a percentage of around 67%.

Over 90% of large and medium-sized companies interact with the public administration via the Internet

Figure 23. Companies that interact with the public administration via the Internet



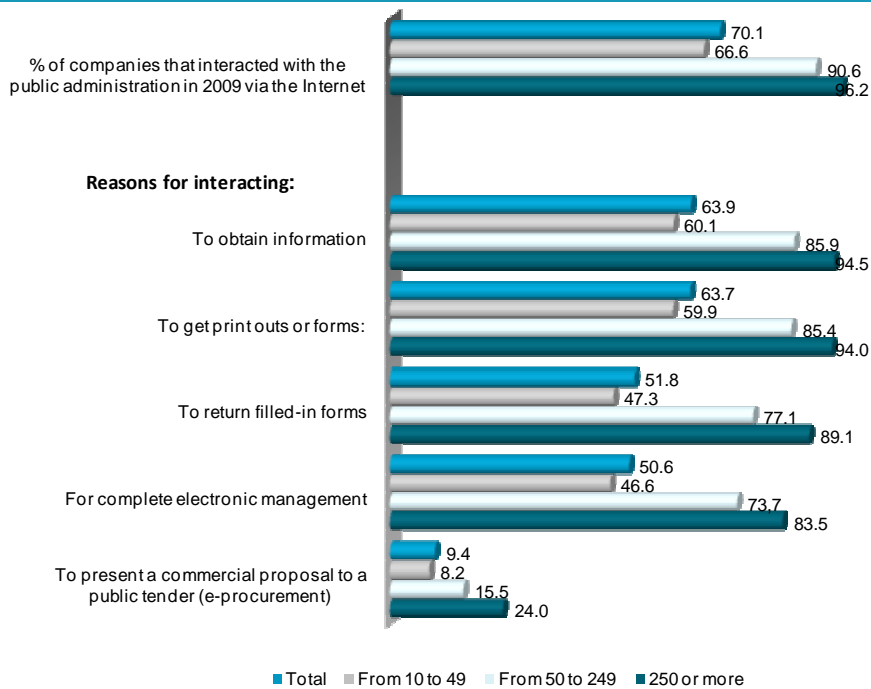
Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

Irrespective of company size, the reasons for interacting with the e-Administration are the same in all cases. Around 68% of SMEs and large enterprises state that the two main reasons for interacting online with the public administration are to obtain information and forms. These are followed by submission of completed forms (52%) and complete electronic management (51%). The last reason is filing bids for public tender processes, also known as e-Procurement, which is carried out by 9.4% of companies with 10 or more employees with Internet access.

The most notable growth has been observed in bidirectional procedures between companies and the public administration. Specifically, complete electronic management has risen by 5.2 points as compared to returning completed forms which has risen by 3.6 points. Filing bids for public tender processes is the reason that shows the smallest growth, only 1.5 points over the previous year.

Figure 24. Type of online interaction with the public administration

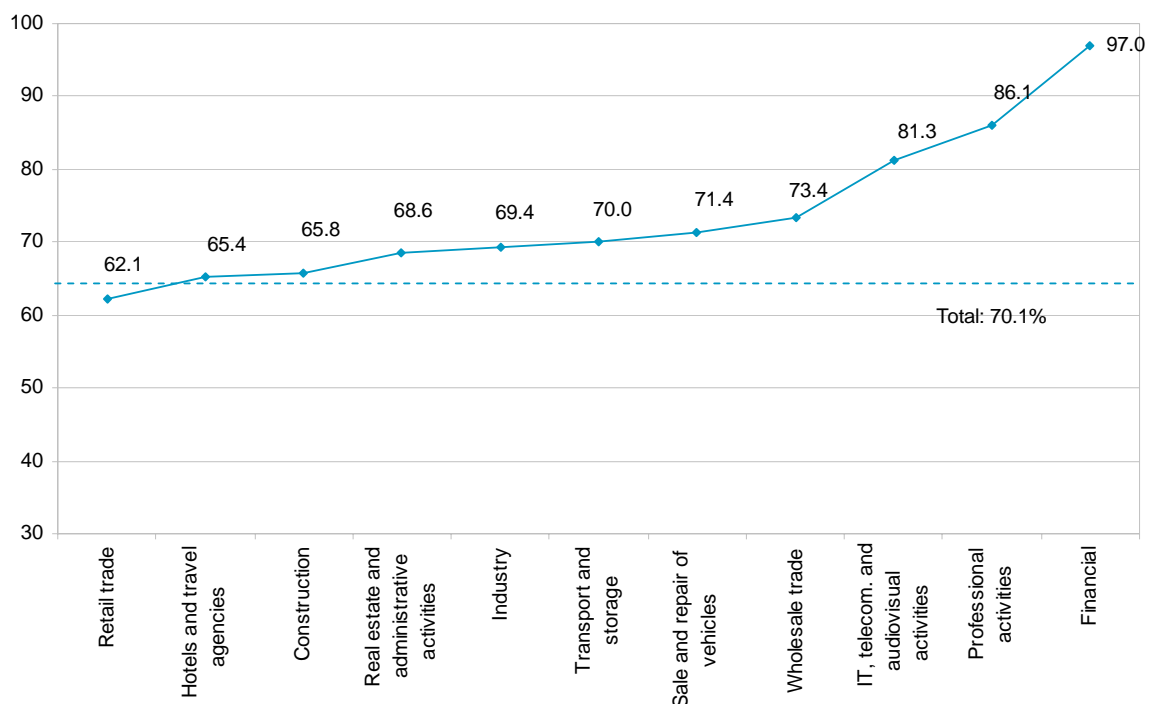


Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

The use of the e-Administration varies according to the activity sector in which companies operate. For example, 97% of SMEs and large enterprises in the financial sector interact with the public administration via the Internet, and this is the only sector for which the percentage is over 90%. Professional activities, and the IT, telecommunications and audiovisual sector recorded percentages of 86.1% and 81.3%, respectively. Companies operating in real estate and administrative activities, industry, transport and storage, vehicle sale and repair, and wholesale trade, show the percentages that are closest to the average. In last place, more than 62.1% of companies with 10 or more employees in the retail sector use the Internet in their dealings with the Administration.

Figure 25. Companies that interact with the public administration via the Internet, by sector



Base: all companies with 10 or more employees with Internet

Source: ONTSI using data from the INE 2010

The following table indicates the percentage of SMEs and large companies that interact with the public administration via the Internet, broken down by reasons for interacting. The financial sector is the one with the highest percentage of SMEs and large companies that obtain information from administrations' web pages, download forms, return completed forms and carry out complete electronic management. Professional activities, and the IT, telecommunications and audiovisual sector are also well positioned in this regard. Professional activities, real estate and administrative activities and the IT, telecommunications and audiovisual sector lead the way in e-procurement or posting public tenders online. The construction sector has most of its percentages placed in the lower interval, except the e-procurement percentage that is placed in the upper-medium interval.

10% of companies in the construction sector uses e-procurement

3.4. e-Business

Electronic business, commonly referred to as "e-business", is the application of information and communication technologies in support of all the activities of business. Companies have computer systems connected to their customers, employees, distributors and providers so that they can exchange information via the Internet, intranets or extranets. Therefore, information and communication technologies can be used as a business strategy since they provide a sales, marketing and information channel online.

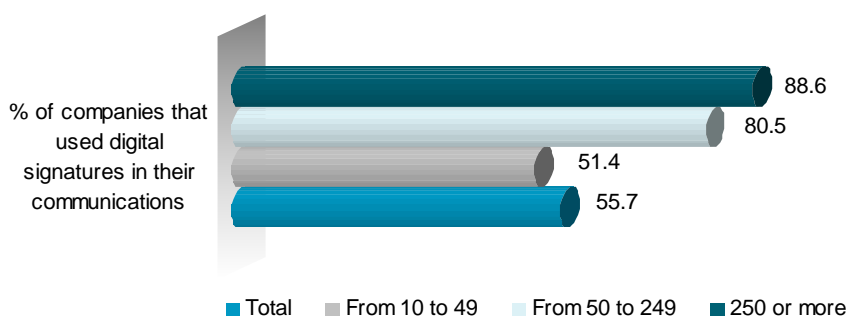
This section includes a series of indicators associated to three types of utilities or tools that facilitate electronic business: digital signatures, electronic data exchange with external ICT systems and electronic data exchange with providers and customers.

3.4.1. Digital signature

The use of digital signatures³ by SMEs and large companies in their communications with external agents has increased by 3 percentage points over the previous year, up to 55.7% of all companies with 10 or more employees. There are notable differences based on the size of the company. More than 80% of large and medium-sized companies use digital signatures while for small companies the percentage is 51.4%. In growth terms, the use of digital signatures falls slightly among large companies and increases among small and medium sized companies.

Digital signatures continue to rise with almost half of SMEs and large companies using them

Figure 27. Companies using digital signature



Base: companies with 10 or more employees with Internet access

Source: ONTSI using data from the INE 2010

A total of 93.5% of companies with 10 or more employees that used digital signatures at some time did so in their dealings with the public administration, and to a far lesser degree (20%) in their contacts with suppliers or clients. In the area of dealings with the public administration the differences by company size are less important than in relations

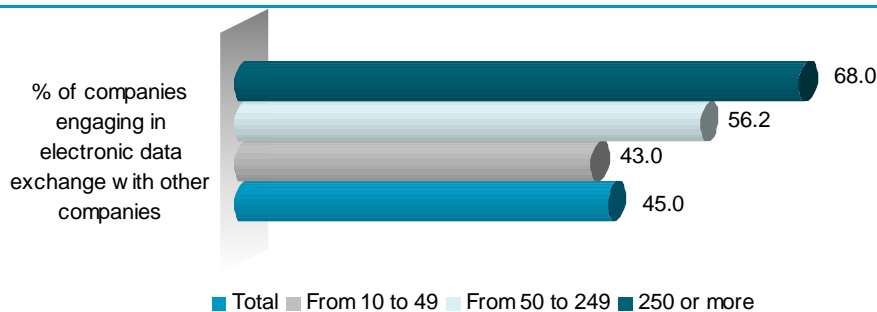
³ Digital signature: Encrypted information that identifies the author of an electronic document and authenticates his or her identity. It is unique and specific to the user or computer, as in the case of manual signatures.

with customers and/or suppliers, where they reach 11.7 percentage points between the maximum and the minimum percentage.

3.4.2. Electronic data exchange with external ICT systems

This indicator shows a positive evolution over the last year, from 36.7% of SMEs and large companies engaging in electronic data exchange⁴ in 2009 to 45% in 2010, which represents an increase of 8 percentage points. The biggest growth is seen in the small companies segment with an increase of 9.1 points, followed by the increase of 5.2 points in the medium-sized companies segment. The percentage of large companies remains similar to that of the previous year.

Figure 28. Companies engaging in electronic data exchange with external ICT systems



Base: all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

The main reason for using automated data exchange is to send payment instructions to banks. 74% of companies using this service do so for this purpose. Another two objectives are to send or receive information on products (56.6%) and to exchange information with the public administration (63.1%). Around 50% correspond to sending orders to suppliers, receiving e-invoices, and sending or receiving documentation concerning transport. And finally, around 25.1% and 19.3%, respectively, correspond to sending e-invoices and receiving orders from clients.

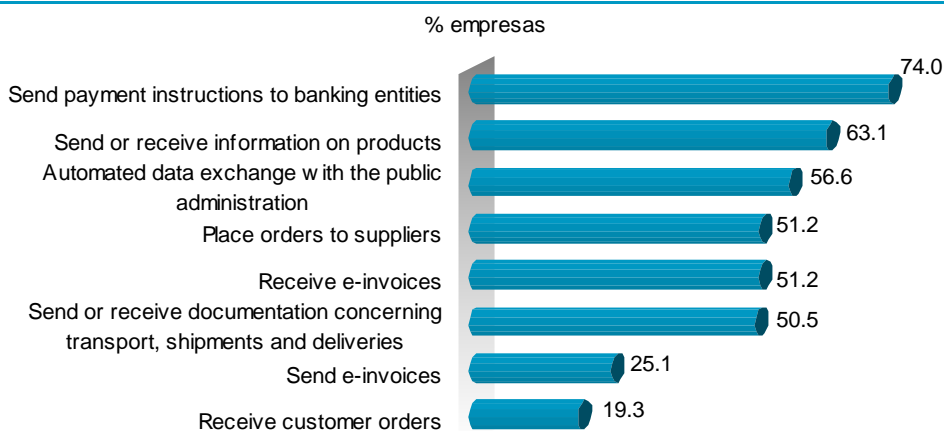
72% of companies that use electronic data exchange send payment instructions to banking institutions

⁴ Electronic data exchange between companies is sending/receiving information (e.g. orders, invoices, payment transactions, product information, transport sheets, etc.) via electronic media (Internet or other telematic networks), using an agreed-upon standard, prepared in a computer-readable format, and capable of being automatically and unambiguously processed (for example XML, EDIFACT, ...). Electronic mail written manually is not included under automated data exchange.

XML: Extensible Markup Language. It is a set of rules for encoding documents in machine-readable form. Is not really a language itself, but a standard that allows you to create your own language according to specific needs. Some languages that use the XML standard are XHTML, SVG and MathML.

EDIFACT: Is the international EDI standard developed under the United Nations, for Electronic Data Interchange For Administration, Commerce and Transport. There are substandards based on the business environment (distribution, automotive, transport, customs, etc.) and for each country.

Figure 29. Type of electronic data exchange with external ICT systems, according to the purpose of the communication



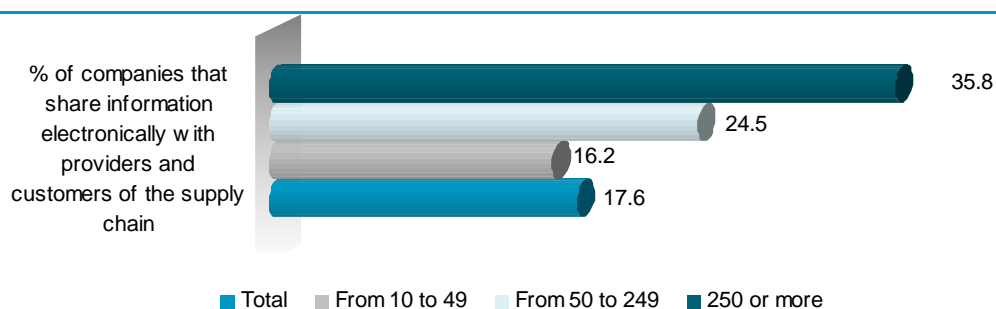
Base: companies with 10 or more employees that perform automated data exchange with external ICT systems

Source: ONTSI using data from the INE 2010

3.4.3. Electronic exchange of information with suppliers and customers

Electronic data exchange with suppliers and customers varies depending on company size. In this sense, companies with 250 or more employees at 35.8% are those that most share electronic information with suppliers or clients. This figure, together with 24.5% of companies with between 50 and 249 employees, and 16.2% of those with between 10 and 49, gives an average of 17.6% overall for SMEs and large companies, which represents an increase of 3.4 points compared to the previous year. The information is shared over the Internet or other telematic networks.

Figure 30. Companies that share information electronically with their suppliers or customers



Base: all companies with 10 or more employees

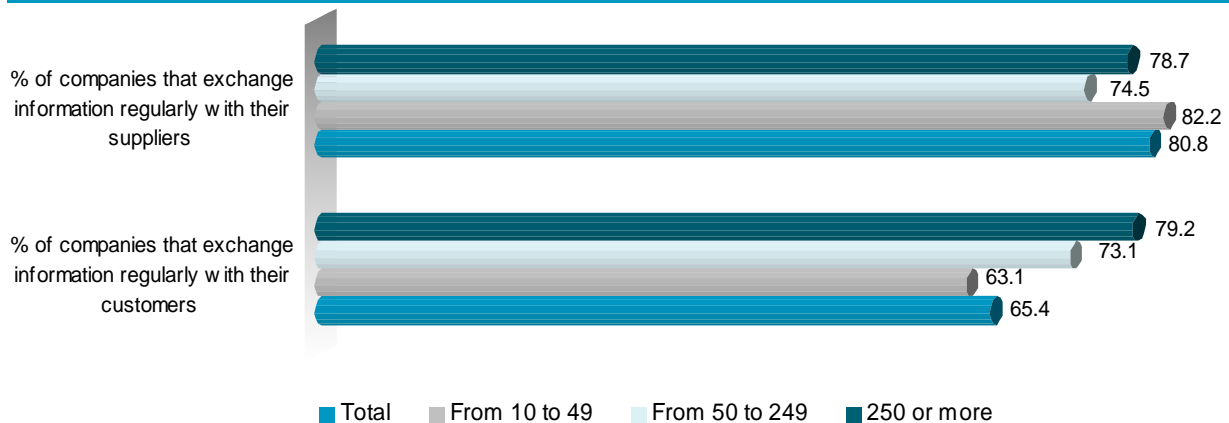
Source: ONTSI using data from the INE 2010

80.8% of SMEs and large companies share information electronically with their suppliers and 65.4% do it with their customers. If we focus only on those companies sharing information with suppliers, small companies record the highest percentage, while if we

focus on those sharing information with customers, large companies with 250 or more employees stand out.

Companies share information electronically with providers and customers of the supply chain in both ways to coordinate the availability and distribution of products and services to the final consumer, including demand forecasts, inventory levels (stock), production and distribution.

Figure 31. Companies that share information electronically with their suppliers or customers



Base: companies with 10 or more employees that share information electronically with their suppliers or clients

Source: ONTSI using data from the INE 2010

In general terms, SMEs and large companies that regularly share information electronically with their suppliers or customers use webpages to a greater extent (77.2%) than electronic data exchange (59.1%). As for the use of web pages, we only observe slight differences by company size, with small companies recording the highest percentage (77.2%) as compared to large ones (76%). As for the use of electronic data exchange the opposite is true, there are considerable differences by company size with the largest companies recording the highest percentages. Note that e-mails are not considered in this section, since they are not regarded as shared information.

Figure 32. Method used for electronic data exchange with suppliers and customers (%)



Base: Total number of companies with 10 or more employees that regularly share information electronically with their suppliers or customers

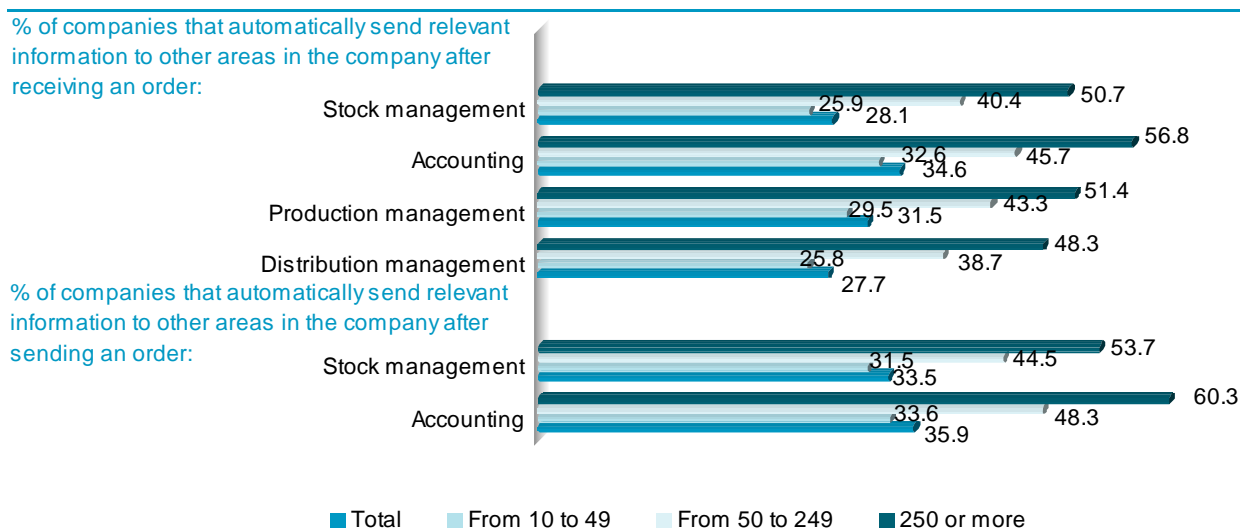
Source: ONTSI using data from the INE 2010

3.4.4. Integration of information within the company

As pointed out by the Spanish National Statistics Institute, the integration of information within the company means sharing information electronically between the different functional areas of the company, using a single or several software tools that extract data from a common database. It also includes automated data exchange between the different functional areas of the company.

Here, we should consider the percentage of SMEs and large companies that automatically send relevant information to other areas in the company after receiving or sending an order, specifying the area in question. As for those receiving an order, we observe that the information goes to the accounting department in 34.6% of the cases and to production management in 31.5% of occasions. Also around 28% of these companies automatically receive relevant information in the stock management area and the distribution management area. As for those sending an order, almost 36% of them receive the information in the accounting area and 33.5% in the stock management area.

Figure 33. Companies that automatically send relevant information to other areas in the company after receiving or sending an order



Base: Total number of companies with 10 or more employees that regularly share information electronically with their suppliers or customers

Source: ONTSI using data from the INE 2010

The IT tools that facilitate the integration of information within the company are ERP⁵ tools (Enterprise Resource Planning) for sharing purchasing and sales related information

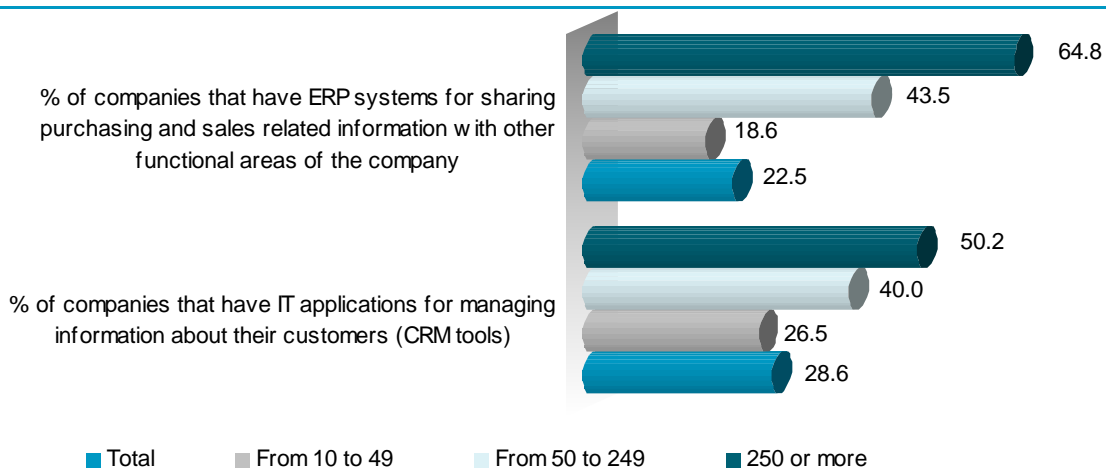
In large and medium-sized companies ERP tools are more common than CRM tools, while in small companies CRM tools are the most common

with other functional areas of the company (for example, finance, management, marketing, etc.), and CRM⁶ tools (Customer Relationship Management), for managing customer information.

The first ones are used in 22.5% of SMEs and large companies and the second in 28.6% of them. Analysis of company size shows that in large and medium-sized companies ERP tools are more common than CRM tools,

while in small companies of 10 to 49 employees the opposite is true, with a greater number of them using CRM tools.

Figure 34. Companies with ERP and CRM computer tools



Base: all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

3.5. Electronic commerce

3.5.1. Companies that use electronic commerce

24.1% of companies with 10 or more employees make purchases using e-

The percentage of companies making e-Commerce purchases is higher than that of those selling by the same means

⁵ ERP (Enterprise Resource Planning): Set of computer tools that enable the integrated management of processes and information corresponding to the different business departments within a company. Generally, an ERP system integrates the management of the areas for planning, procurement, logistics, sales, marketing, customer relations, finance and human resources departments.

⁶ CRM (Customer Relationship Management): IT tools dedicated to the integrated management of customer information. These applications enable this information to be stored and organised and to be integrated, processed and analysed.

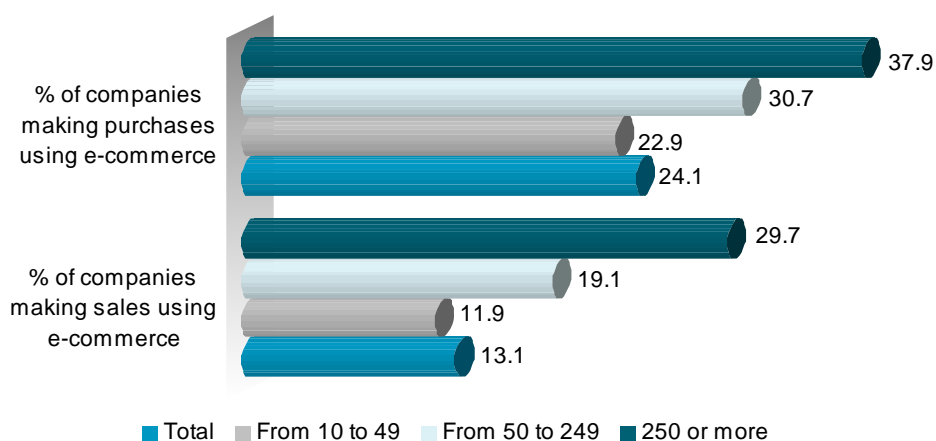
Commerce. This value, apart from exceeding the percentage of companies selling by the same means (13.1%), shows a faster growth over the previous year (of 3.8 percentage points as compared to the increase of 2 points in e-sales).

38% of large companies have made purchases via electronic commerce. In the case of medium-sized and small businesses, percentages are 30.7% and 22.9%, respectively. At the same time, around 30% of large companies sell via electronic commerce, followed by 19.1% of medium-sized companies and 11.9% of small businesses.

Differences between online selling and buying are greater in smaller companies

Differences between online selling and buying are greater in smaller companies. In the case of those with 250 or more employees, 8.2% separates the 37.9% of companies making Internet purchases from the 29.7% selling online. The difference in small companies is of 11 percentage points and in medium-sized companies of 11.6.

Figure 35. Companies purchasing and selling via e-Commerce



Base: total number of businesses with 10 or more employees

Source: ONTSI using data from the INE 2010

As for purchases, at a sectoral level⁷, the IT, telecommunications and audiovisual sector has the greatest percentage of SMEs and large companies that purchase online (51%). Additionally, it is the only sector with more than half of its companies selling through this channel. It is followed by the sale and repair of

Over half of companies in the IT, telecommunications and audiovisual sector make e-Commerce purchases

E-Commerce sales are still led by hotels and travel agencies

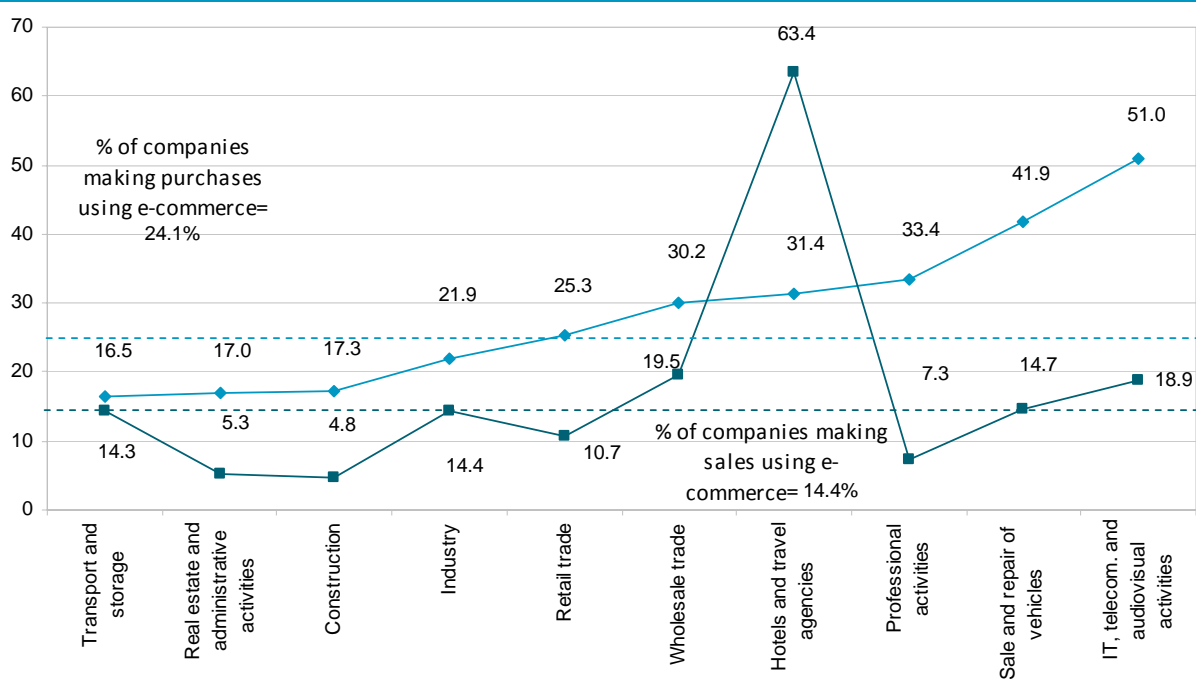
vehicles with 41.9%. The group comprising companies in the wholesale trade, hotels and travel agencies and in the professional activities sector show percentages ranging from 30% and 35%, above the average of 24.1%. The sectors with the lowest percentage of

⁷ The electronic commerce survey does not include the financial sector

companies of 10 or more employees that make purchases via e-Commerce are -in this order- transportation and storage (16.5%), real estate and administrative activities (17%) and construction (17.3%).

E-Commerce sales are still led by hotels and travel agencies, with 63.4% of the sector's companies selling by these means. Additionally, this is the only sector where the percentage of enterprises with 10 or more employees selling through electronic commerce is higher than those buying through this channel.

Figure 36. Companies purchasing and selling via e-Commerce, by sector



Base: all companies with 10 or more employees

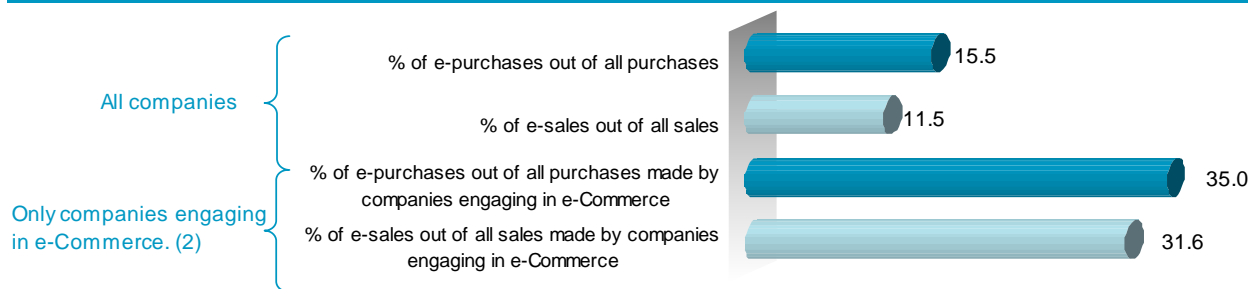
Source: ONTSI using data from the INE 2010

3.5.2. Importance of e-Commerce

Taking into account the total number of companies with 10 or more employees, the percentage of online purchases out of the total number of purchases reaches 15.5%, almost two percentage points more than the previous year. At the same time, sales have also grown by around two percentage points, up to 11.5%. If the analysis is focused exclusively on companies that have used e-Commerce, the importance increases significantly, and in the case of purchases, the percentage of this activity out of the total number of purchases is 35%, and in the case of sales, 31.6%.

Purchases via e-Commerce in companies that use this channel account for 35% of their purchases

Figure 37. Amount of e-Commerce purchases/sales in all companies vs. amount of e-Commerce purchases/sales in companies engaging in e-Commerce purchases/sales



Base 1: Percentage of the amount of e-Commerce purchases/sales out of e-commerce purchases/sales by all companies with 10 or more employees

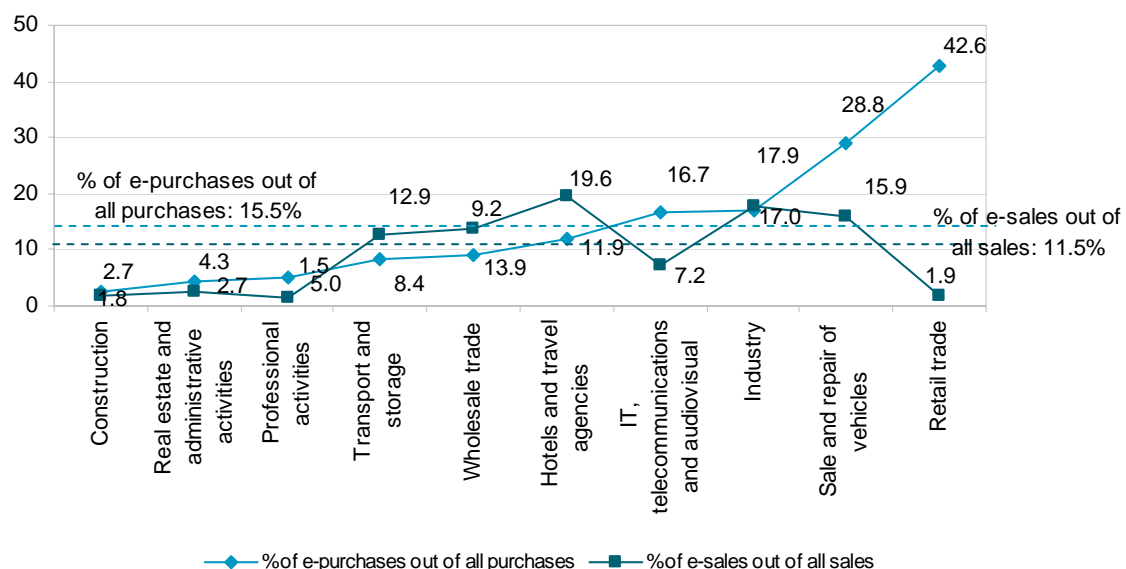
Base 2: Percentage of the amount of e-Commerce purchases/sales out of e-commerce purchases/sales by companies with 10 or more employees making e-Commerce purchases

Source: ONTSI using data from the INE 2010

E-Commerce purchases made by companies engaging in retail trade represent 42.6% of all purchases made by companies in this sector. This percentage falls to 28.8% in the sale and repair of vehicles sector. The industry, with 17.9%, is closer to the average (15.5%), while the construction and real estate and administrative activities show percentages of 2.7% and 4.3%, respectively.

Overall, the importance of e-Commerce sales out of the total number of sales is lower than in the case of purchases, except in the transportation and storage, wholesale trade, and hotels and travel agencies sectors, where the opposite is true.

Figure 38. Amount of e-Commerce purchases out of the total number of purchases and amount of e-Commerce sales out of the total number of sales, by sector



Base: Percentage of the amount of e-Commerce purchases/sales out of e-Commerce purchases/sales by all companies with 10 or more employees

Source: ONTSI using data from the INE 2010

Now, the analysis will focus only on those companies that have made online purchases or sales, at a sector level.

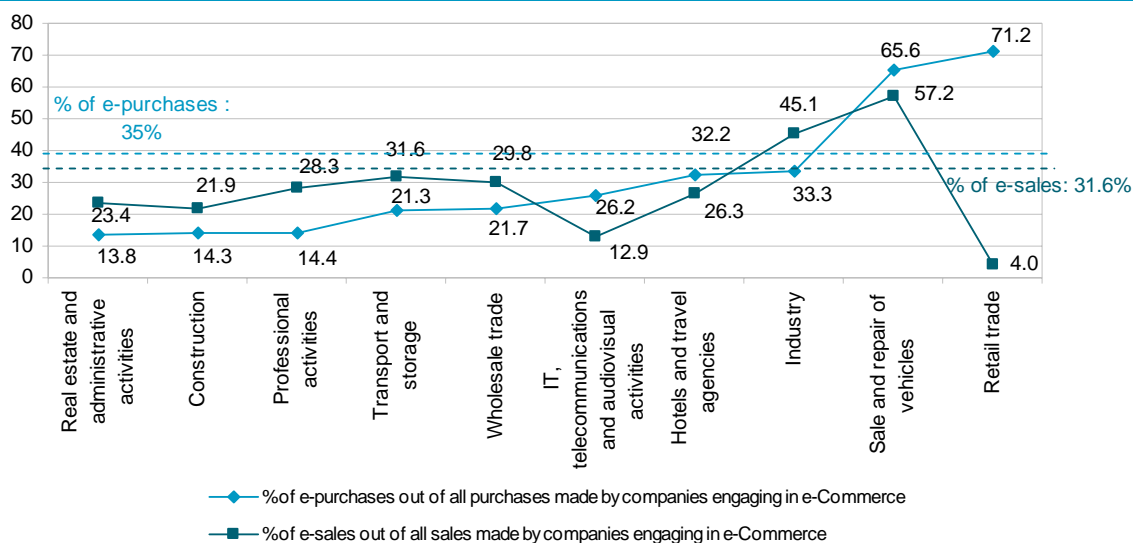
Purchases via e-Commerce in companies from the retail sector that use this channel account for 35% of their purchases

As for amount of e-Commerce purchases out of the total number of purchases, the sale and repair of vehicles and the retail trade sectors stand out with percentages of 71.2% and 65.6% respectively, the only with levels above the average (35%). The industry, with 33.3%, is the sector that is closest to

the average. With percentages below 15% we find real estate and administrative activities (13.8%), construction (14.3%) and professional activities (14.4%).

On the sales side, the percentage of e-Commerce sales out of the total number of sales is high in the sale and repair of vehicles sector (57.2%) and in the industry (45.1%). Again, only two sectors show percentages above the average (31.6%). The transportation and storage sector is exactly on the average. Lastly, e-Commerce sales made by companies of the retail trade sector represent only 4% of the sector's total.

Figure 39. Amount of e-Commerce purchases out of purchases, and amount of e-Commerce sales out of sales, in companies that purchase and sell via e-commerce



Base: Percentages of the amount of e-Commerce purchases or sales out of purchases or sales in companies of 10 or more employees purchasing or selling via e-Commerce, respectively

Source: ONTSI using data from the INE 2010

3.5.3. Distribution of the amount of e-Commerce sales

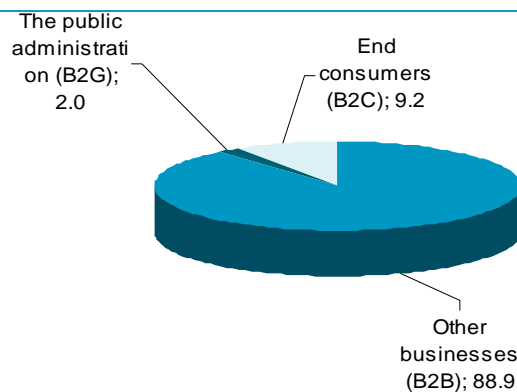
By type of customer

Upon analysing the distribution of e-Commerce sales according to the type of customer we observe some changes with respect to previous years.

B2B commerce represents 88.9% of e-sales and B2C commerce grows by around 2 points

88.9% of e-Commerce sales are B2B⁸ transactions, that is to say, they take place between companies. This represents a drop of 1.8 percentage points with respect to the previous year but has been compensated by an increase of 1.7 points in B2C⁹ transactions, between companies and individual consumers, which have gone up to 9.2% of the total. The transactions between companies and the public administration (B2G)¹⁰ represent 2% of the total. The presence of both end consumers and the public administration in e-Commerce transactions has grown compared to the previous year.

Figure 40. Distribution of the amount of e-Commerce sales according to the type of customer



Base: total amount of sales made via the Internet by companies with 10 or more employees

Source: ONTSI using data from the INE 2010

The distribution of e-Commerce sales according to the type of customer by sectors reveals that in all the sectors considered, except the IT, telecommunications and audiovisual sector, B2B transactions vastly exceed B2C and B2G transactions. In the case of the sale and repair of vehicles, for example, 96.7% of e-Commerce sales are B2B, while B2C and B2G sales represent only 2.6% and 0.7% of the total, respectively. The wholesale trade, construction and industry show percentages of B2B sales above 90%, while B2C and B2G sales do not exceed 7% of the total in these sectors. On the contrary, in the hotel and travel agency, and the IT, telecommunications and audiovisual sectors the differences between B2B and B2C sales is less significant (6.3 and 4.3 points, respectively).

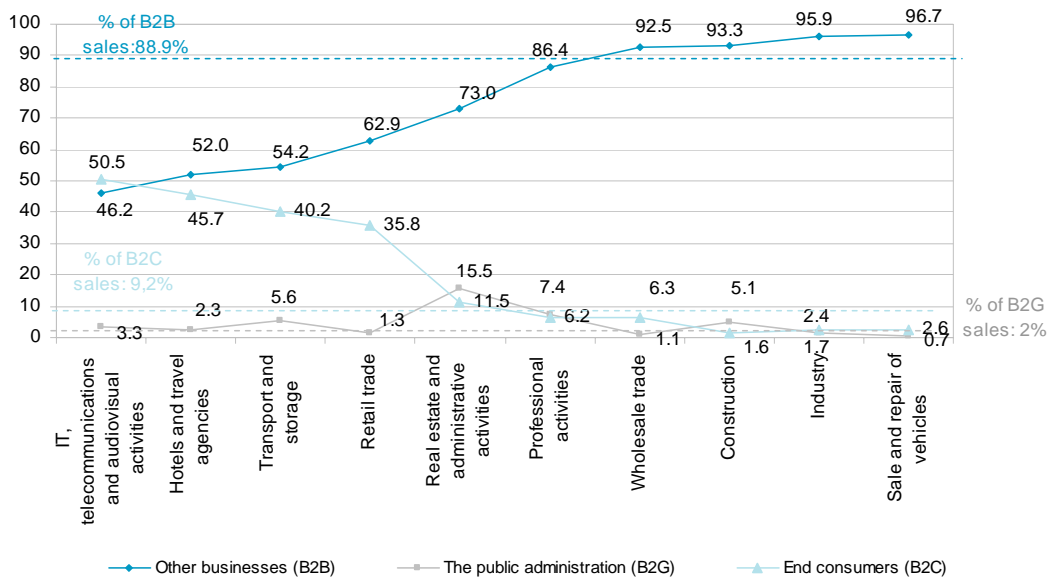
⁸ Business to Business

⁹ Business to Consumer

¹⁰ Business to Government

As already mentioned, in the IT, telecommunications and audiovisual sector B2B sales (50.5%) exceed B2C sales (46.2%). As for B2G sales, which are according to this study the least used, they exceed B2C sales in the real estate and administrative activities, professional activities and construction sectors.

Figure 41. Distribution of the amount of e-Commerce sales according to the type of customer, by sector



Base: total amount of sales made via the Internet by companies with 10 or more employees

Source: ONTSI using data from the INE 2010

By sector

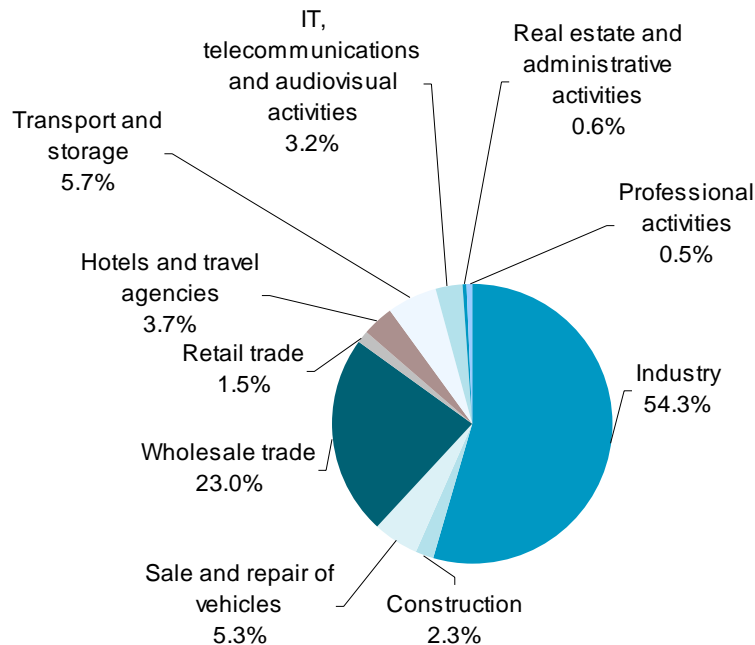
Over half of the total amount of sales made via e-Commerce corresponds to the industry, followed at a distance of 31 points by the wholesale trade. The other eight sectors considered in this study account for 22.7% of the total, with the sale and repair of vehicles, and the transportation and storage sectors standing out (with 5.3% and 5.7%, respectively).

Compared to the previous year, the number of online sales out of the total number of sales made by SMEs and large companies has increased in the wholesale trade, real estate and administrative activities, construction, sale and repair of vehicles and IT, telecommunications and audiovisual sectors.

In the sectors of professional activities, transportation and storage, and the retail trade it has remained flat; and in the industry, and hotels and travel agencies it has fallen.

The industry (with 54.3%) and the wholesale trade (with 23%) account for 77% of the amount of e-Commerce sales

Figure 42. Distribution of the amount of e-Commerce sales by sector



Base: total amount of sales made via the Internet by companies with 10 or more employees

Source: ONTSI using data from the INE 2010

3.6. ICT Security

Last year report included, for the first time, a specific section on the use of Radio Frequency Identification technology (RFID). This year, this section is dedicated to ICT security, understood as the set of measures, controls and procedures applied to ICT systems to ensure the integrity, authenticity, availability and confidentiality of information and systems.

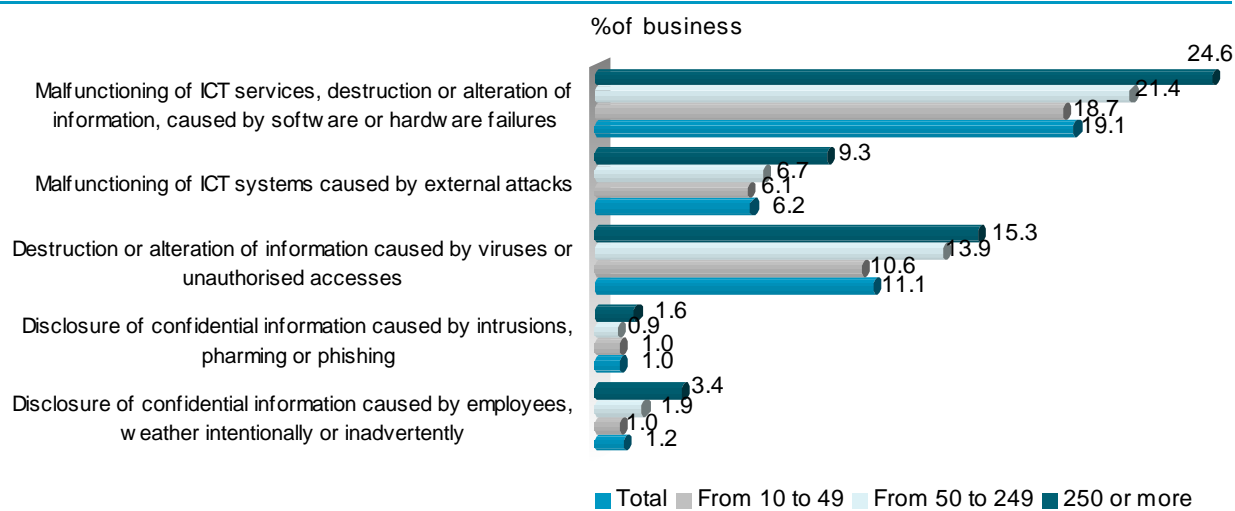
3.6.1. Incidents associated to ICT systems in companies

The destruction or alteration of information caused by software or hardware failures affects 19.1% of SMEs and large enterprises

19.1% of SMEs and large companies have been affected by incidents in their ICT systems related to the destruction or alteration of information, caused by software or hardware failures. 6.2% of the incidents are external attacks, while 11.1%

are viruses or unauthorised accesses that have caused destruction or alteration of information. Intrusions (pharming or phishing) and disclosure of confidential information in electronic format by employees affect 1.2% of companies with 10 or more employees. The disaggregation of results by company size demonstrates that the same pattern repeats itself in all the sectors considered.

Figure 43. Problems caused by incidents associated to ICT systems in companies



Base: companies with 10 or more employees with Internet access

Source: ONTSI using data from the INE 2010

The IT, telecommunications and audiovisual sector has the greatest percentage of SMEs and large companies that have experienced any security problem, with percentages ranging from 26% of companies that have been affected by the destruction or alteration of information caused by software or hardware failures to 2.2% of companies that have been affected by the disclosure of confidential information in electronic format.

Companies in the professional activities sector also record a high percentage of incidents mainly related to the destruction or alteration of information caused by software or hardware failures (23.8%), or the destruction or alteration of information caused by viruses or unauthorised accesses (14.3%). This last incident has also affected 14.8% of the companies engaged in the sale and repair of vehicles.

In general terms, transportation and storage is the sector with the smallest percentage of incidents, followed by the retail trade.

Table 8. Problems caused by incidents associated to ICT systems in companies, by sector

	TOTAL	Industry	Construction	Sale and repair of vehicles	Wholesale trade	Retail trade	Hotels and travel agencies	Transport and storage	IT, telecommunications and audiovisual activities	Real estate and administrative activities	Professional activities	Financial
Malfunctioning of ICT services, destruction or alteration of information, caused by software or hardware failures.	19.1	17.1	20.2	21.6	19.0	22.0	19.4	12.5	25.8	18.2	23.8	22.2
Malfunctioning of ICT systems caused by external attacks	6.2	6.0	7.8	8.3	5.4	4.8	5.6	3.6	12.1	4.7	5.7	8.5
Destruction or alteration of information caused by viruses or unauthorised accesses	11.1	9.5	12.3	14.8	11.7	7.8	10.8	9.1	15.6	10.7	14.3	5.5
Disclosure of confidential information caused by intrusions, pharming or phishing	1.0	0.6	1.4	1.5	1.4	1.2	0.6	1.0	1.3	0.8	0.3	3.2
Disclosure of confidential information caused by employees, weather intentionally or inadvertently	1.2	1.0	1.1	1.7	1.3	0.7	1.7	0.4	2.2	1.5	1.5	1.5

Intervals: (max % - min %) / 4
 lower medium upper
 minimum % maximum %

Base: all companies with 10 or more employees with computers

Source: ONTSI using data from the INE 2010

Security policy

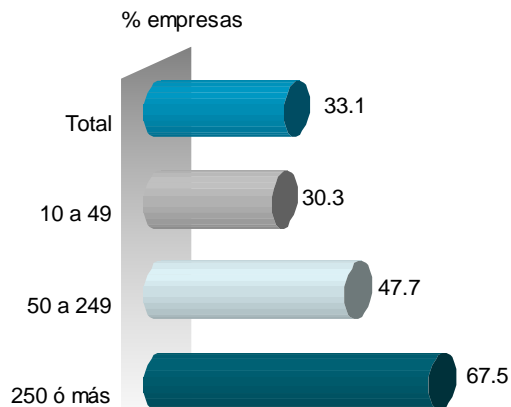
Something fundamental for any IS security strategy is having a set of clearly defined principles and objectives. The concept of 'security policy' includes the development of regulation and procedures for ICT security in the company. Namely the wording of the security policy statement, regulations, standards, procedures, instructions and all that is necessary to guarantee the proper publication, dissemination and awareness rising in relation to ICT security.

33% of SMEs and large enterprises have a security policy that, not only has been formally defined, but also is regularly updated.

We can see that the bigger the company, the higher the percentage of those that have a security policy. While only 30.3% of small companies have a security policy, this percentage rises to 67.5% in the case of large companies.

Over 67% of large companies have security policies that are periodically updated

Figure 44. Companies with a security policy that has been formally defined and is regularly updated



Base: all companies with 10 or more employees with computers

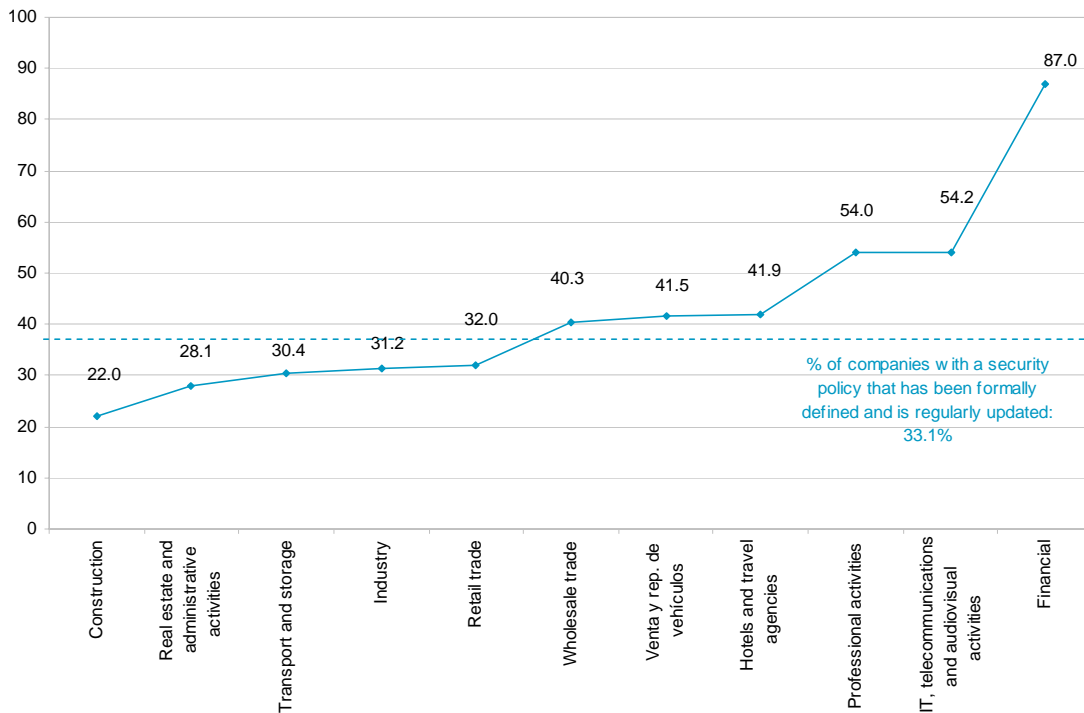
Source: ONTSI using data from the INE 2010

87% of companies in the financial sector have security policies that are periodically updated

Security is a concern in the financial sector. That is why 87% of its companies have well-defined security policies that are periodically updated. 30 points behind we find the IT, telecommunications and audiovisual sector (with 54.2%) and the professional activities sector (54%).

With percentages around 40%, we find the wholesale trade, the sale and repair of vehicles and the hotel and travel agency sector. Transportation and storage, industry and retail trade record percentages ranging between 30% and 32%. Lastly 22% of companies in the construction sector and 28.1% of those engaged in real estate and administrative activities have security policies.

Figure 45. Companies with a security policy that has been formally defined and is regularly updated



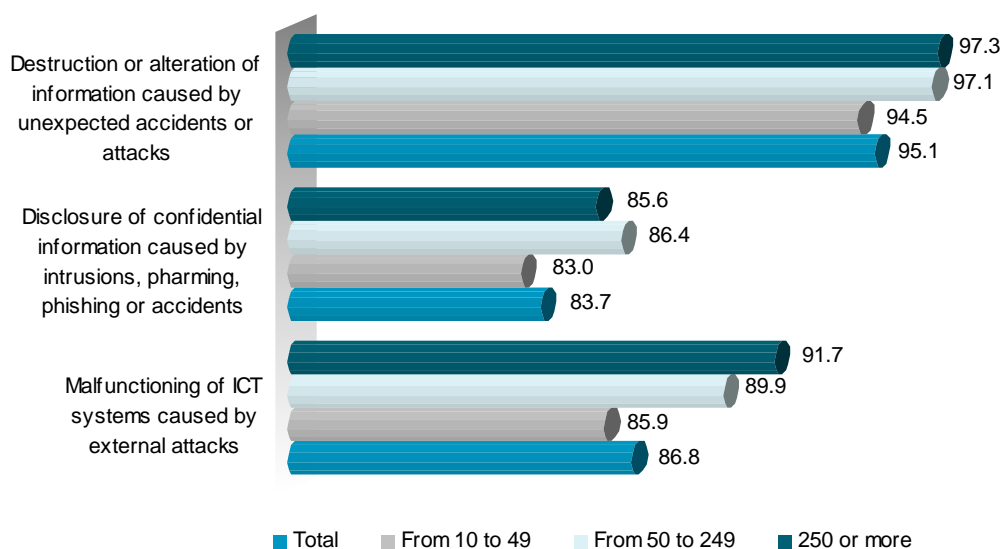
Base: all companies with 10 or more employees with computers

Source: ONTSI using data from the INE 2010

Companies with a defined security policy that is regularly updated use it mainly (95.1% of them) to avoid risks of destruction or alteration of information caused by unexpected accidents or attacks. Secondly, 86.8% of SMEs and large companies with security policies use it to avoid malfunctioning of ICT systems caused by external attacks, and thirdly, 83.7% of them to avoid the disclosure of confidential information caused by intrusions, pharming, phishing, or accidents.

The main purpose of a defined security policy that is regularly updated is to avoid risks of destruction or alteration of information caused by unexpected accidents or attacks

Figure 46. Risks contemplated in corporate security policies (%)



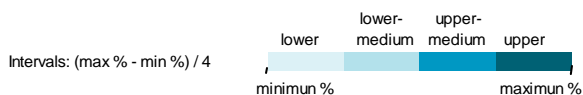
Base: all companies with 10 or more employees with computers

Source: ONTSI using data from the INE 2010

As shown in the following table, the financial and the IT, telecommunications and audiovisual sectors are those experiencing the three types of security risks to the greatest extent. Transport and storage companies and those engaged in professional activities experience risks categorised in the upper-medium interval in the table.

Table 9. Risks contemplated in corporate security policies, by sector

	TOTAL	Industry	Construction	Sale and repair of vehicles	Wholesale trade	Retail trade	Hotels and travel agencies	Transport and storage	IT, telecommunications and audiovisual activities	Real estate and administrative activities	Professional activities	Financial
Destruction or alteration of information caused by unexpected accidents or attacks	95.1	94.4	95.1	95.8	96.1	95.1	94.2	97.8	96.2	92.5	94.7	100.0
Disclosure of confidential information caused by intrusions, pharming, phishing or accidents	83.7	79.8	81.8	82.4	84.1	86.6	86.2	85.0	89.9	87.1	87.1	90.1
Malfunctioning of ICT systems caused by external attacks	86.8	85.0	82.5	87.5	87.7	87.7	85.7	90.8	94.6	87.0	89.1	93.1



Base: all companies with 10 or more employees with computers

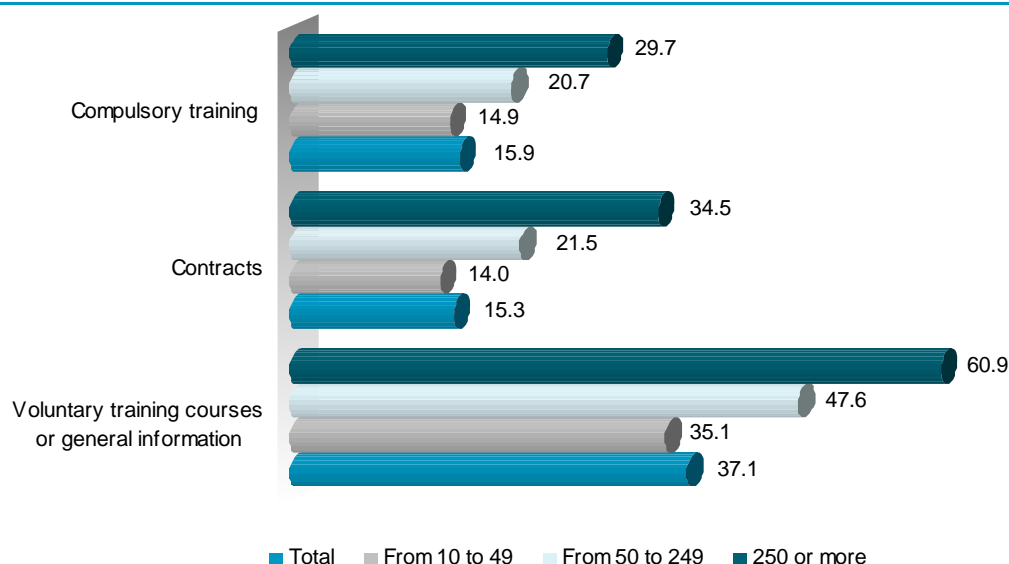
Source: ONTSI using data from the INE 2010

To achieve a high level of security in ICT systems it is necessary to combine a good security policy strategy, which is regularly updated, with an appropriate communication strategy to inform and train employees about their obligations with regard to ICT security. More than a third of

Prevention policies based on voluntary training courses or general information are the most common

SMEs and large companies with computers provide voluntary training courses or general information to their employees. This is more noticeable on larger companies. At the same time, around 15% - 16% of companies with 10 or more employees that have computers execute contracts with their employees (stating obligations and responsibilities) or give compulsory training on ICT security to them.

Figure 47. ICT system security prevention policy for employees (%)



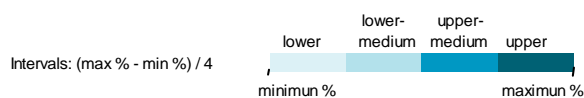
Base: all companies with 10 or more employees with computers

Source: ONTSI using data from the INE 2010

Companies in the financial sector are the ones that rely the most on appropriate communication strategies to inform and train employees about their obligations with regard to ICT security. Specifically, more than half of these give compulsory training to their employees (54.9%) or execute contracts to protect themselves in case of security failures (58.1%).

Table 10. ICT system security prevention policy for employees by sector

	TOTAL	Industry	Construction	Sale and repair of vehicles	Wholesale trade	Retail trade	Hotels and travel agencies	Transport and storage	IT, telecommunications and audiovisual activities	Real estate and administrative activities	Professional activities	Financial
Compulsory training	15.9	15.0	14.4	20.7	17.0	15.3	21.2	12.9	21.3	13.1	21.6	54.9
Contracts	15.3	12.0	11.7	18.3	16.5	16.0	24.4	13.5	30.4	15.1	26.8	58.1
Voluntary training courses or general information	37.1	34.4	33.1	42.2	40.4	33.5	39.9	39.5	52.8	31.9	51.3	75.7



Base: all companies with 10 or more employees with computers

Source: ONTSI using data from the INE 2010

4. SURVEY TECHNICAL SPECIFICATIONS

Statistics source

Tables of the ETICCE (Survey on the Use of ICT and Electronic Commerce in Companies) 2009-2010, conducted by the INE (Spanish National Statistical Institute) and supplied to Red.es through a collaboration agreement.

Sample

Companies with 10 or more employees: 17,561 companies

Demographic scope

Population formed by companies whose main activity is described in sections C, D, E, F, G, H, I (except division 56), J, classes 64.19, 64.92, 66.12 and 66.19 and in groups 65.1 and 65.2 of section K, section L, divisions of 69 to 74 of section M, section N and group 95.1, according to the National Economic Activity Classification (NACE-2009). In other words, the sectors analysed are manufacturing industry, supply of electricity, gas and water, construction, wholesale and retail trade, sale and repair of motor vehicles and motorcycles, transportation and storage, accommodation services, information and communications, financial and insurance activities, real estate activities, scientific and technical professional activities and administrative activities and auxiliary services, and repair of computers and communication equipment.

Territorial scope

Spain (Detailed analysis by Sector and Autonomous Region)

Temporal scope

For international comparability purposes, this survey has two reference periods. On the one hand, the infrastructure, equipment and ICT variables take January 2010 as the reference period. On the other, the e-Commerce variable and general information on companies take the year 2009 as the reference period.

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