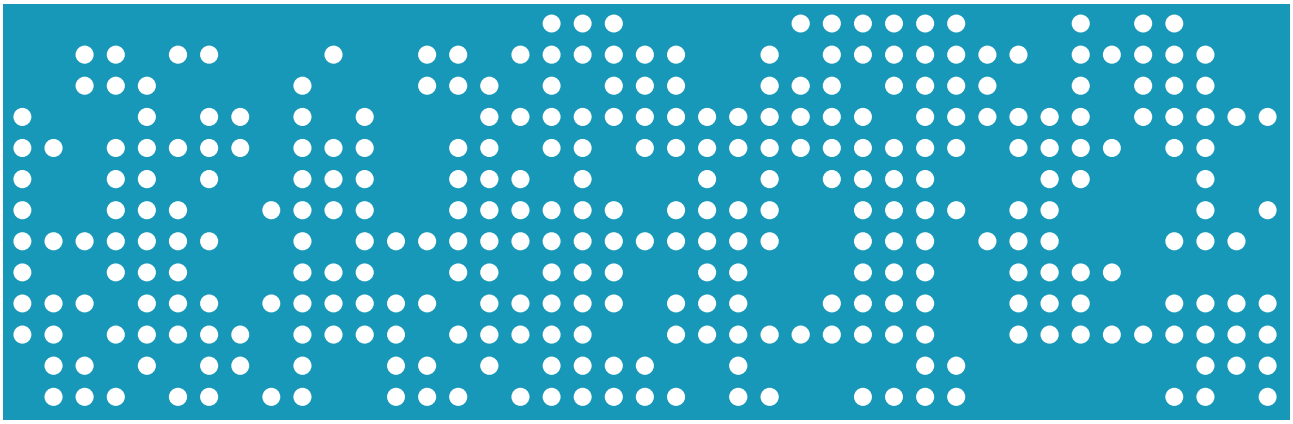
GOBIERNO DE ESPAÑA

MINISTERIO DE INDUSTRIA, TURISMO Y COMERCIO

Information and Communication Technologies in Spanish microenterprises

2011 Edition



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Contents

1. HIGHLIGHTS

- **The ICT terminals most widely used by Spanish microenterprises are mobile phones and computers, which were available in 2 out of 3 microenterprises in the first quarter of 2010.**

- **In three of the eleven sectors analysed, more than 90% of microenterprises have computers:** the financial sector, the professional activities sector, and the IT, telecommunications and audiovisual sector.

- **The Internet has shown a slight rise in microenterprises: 58.1% of microenterprises have Internet access,** 2 points more than the previous year, accumulating a growth of 5 points in two years.

- **As for microenterprises with 3 to 9 employees, 91.8% of them have a computer and 86.6% have Internet access,** more than 25 points above the average for microenterprises, and similar to that for SMEs and large companies.

- **The Internet availability gap between sectors has fallen this year from 78 to 54 percentage points.** At the bottom, we find microenterprises of the transport and storage sector (35%), and at the top microenterprises dedicated to professional activities (92.2%). The last are followed by hotels and travel agencies, microenterprises of the financial sector, and those of the IT, telecommunications and audio-visual services sector, all with percentages above 82%.

- In general terms, the differences between sectors in computer, Internet and local area network (LAN) availability range between 50 and 60 percentage points.

- **Local area networks (LANs) are used by 22.9% of microenterprises**, almost 3 points more than the previous year. In the case of wireless local area networks (WLANs), that percentage is cut in half (11.5%). As for Internet Protocol (IP) based networks –intranets and extranets-, they are present in less than 4% of all microenterprises.

- **94.3% of microenterprises with Internet access connect via (fixed or mobile) broadband.** 93.7% of microenterprises with Internet access connect via fixed broadband (ADSL or cable) and 18.7% connect via mobile broadband.

- **22.7% of microenterprises with Internet access connect via mobile telephone networks.** 18.7% of microenterprises with Internet access connect via mobile broadband and the other 8.5% do it via other mobile telephone connections at lower speeds.

- **75.5% of microenterprises with Internet access use it as a communication platform, and 69.3% use it to access banking and financial services.** Most notable are microenterprises in the financial sector, the IT, telecommunications and audiovisual sector, and the real estate and administrative activities sector, with over 80% of them using the Internet to access banking and financial services.

- **The percentage of microenterprises with Internet and a website has risen to 25% in 2010**, 3 percentage points more than the previous year. In the case of microenterprises with 3 to 9 employees, this percentage exceeds 40%. At a sector level, hotels and travel agencies lead the way, nearly tripling the average with a percentage of 71.8%.

- **57.4% of microenterprises in the professional activities sector interact with the public administration via the Internet.** The average is 39.8%, that is to say four out of ten microenterprises with Internet access.

- With 2 percentage points more than in the previous year, **26.7% of microenterprises with Internet access had used digital signatures in January 2010**. This percentage raises to 35.8% in the case of microenterprises with 3 to 9 employees.

- **The percentage of microenterprises that exchanged information electronically with other companies grew from 9% to 15.8% in January 2010 (orders, invoices, product information, payment instructions to banks, etc.).** With an increase of 7 points, this is probably the ICT-enabled corporate process that records the greatest growth in the last year.

- 5.2% of all microenterprises share information about the supply chain using electronic systems, mainly webpages –both their own or their providers/customers/partners' webpages-.

- 5% of microenterprises have IT applications for managing information about their customers (CRM tools, "Customer Relationship Management") and 1.2% have ERP (Enterprise Resource Planning) systems for sharing purchasing and sales related information with other functional areas of the company.

- **The number of microenterprises that use e-commerce for buying products has risen, while e-sales remain flat.** In 2009, 11.2% of microenterprises purchased via e-Commerce, which represents an increase of 2 points over the previous year. In the case of microenterprises with 3 to 9 employees, this percentage reaches 18.3%. On the other hand, the percentage of microenterprises that sold via electronic commerce in 2009 did almost not change with respect to the previous year, standing at 2.6% (compared to 2.4% in 2008).

- **There are notable differences between sectors in percentage of e-purchases, with a maximum of 37% and a minimum of 2% of microenterprises buying this way.** Specifically, there are 3 sectors that record percentages above 20%: professional activities (23.7%), hotels and travel agencies (28.7%) IT, telecommunications and audiovisual sector (37.4%).

- **A total of 26% of microenterprises with 0 to 9 employees in the hotel and travel agency sector used e-Commerce to sell, in contrast to 2.6% of all microenterprises.** In other sectors the difference is of around 2 points with respect to the average, and in the IT, telecommunications and audiovisual sector the difference is slightly greater, of 5.8%.

- **The percentage of e-Commerce in relation to total turnover of microenterprises that purchase/sell online is greater than in the case of SMEs and large companies.** The percentage of e-Commerce sales out of all sales of microenterprises that purchase/sell online is 39.4%, compared to 31.6% of SMEs and large companies.

- **There are three sectors that have made over 50% of their sales online** (only considering microenterprises that sell over the Internet). These are real estate and administrative activities (61.2%), transportation and storage sector (59.7%), and the IT, telecommunications and audiovisual services sector (52.3%).

- **The IT, telecommunications and audiovisual sector, with 71.6% of their purchases made online, almost doubles the average for the total number of microenterprises** (that make e-Commerce purchases). It is followed by the transport and storage sector, with a percentage of 47.3%, in contrast to the average of 31.4%.

- **74.3% of e-sales made by microenterprises were B2B transactions (business to business), 24.4% were B2C transactions (business to consumer) and 1.3% were B2G transactions (business to government).** However, in some sectors B2C sales stand out: the vehicle sale and repair sector (with B2C sales representing 70.1% of all online sales), the retail trade (with 64.1%) and hotels and travel agencies (with 49.3% B2C and 49.7% B2B).

- **12.4% of microenterprises with computers have been affected by the malfunctioning of ICT services, destruction or alteration of information, caused by software or hardware failures.** Specifically, 8.2% of microenterprises have been affected by destruction or alteration of information caused by viruses or unauthorised accesses and 5% have been affected by the malfunctioning of ICT systems caused by external attacks. Lastly, less than 1% of microenterprises have been affected by the disclosure of confidential information caused by intrusions, pharming, phishing, or even their employees, weather intentionally or inadvertently.

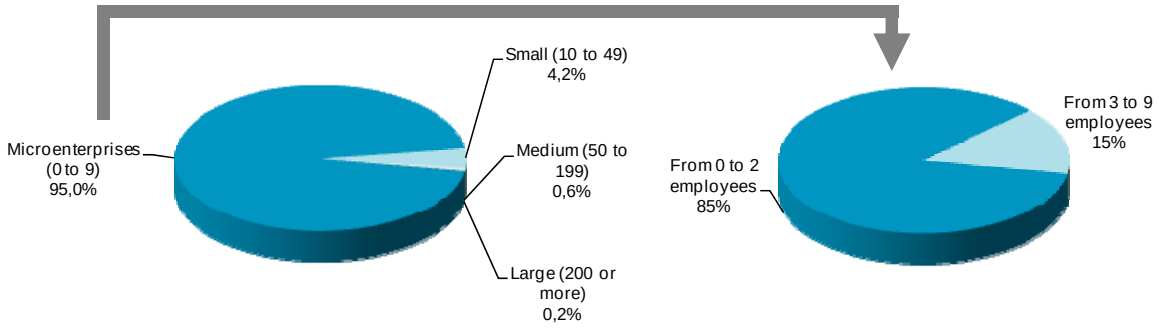
- **Formal development of an ICT security policy, involving a regular update plan, is carried out by 12.7% of microenterprises with computers.** The highest percentages are found in microenterprises of the financial sector (31.5%) and of the IT, telecommunications and audiovisual services sector (29.8%).

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

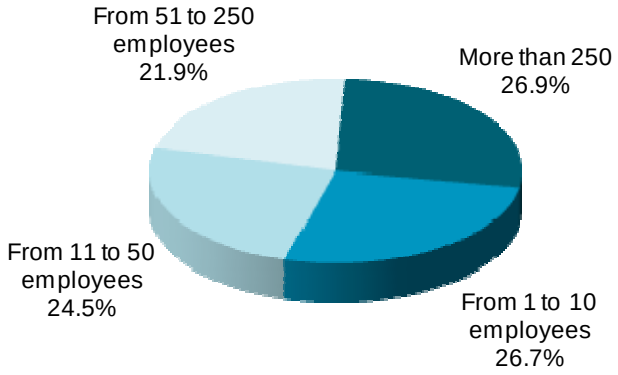
Source: ONTSI based on DIRCE 2010

2.2. Representation of the workforce

According to 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

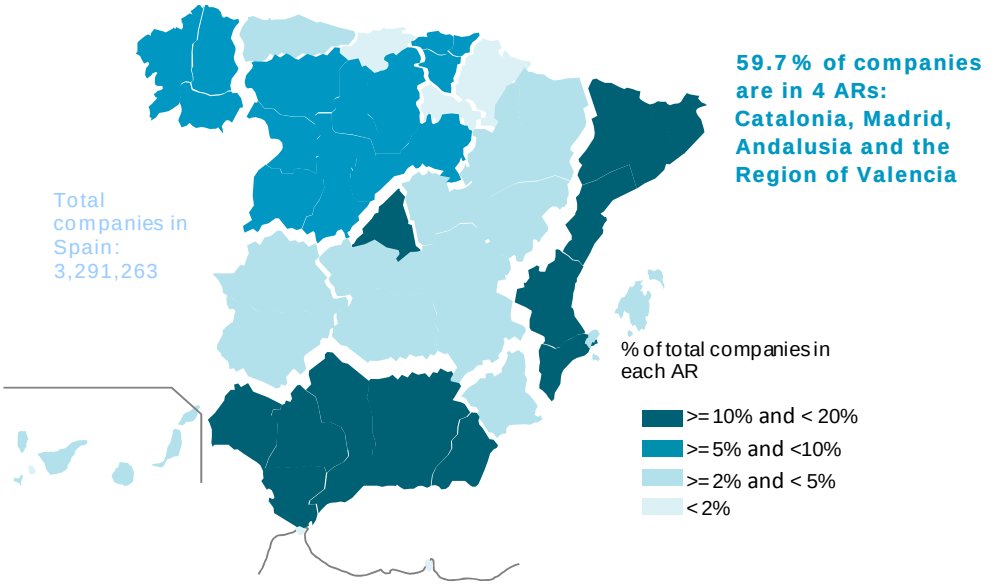
Four Autonomous Regions concentrate 59.7% of the almost 3.3 million companies in Spain: Catalonia (18.5%), Madrid (15.3%), Andalusia (15.1%) and the Autonomous Region of Valencia (10.7%). These are followed by Galicia (6%), the Basque Country (5.2%) and Castile-Leon (5.1%). The others account for less 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%
Castilla-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%
Ceuta and Melilla	7,270	0.2%	6,948	0.2%	322	0.2%

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 Spanish microenterprises, in other words, those companies with less than 10 employees.

The following table shows the distribution of Spanish microenterprises based on the 11 sector groups indicated in the National Classification of Economic Activities 2009 (NACE-2009). This classification is used throughout the study thereby enabling us to show a more detailed breakdown 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 76% of the Spanish microbusiness 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, retail trade outstripped construction accounting for 15.9% of all microenterprises. Construction occupies second place with 15.4%, followed by professional activities with 12.5%. These three sectors account for almost 44% of all Spanish microenterprises. The following sectors in the ranking are real estate and administrative activities, transportation and storage, wholesale trade and industry. The percentages for these sectors range between 8% and 6% of the total. The final block comprises sectors of activity that account for less than 3% of Spanish microenterprises (sale and repair of motor vehicles; IT, telecommunications and audiovisual services; hotels, campsites and travel agencies, and the financial sector).

Table 2. Sector group of companies with 0 to 9 employees in Spain

No.	Category name	NACE (Spanish Economic Activity Code) 2009	Category description	Total microent. (DIRCE 2010)	% of total microent
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	191,694	6.1%
2	Construction	41 to 43	Construction	481,472	15.4%
3	Sale and repair of motor vehicles	45	Sale and repair of motor vehicles and motorcycles	68,970	2.2%
4	Wholesale trade	46	Wholesale trade	203,572	6.5%
5	Retail trade	47	Retail trade (except motor vehicles)	497,238	15.9%
6	Hotels, campsites and travel agencies	55 to 79	Hotels and campsites; travel agencies	30,255	1.0%
7	Transport and storage	49 to 53	Transportation and storage (including postal service)	214,011	6.8%
8	IT, telecommunications and audio-visual activities	58 to 63	Information and Communications (including audiovisual services)	49,002	1.6%
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)	251,540	8.0%
10	Professional activities	69 to 74	(69 to 74) Scientific and technical professional activities (without 75: veterinary)	389,944	12.5%
11	Financial*	64.19 + 64.92 + 65.1 + 65.2 + 66.12 + 66.19	Financial and insurance activities	6,334	0.2%
Total number of microenterprises in the sectors considered in the survey (Sample population)				**2,384,032**	**76.2%**
Microenterprises in other sectors not considered in the survey				**744,149**	**23.8%**
TOTAL MICROENTERPRISES IN SPAIN				**3,128,181**	**100.0%**

**: The microcompanies 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 MICROENTERPRISES

3.1. Infrastructure and connectivity

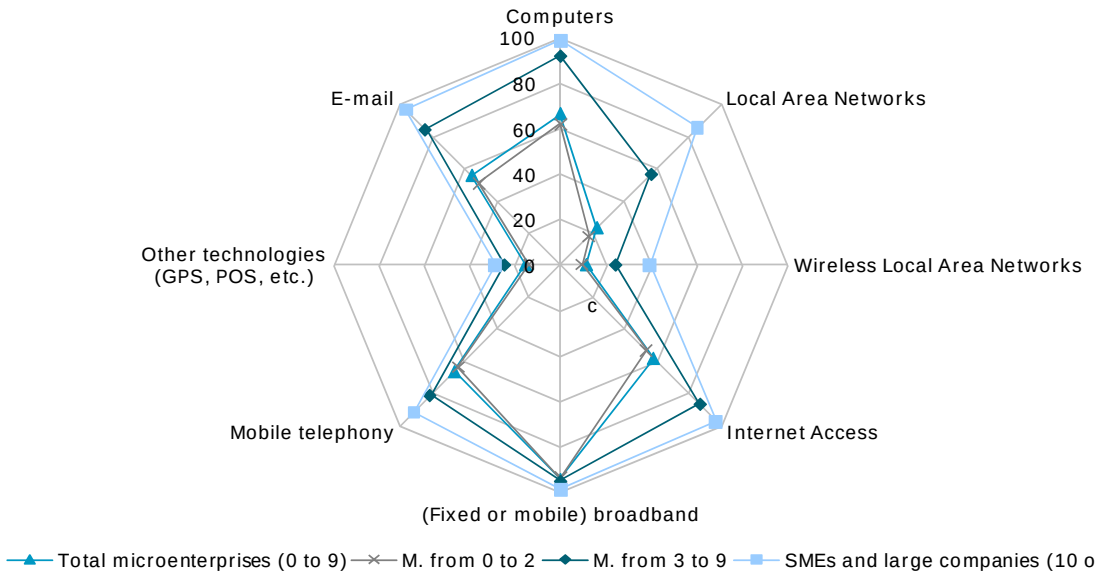
3.1.1. Access and network devices

Mobile phones and computers are still the most frequent ICT devices in Spanish microenterprises (from 0 to 9 employees), both recording high penetration rates that almost reach two thirds of all microenterprises. Specifically, 66.2% of all microenterprises have computers and 66.4% have mobile phones. The incorporation of this infrastructure helps the company to carry out its business activity, enabling it to benefit from all the uses of technology (Internet access, faster and better connectivity through e-mail, logistics management applications, speed of information and management, etc.).

58% of microenterprises have Internet access

The Internet continues its upward trend reaching 58.1% of microenterprises, out of which 94.3% connects via (fixed or mobile) broadband. The below graph shows the differences between microenterprises and larger companies (with 10 or more employees) in ICT availability. In the case of broadband Internet, the distance is very small. Additionally, the distance of microenterprises with the largest number of employees (3 to 9) from SMEs and large companies is not long in any of the cases.

Figure 4. ICT infrastructure and connectivity by type of company



Base: all companies

Source: ONTSI using data from the INE 2010

As for microenterprises with 3 to 9 employees, 91.8% of them have a computer and 86.6% have Internet access, more than 25 percentage points above the average for microenterprises, and similar to that for SMEs and large companies (with a difference of 6 to 10 points).

92% of micro-enterprises with three to nine employees have computers and 87% have Internet access

As for other communication networks such as local access networks (LANs[1]), internal communication networks using IP protocol (intranets[2],) and networks that allow controlled access from the outside (extranets), only LANs have a significant presence –in 22.9% of microenterprises-. In the case of wireless local area networks (WLANs), that percentage is cut in half. As for Internet Protocol (IP) based networks –intranets and extranets-, they are present in 4% of all microenterprises.

Lastly, 15.5% of microenterprises report having other ICT devices such as geographical positioning systems (GPS[3]), point of sale terminals (POS[4]), etc.

Table 3. Availability of ICT infrastructure by company size

% of companies that had:	Total microenterprises (0 to 9)	M. from 0 to 2	M. from 3 to 9	SMEs and large companies (10 or more)
(Fixed or mobile) broadband*	94.3	94.0	95.1	98.7
Mobile telephony	66.4	63.9	81.1	91.5
Computers	66.2	62.0	91.8	98.6
Internet Access	58.1	53.4	86.6	97.2
E-mail	55.4	50.6	84.0	96.5
Local Area Networks	22.9	17.4	56.3	85.6
Other technologies (GPS, POS, etc.)	15.5	14.0	24.6	28.8
Wireless Local Area Networks	11.5	9.4	24.1	39.3
Intranets	3.7	2.4	11.4	25.6
Extranets	3.0	2.3	7.4	16.6

Base: all companies

**Base for the broadband indicator: Companies with Internet connection*

Source: ONTSI using data from the INE 2010

[1] Local Area Networks (LAN): Communication network between computers located in the same building or nearby buildings that enables users to exchange data and share resources.

[2] Intranet: Internal network of an organisation that provides content and services for the exclusive use of the organisation, usually based on Internet standards.

[3] GPS: A satellite-based global positioning system used to locate a vehicle, person or ship at a global scale.

[4] POS: A point-of-sale (POS) terminal is an IT system used to manage sale processes, create and print tickets based on product references, introduce stock changes in the data base and other business processes.

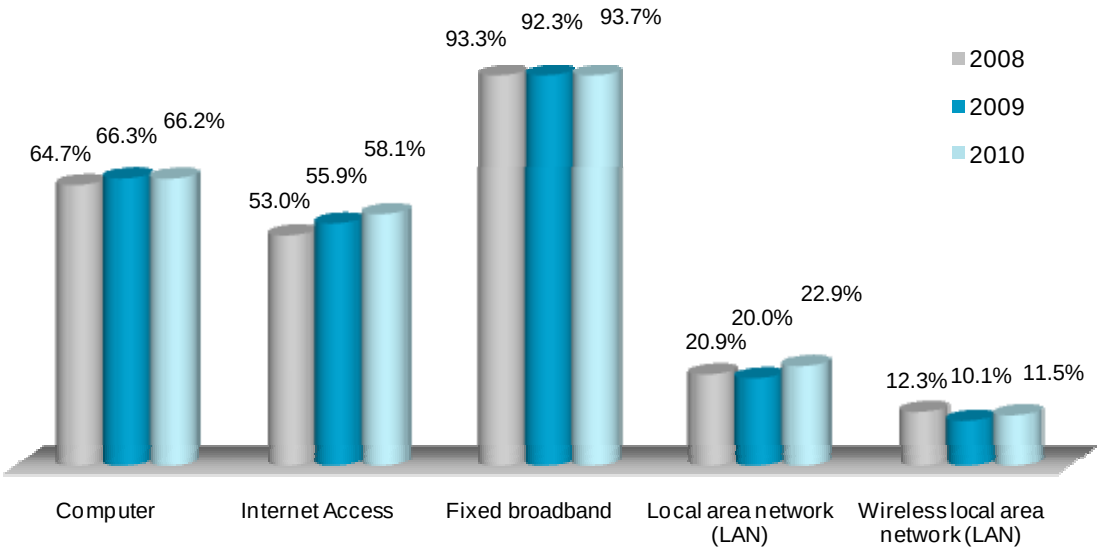
The increasing incorporation of new technologies into microenterprises is mainly reflected in the indicator of Internet use, which has increased 5 points in two years, from 53% in 2008 to 58.1% in 2010.

Local area networks (LANs) have recorded an increase of 2 points in the last two years, similarly to computers.

The percentage of microenterprises with Internet grows by 5 percentage points in two years

Fixed broadband remains flat and is present in 93-94% of microenterprises with Internet.
To analyse the evolution, we have used the indicator of fixed broadband instead of that which includes fixed and mobile broadband (94.3%), since we have no previous years' data for comparison.

Figure 5. Evolution of the main ICT indicators



Base: all microenterprises

Source: ONTSI using data from the INE 2010

Access and use of ICTs by economic activity sector

The type of activity carried out by the company can be as or more determinant than the number of employees with regards to technology adoption.

Firstly, and considering the indicators selected in the below table, we can see that the IT, telecommunications and audiovisual sector displays the highest percentages of ICT availability. Considering the intersector variations, this sector is placed in the top-quarter, which is represented in the table with the darkest colour. The financial sector occupies second position with high percentages of ICT availability, except in mobile broadband, wireless network and other technologies like GPS or POV. Next in the ranking are hotels and travel agencies, and professional activities, though presenting some

peculiarities related to their specific requirements. While hotels and travel agencies use intranets, extranets and other technologies more intensively, the professional activities sector records high percentages in mobile telephone, Internet and broadband availability.

Table 4. Infrastructure and ICT access by sector

% of microenterprises that had:	Total microenterprises	Industry	Construction	Sale and repair of vehicles	Wholesale trade	Retail trade	Hotels and travel agencies	Transport and storage	IT, telecommunications and audio-visual activities	Real estate and administrative activities	Professional activities	Financial
Mobile telephony	66.4	64.1	72.7	65.2	79.6	47.1	66.4	73.8	79.1	50.5	78.0	79.3
Computers	66.2	65.2	59.2	78.8	81.5	49.0	85.2	38.8	91.3	68.0	95.0	92.2
Internet Access	58.1	56.1	43.2	66.6	72.8	42.4	82.5	35.0	87.7	58.8	93.2	89.0
E-mail	55.4	53.1	40.4	63.8	70.7	39.1	80.9	31.6	86.4	53.1	92.3	87.7
(Fixed or mobile) broadband	94.3	92.0	92.9	90.1	96.1	93.3	95.2	95.6	97.8	93.4	95.5	98.0
Fixed broadband	93.7	91.7	92.4	89.8	95.2	92.4	94.8	94.8	97.8	92.4	95.1	97.7
Mobile broadband	18.7	13.0	16.9	8.6	22.7	11.7	12.7	24.0	44.4	16.3	21.4	17.0
Local area network (LAN)	22.9	20.3	10.6	22.9	31.3	16.9	39.7	8.7	58.7	24.5	42.8	51.6
Wireless Local Area Networks	11.5	9.3	4.7	12.7	15.1	6.4	17.3	3.3	46.7	13.0	23.0	16.5
Other technologies (GPS, POS, etc.)	15.5	10.3	6.4	17.7	19.4	24.0	31.9	31.0	26.6	7.6	9.7	7.6
Intranets	3.7	2.6	2.1	3.4	5.2	2.4	22.7	1.0	16.9	4.4	4.9	20.0
Extranets	3.0	2.8	1.3	2.9	4.8	2.2	13.6	0.5	15.6	2.5	4.2	10.8

Intervals: (max % - min %) / 4 — lower | lower-medium | upper-medium | upper

minimun % — maximun %

Base: all microenterprises

Source: ONTSI using data from the INE 2010

Some sectors prioritise the use of a specific technology that draws immediate benefits for their activities, as in the case of the construction sector with mobile telephony. In 2010, 72.7% of microenterprises in this sector had mobile telephones for business use, compared to the average of 66.4%, and the availability of this technology in the sector's microenterprises is 13.6 percentage points greater than of computers (which are present in 59.2% of them).

73% of microenterprises in the construction sector and 74% in the transport and storage sector have mobile phones, compared to the average of 66.4%

In this same line, 73.8% of microenterprises of the transport and storage sector have mobile telephones, compared with 38.8% of them that have computers. This sector also leads in availability of other technologies such as POS or GPS (31%), together with hotels and travel agencies (31.9%). Though of lesser significance, the retail trade and the IT, telecommunications and audiovisual sector record high percentages in use of these technologies.

Local computer networks -including wireless networks-, intranets and extranets are the technologies that showed lower percentages of use. The most widely-used are LANs, with an average of 22.9% and values of between 40% and 60% in the following sectors: IT, telecommunications and audiovisual, professional activities, financial, and hotels and travel agencies. Use of intranets and extranets, with averages of 3.7% and 3%

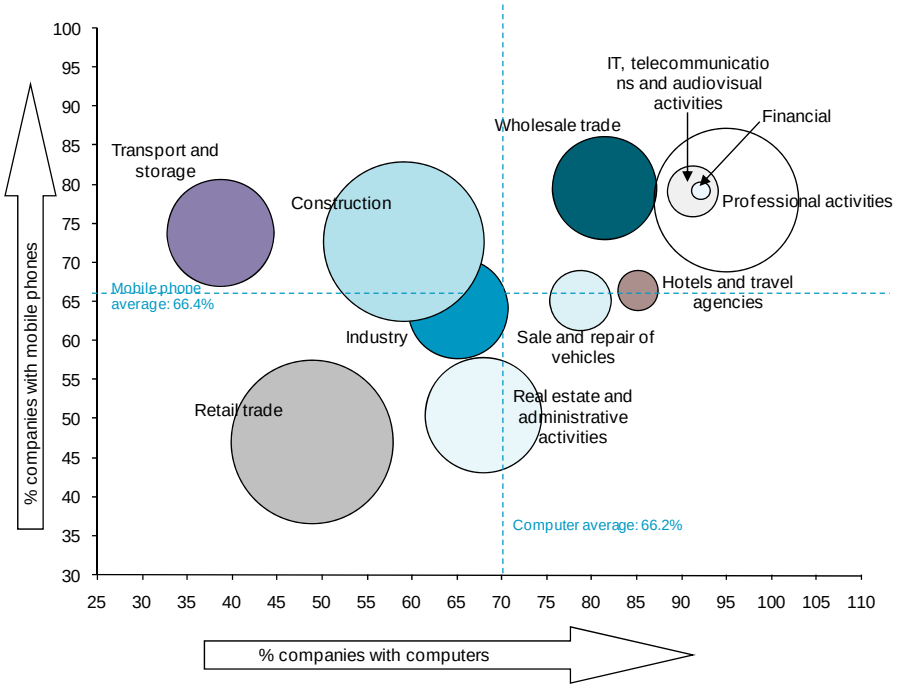
respectively, reaches percentages of 10% and 23% in the IT, telecommunications and audiovisual sector and hotels and travel agencies.

In general terms, the availability differences based on the activity sector in which the microenterprise operates are most marked for computers, Internet, email and LANs. These are differences of 50 to 60 percentage points between sectors, although this gap has been reduced compared to the previous year, when the difference in Internet availability, for example, was of 78 points. In 2010, the most important Internet penetration difference between sectors was of 54 points, with professional activities leading the way (93.2%) as compared to the transport and storage sector (35%).

The Internet availability gap between sectors has fallen this year from 78 to 54 percentage points

The figure below takes the number of microenterprises (that determines the size of the bubble) and their situation in terms of computers and mobile telephony for business use into account (which, as seen, are the main ICT components in microenterprises). The layout demonstrates that the retail trade and, to a lesser extent, the industry and real estate and administrative activities are the sectors that lag behind with less access to both mobile telephony and computers. At the other extreme, microenterprises in the IT, telecommunications and audiovisual sector, the financial sector and wholesale trade, record percentages clearly above the average. The hotel and travel agency sector and the sale and repair of vehicles have good percentages in computer availability and percentages close to the average in mobile telephony.

Figure 6. Microenterprises with computers vs. microenterprises with mobile telephony



Note: the size of the bubble is proportional to the number of microenterprises in the sector *Base: all microenterprises*

Source: ONTSI using data from the INE 2010

3.1.2. Type of Internet connection

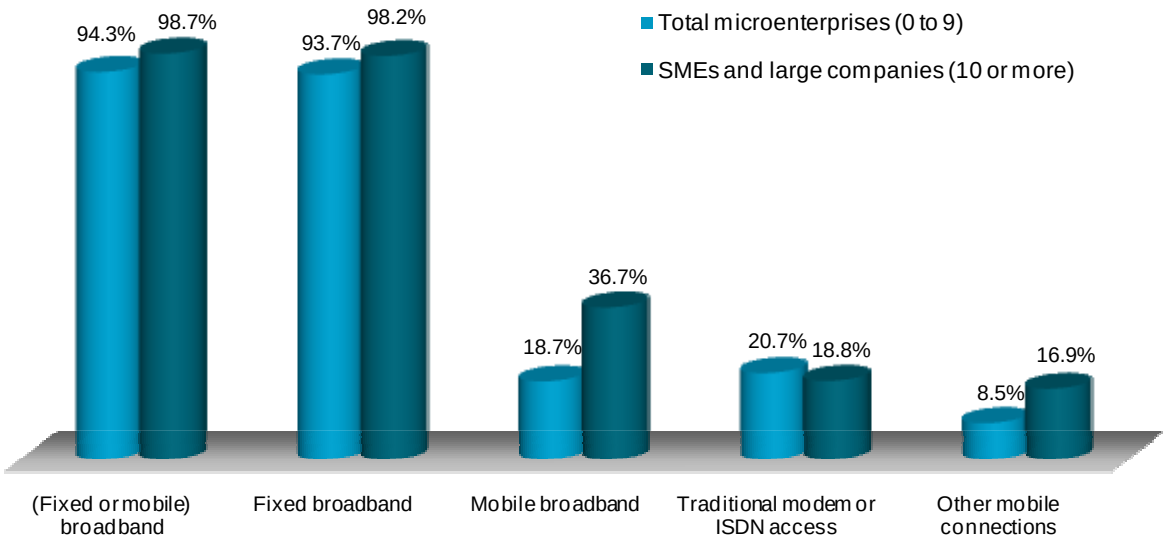
94.3% of microenterprises with Internet access connect via broadband: 93.7% connect via fixed broadband (ADSL or cable), 18.7% connect via mobile broadband, and some of them use both technologies.

94.3% of microenterprises with Internet access connect via fixed and/or mobile broadband

One fifth (20.7%) of all microenterprises with Internet connect using other low-speed fixed technologies (traditional modem or ISDN), and 8.5% using non-broadband mobile devices.

The main difference between microenterprises and SMEs and large companies is found in broadband connection via a mobile telephone. This type of connection is used in 18.7% of microenterprises, as mentioned before, as compared to 36.7% in SMEs and large companies (this last value has experienced a great increase in 2010).

Figure 7. Type of Internet connection



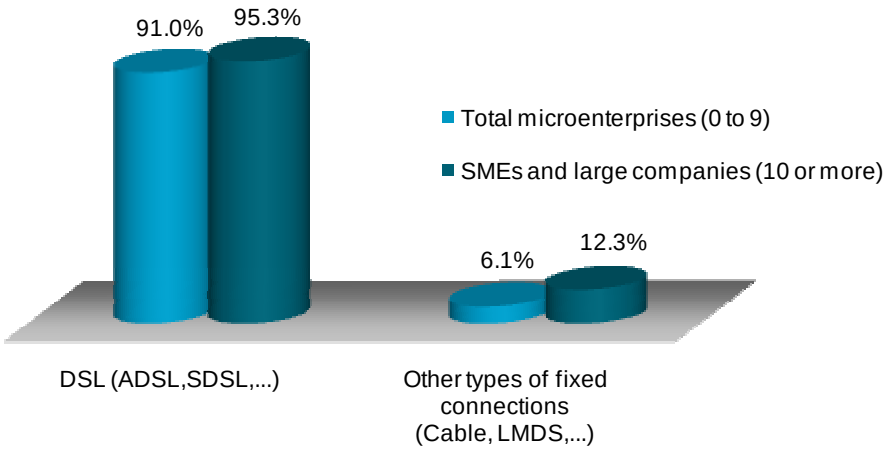
Base: total companies with Internet

Source: *ONTSI using data from the INE 2010*

Fixed broadband Internet access

Upon analysing the type of fixed broadband connection, as in the case of larger companies, most of microenterprises use ADSL (91%) and 6.1% use other fixed broadband connections such as cable.

Figure 8. Types of fixed broadband by connection technology



Base: total companies with Internet

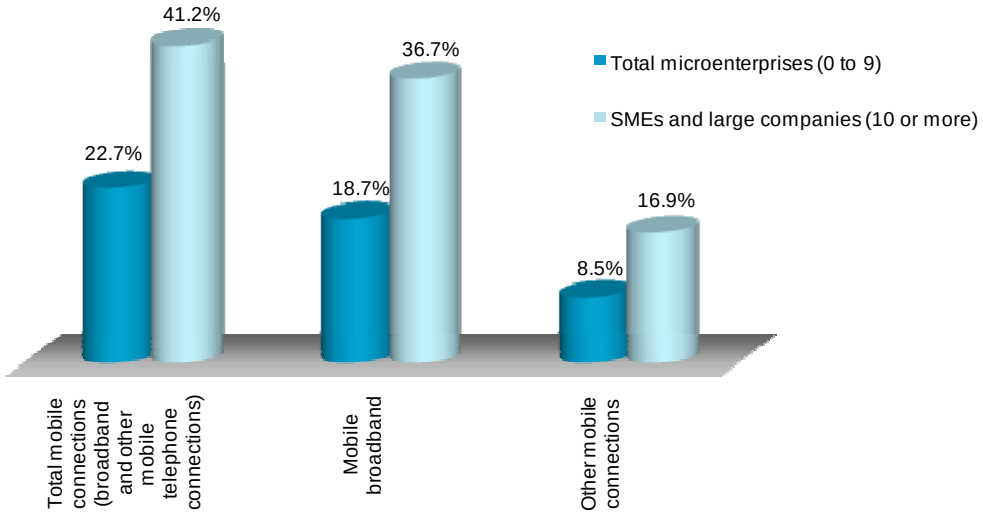
Source: ONTSI using data from the INE 2010

Mobile Internet access

As it has been pointed out before, 18.7% of microenterprises with Internet connect via mobile broadband and 8.5% do it via other mobile telephone connections at lower speeds. Taking into account microenterprises with any or both of these connection technologies, 22.7% of them have Internet access via the mobile telephony network.

22.7% of microenterprises with Internet access connect via mobile telephone networks

Figure 9. Types of mobile Internet access

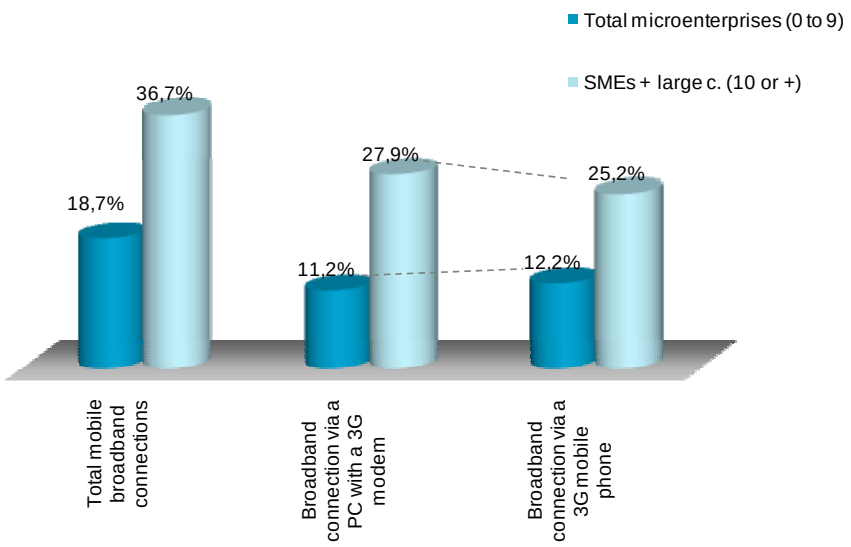


Base: total companies with Internet

Source: ONTSI using data from the INE 2010

As for the device used to access the Internet via mobile broadband, microenterprises record similar percentages for both mobile phones with 3G technology and PCs with a mobile modem (card or USB) -12.2% and 11.2% respectively- unlike SMEs and large companies, in which access via a USB or card modem is 3 points higher than via the mobile telephone.

Figure 10. Mobile broadband Internet access



Base: total companies with Internet

Source: ***ONTSI using data from the INE 2010***

3.1.3. Infrastructure and connectivity by Autonomous Region

The analysis of infrastructures in companies and connectivity indicators by Autonomous Region indicates, in general terms, that microenterprises in Madrid, Catalonia and the Valencia Region lead the way in technology adoption, followed by Murcia, Navarre and the Basque Country.

The greatest differences are found in mobile telephony and computers, of 34 points (22 without including Ceuta and Melilla) and 19 points, respectively. Internet connection, email and LANs record differences of 17 points between the regions with the highest and the lowest value. Other technologies, including broadband, in companies with Internet, record small differences between regions, of between 3 and 12 points.

Table 5. microenterprises with access to the main ICT components by AR

% of microenterprises that have:	Mobile telephony	Computers	Internet Access	(Fixed or mobile) broadband	E-mail	Local area network (LAN)	Wireless local area network (LAN)	Intranet	Extranet	Other technologies (GPS, POS, etc.)
Total Spain	66.4	66.2	58.1	94.3	55.4	22.9	11.5	3.7	3.0	15.5
Andalusia	65.3	60.8	53.1	94.0	50.5	20.1	9.5	3.1	3.1	12.9
Aragon	66.3	65.8	60.0	95.0	57.0	18.0	6.6	2.5	3.9	8.3
Asturias	63.5	65.2	58.2	97.5	56.1	18.3	8.8	3.0	1.8	15.6
Balearic Islands	60.2	65.4	59.4	95.2	59.0	21.4	9.0	3.7	3.4	11.0
Canary Islands	61.1	65.1	56.0	91.9	52.6	24.6	9.8	4.9	2.6	14.9
Cantabria	55.8	64.1	55.5	92.0	50.9	18.6	8.0	2.9	2.3	15.9
Castilla-Leon	68.1	59.0	47.6	92.1	44.1	20.2	9.9	4.5	3.2	14.6
Castilla-La Mancha	69.4	58.1	49.6	91.1	46.9	14.4	7.3	2.9	2.4	13.3
Catalonia	62.2	72.0	63.3	97.2	60.6	24.0	14.8	4.1	3.0	20.1
Region of Valencia	77.5	73.3	62.6	93.6	60.4	23.8	11.6	3.3	2.5	15.9
Extremadura	68.7	54.7	48.0	92.7	44.0	18.7	10.3	2.0	1.8	13.5
Galicia	64.2	54.8	47.3	92.9	44.7	16.5	7.7	2.5	2.2	14.5
Madrid	64.8	70.8	64.9	94.6	61.4	31.6	15.1	5.0	3.7	15.9
Murcia	74.2	64.9	55.2	93.8	53.0	24.8	12.0	2.6	3.1	19.4
Navarra	67.7	69.9	60.5	93.5	57.5	21.0	10.0	4.0	3.0	15.9
Basque Country	70.6	66.9	59.7	90.5	58.0	22.8	11.2	3.5	3.5	13.1
La Rioja	66.9	60.5	53.1	89.9	47.9	17.2	7.8	2.8	1.4	14.7
Ceuta and Melilla	43.1	56.7	54.3	91.8	51.6	22.3	12.6	0.8	0.9	9.5

Intervals: (max % - min %) / 4

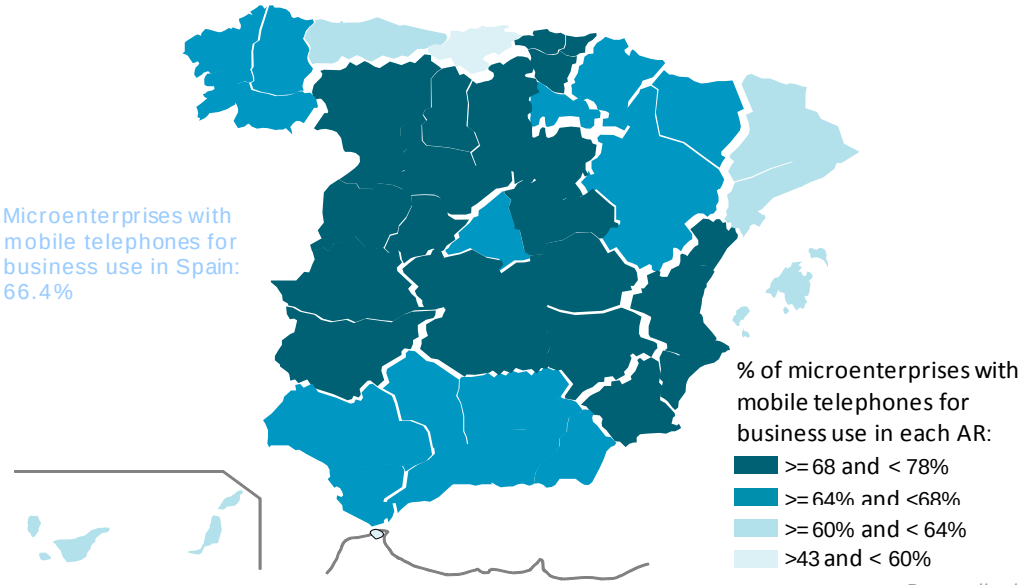
lower | lower-medium | upper-medium | upper

minimun % — maximun %

Base: all microenterprises

Source: ONTSI using data from the INE 2010

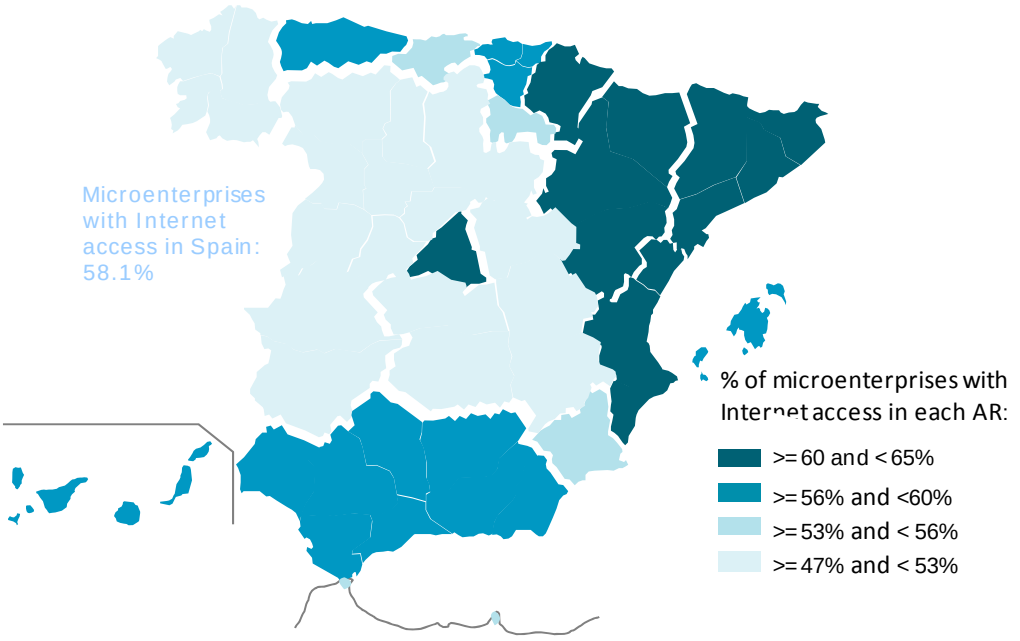
Figure 11. Microenterprises with mobile telephones by AR



Base: all microenterprises

Source: ONTSI using data from the INE 2010

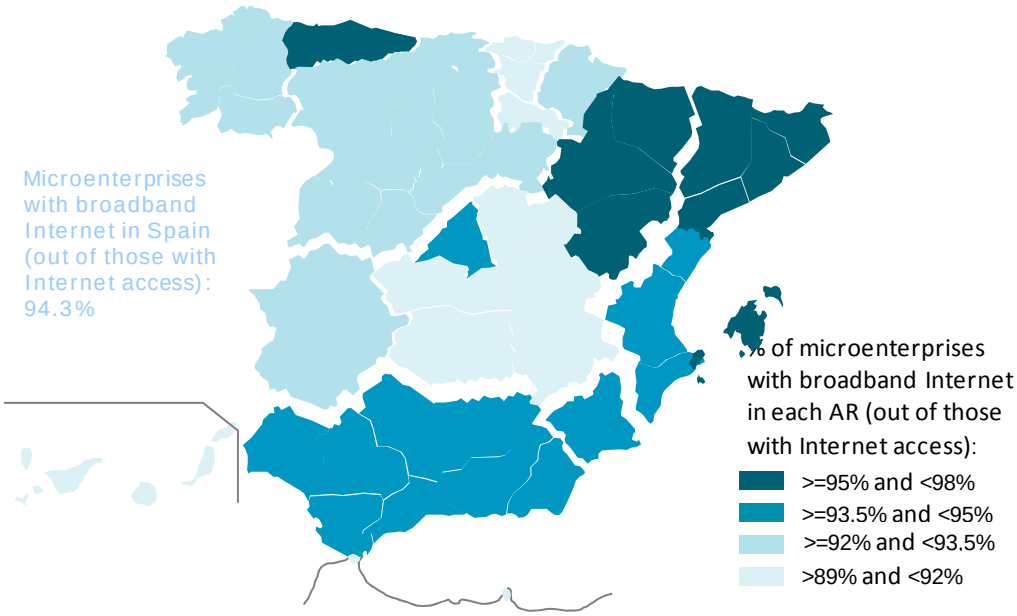
Figure 12. Microenterprises with Internet connection by AR



Base: all microenterprises

Source: ONTSI using data from the INE 2010

Figure 13. Microenterprises with broadband by AR



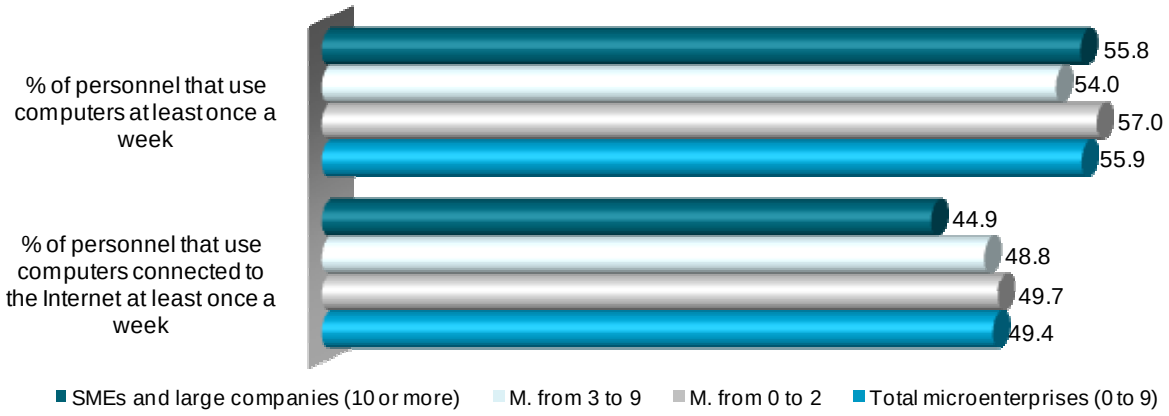
Base: total number of microenterprises with Internet access

Source: ONTSI using data from the INE 2010

3.2. ICT use by employees

The percentage of personnel that use computers on a weekly basis in microenterprises (56%) is practically the same as in larger companies. In cases where computers also have Internet access, the percentages are 49.4% for microenterprises, compared to 44.9% for SMEs and large companies.

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

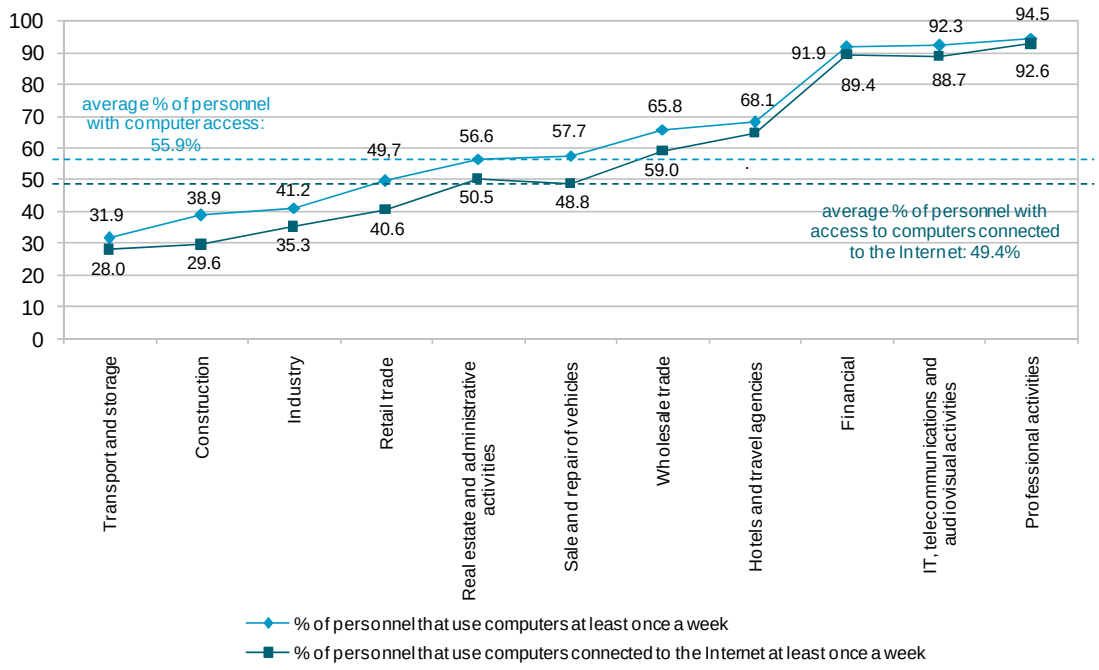


Base: total employees in each company

Source: ONTSI using data from the INE 2010

There are three sectors of the eleven analysed that stand out in terms of personnel who use computers (with or without Internet) on a daily basis, with percentages of 89% to 95%. These sectors are professional activities, the IT, telecommunications and audiovisual sector, and the financial sector.

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



Base: total microenterprise employees

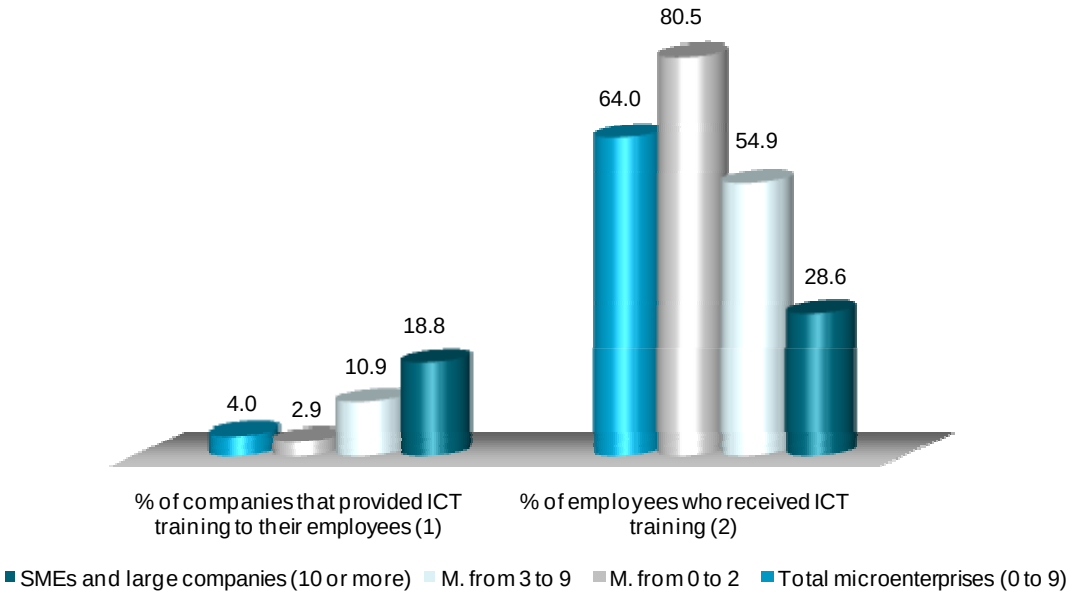
Source: ONTSI using data from the INE 2010

ICT training

ICT training is a key factor to maximize the benefits of technology for business. Although the percentage of microenterprises that provide ICT training activities to their employees has doubled in one year, it accounts only for 4% of all Spanish microenterprises. In the case of larger microenterprises, those with 3 to 9 employees, and in SMEs and large companies, the percentages are 11% and 18.8% respectively.

In contrast, in those microenterprises that provide ICT training, 64% of their employees actually receive the training, while in SMEs and large companies the percentage is 28.6%.

Figure 16. ICT training for employees



Base 1: all companies
Base 2: total employees of companies that provided ICT training

Source: ONTSI using data from the INE 2010

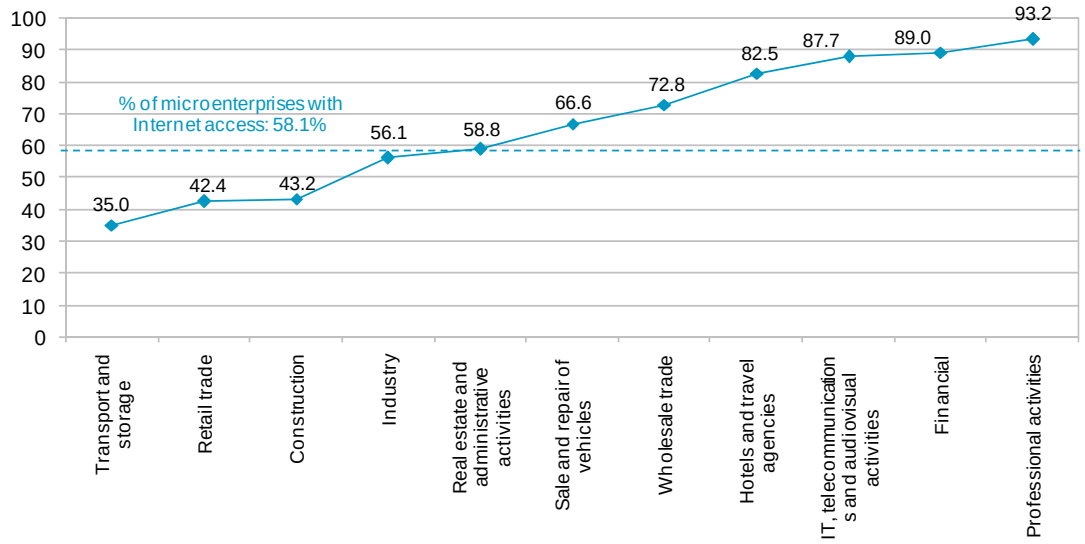
3.3.

3.4. Internet

As seen in previous sections, with an annual growth of 2 percentage points, nearly 6 out of 10 microenterprises have Internet (58.1%). If we only take into account those with 3 to 9 employees, the percentage rises to 86.6%.

However, the differences in Internet use between sectors are significant, with a maximum gap of 58 percentage points. There are four sectors that stand out with over 80% of their microenterprises having Internet: professional activities in first place (93.2%), followed by the financial sector (89%), the IT, telecommunications and audiovisual sector (87.7%), and hotels and travel agencies (82.5%).

Figure 17. Microenterprises with Internet access by sector



Base: all microenterprises

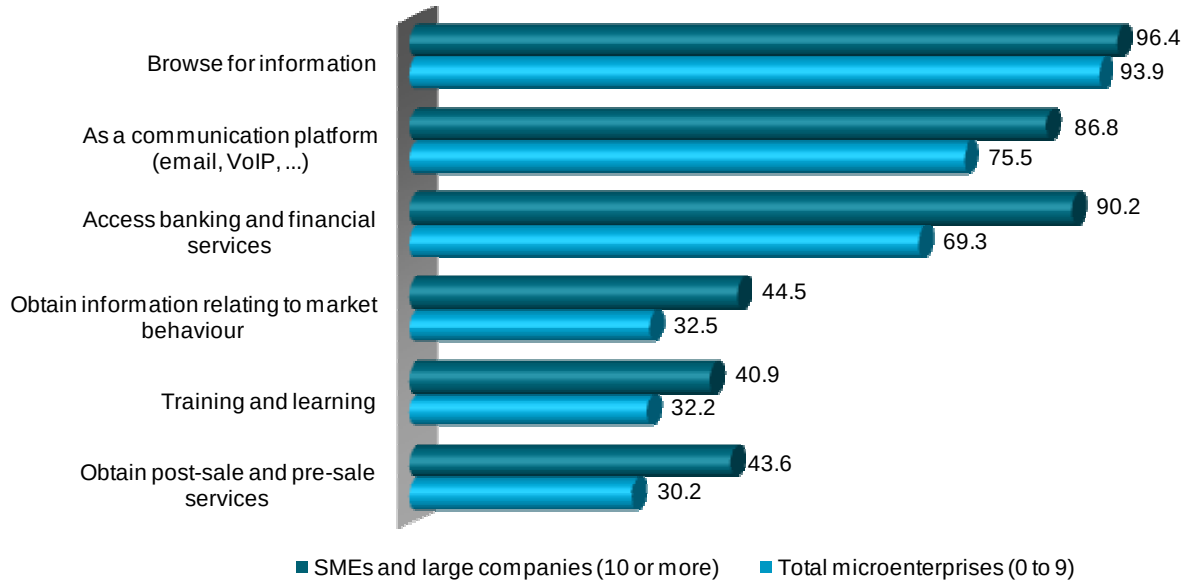
Source: ONTSI using data from the INE 2010

3.4.1. Uses of the Internet

The main uses of the Internet by microenterprises are searching for information (93.9% of microenterprises with Internet), use of the Web as a communication platform –for example, email and IP voice- (75.5%), and access to banking and financial services (69.3%). This last use is most notable in microenterprises in the financial sector, the IT, telecommunications and audiovisual sector, and the real estate and administrative activities sector, with over 80% of them using the Internet to access banking and financial services.

93.9% of microenterprises with Internet access use it for information searches, 75.5% as a communication platform, and 69.3% use it to access banking and financial services

Figure 18. Purpose of internet use (%)



Base: total companies with Internet

Source: ONTSI using data from the INE 2010

There are three sectors in which 1 out of 3 microenterprises use the Internet to obtain information relating to market behaviour, for training and learning, and to obtain post-sale and pre-sale services. These last uses of the Internet are observed in over half of microenterprises of certain sectors, namely the IT, telecommunications and audiovisual sector, hotels and travel agencies and the financial sector.

Table 6. Purpose of internet use by sector

% of microenterprises 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
Browse for information	93.9	94.7	91.2	93.7	91.6	93.5	92.8	90.3	97.6	91.8	97.2	93.0
As a communication platform (email, VoIP, ...)	75.5	75.9	72.8	63.3	81.1	66.4	88.6	51.1	88.3	73.9	83.9	69.8
Access banking and financial services	69.3	73.7	62.9	71.0	73.8	59.7	69.7	62.1	84.5	79.3	71.3	85.4
Obtain information relating to market behaviour	32.5	28.4	36.9	36.4	33.8	32.3	53.3	25.4	50.8	37.5	26.7	58.7
Training and learning	32.2	25.0	22.5	23.9	23.7	27.2	38.1	17.2	57.4	23.3	48.5	34.7
Obtain post-sale and pre-sale services	30.2	29.7	27.6	33.5	37.0	34.4	56.1	19.6	53.9	26.4	25.1	25.6

Intervals: (max % - min %) / 4

lower | lower-medium | upper-medium | upper

minimun % — maximun %

Base: all microenterprises with Internet

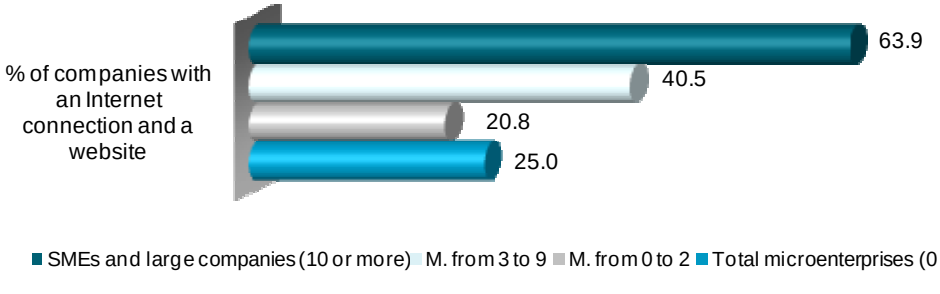
Source: ONTSI using data from the INE 2010

3.4.2. Web page

The percentage of microenterprises with Internet and a website has risen to 25% in 2010, 3 percentage points more than the previous year. In the case of microenterprises with 3 to 9 employees, this percentage exceeds 40%.

The percentage of microenterprises with a website has risen by 3 percentage points

Figure 19. Companies with website

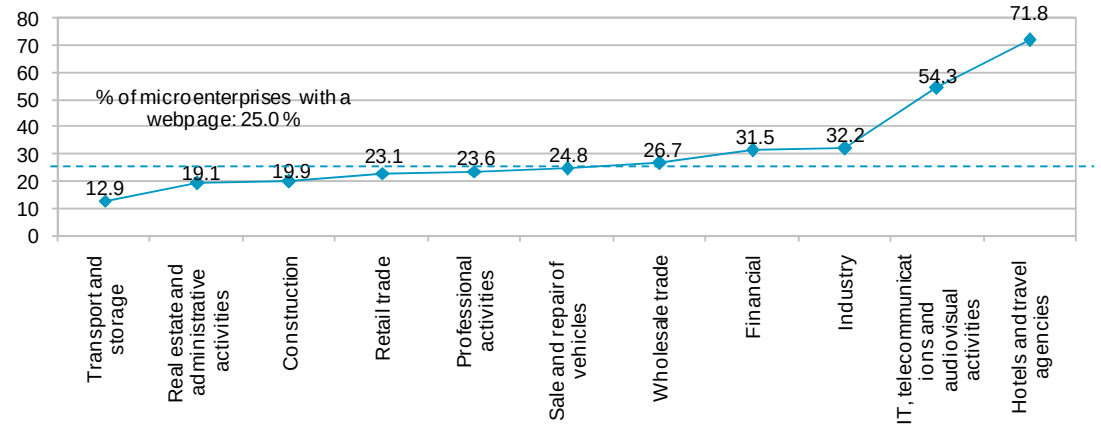


Base: total companies with Internet

Source: ONTSI using data from the INE 2010

Hotels and travel agencies is the sector which most clearly relies on corporate webpages. In this sector, 71.8% of microenterprises with Internet have their own webpage, almost tripling the average (25%). In second place and doubling the average, we find microenterprises of the IT, telecommunications and audiovisual sector, with 54.3%. The other 9 sectors record values between 32.2% (industry) and 12.9% (transport and storage).

Figure 20. Microenterprises with websites by sector

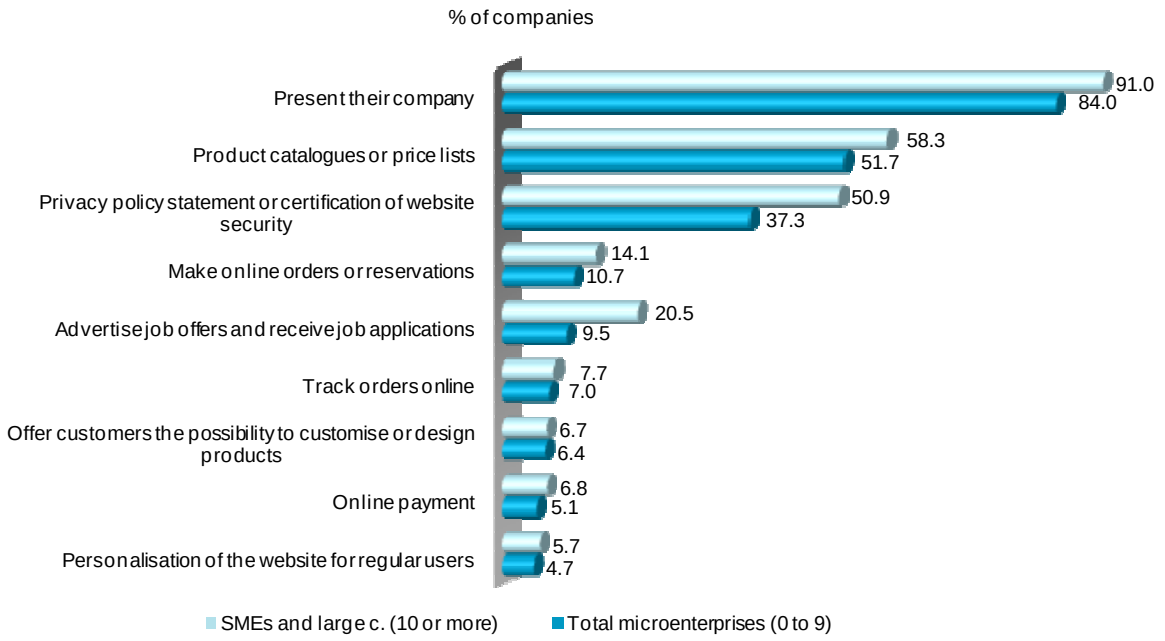


Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2010

The main use or purpose of the website which stands out clearly from all other is the same for SMEs and large companies, and for microenterprises alike, and that is to present the company (with percentages of 91% and 84% respectively). Other significant services for microenterprises are to facilitate access to product catalogues or price lists (51.7%), as well as the privacy policy statement or certification of website security (37.3%). The other services are only mentioned by less than 11% of all microenterprises and greatly depend on the type of activity.

Figure 21. Purposes / services offered on company websites



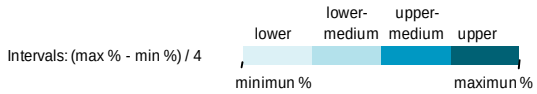
Base: all companies with Internet and a website

Source: ONTSI using data from the INE 2010

Hotels and travel agencies use their webpages for a wide range of purposes, namely to facilitate access to product catalogues or price lists (83%) and for placing orders or making reservations (43%). The financial sector also offers a variety of services, with a special interest in showing the privacy policy statement or certification of website security (83.5%).

Table 7. Purposes / services of company websites by sector

% of microenterprises	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	84.0	88.7	83.2	94.1	86.4	78.9	94.1	80.3	86.9	84.5	80.1	90.6
Product catalogues or price lists	51.7	59.3	51.6	59.5	64.5	61.5	83.0	37.3	48.1	67.4	30.3	49.3
Privacy policy statement or certification of website security	37.3	32.8	38.2	39.8	43.4	35.0	44.6	21.6	43.3	37.0	35.5	83.5
Make online orders or reservations	10.7	8.9	0.6	17.7	11.3	13.3	43.0	7.2	10.6	9.1	8.0	22.2
Advertise job offers and receive job applications	9.5	4.9	12.0	6.6	5.5	11.1	12.1	3.8	15.3	4.0	10.9	16.8
Track orders online	7.0	3.6	4.6	12.7	11.3	7.6	19.4	4.1	7.0	11.6	3.8	11.9
Offer customers the possibility to customise or design products	6.4	4.8	7.4	5.7	1.4	12.6	15.1	1.4	8.7	7.4	3.5	18.4
Online payment	5.1	3.2	1.4	13.8	3.7	7.2	12.1	0.5	8.4	10.1	2.8	2.5
Personalisation of the website for regular users	4.7	3.1	2.8	4.7	7.7	2.9	9.2	1.6	4.3	0.4	6.5	12.3



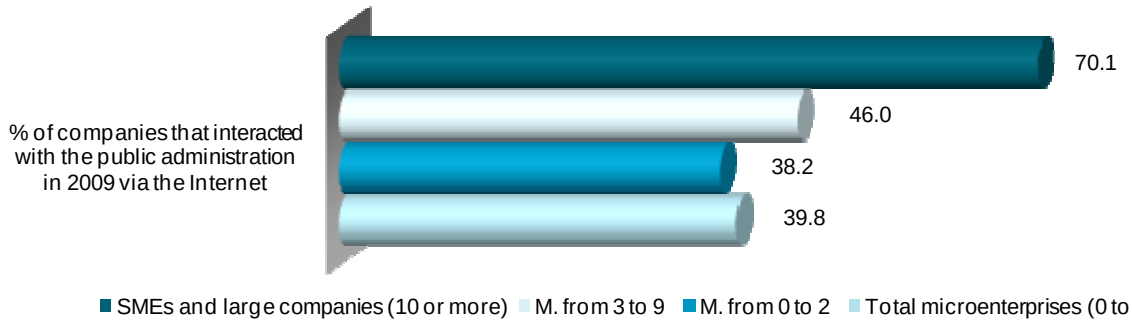
Base: total number of companies with Internet and a website

Source: ONTSI using data from the INE 2010

3.4.3. Interaction with the public administration

Four out of ten microenterprises with Internet access had some kind of interaction with the Public Administration via the Internet in 2009, as compared to seven out of ten SMEs and large companies.

Figure 22. Companies that interact with the public administration via the Internet



Base: total companies with Internet

Source: ONTSI using data from the INE 2010

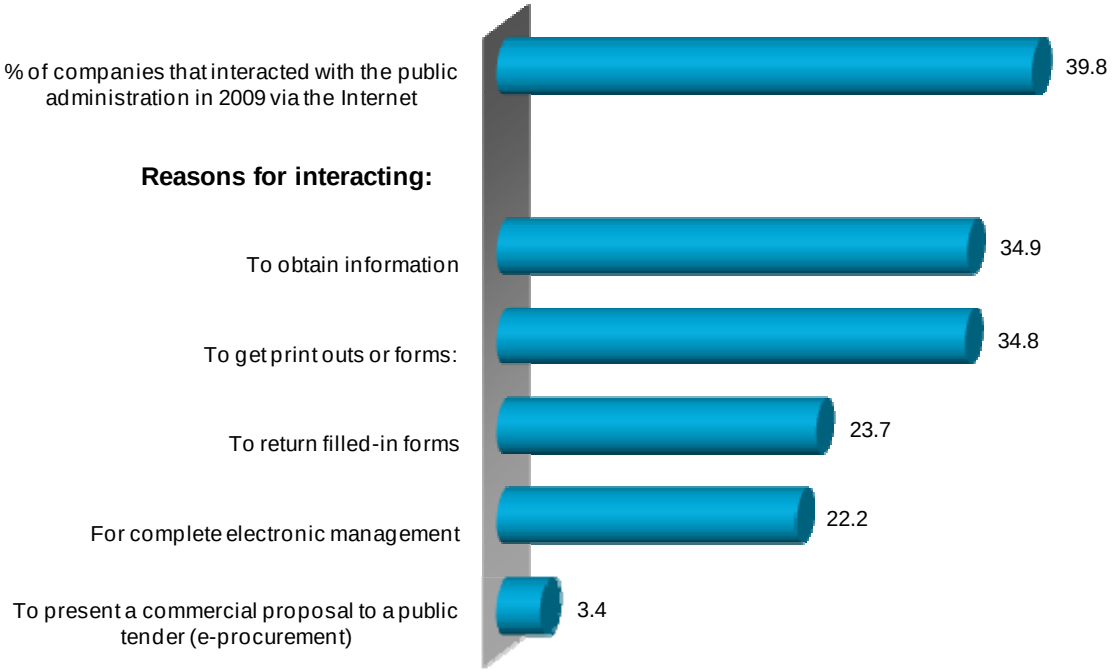
The communication flow between companies and the public administration via the Internet remains mainly one way, as the two reasons for contacting that stand out are obtaining information and downloading forms, which is carried out by 34.9% and 34.8% of microenterprises, respectively.

The main reasons for interacting with the e-Administration are getting information and downloading forms

These are followed by returning completed forms (23.7%) and integral electronic management (22.2%).

Lastly, the percentage of microenterprises that use the Internet to present a commercial proposal to a public tender continues to be low (3.4%).

Figure 23. Type of online interaction with the public administration



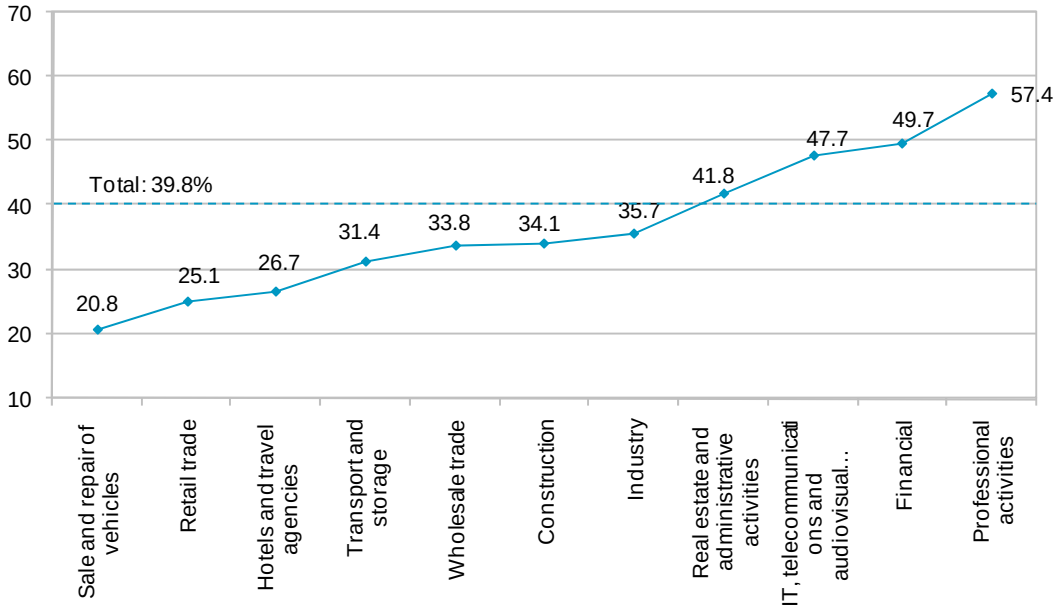
Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2010

The sector with the highest percentage of microenterprises that interact with the public administration via the Internet is the professional (legal, accounting, consulting, etc.) activities sector. 57.4% of the microenterprises in this sector have carried out some procedure or consultation with the public administration via de Internet, 18 points above the average. Returning completed forms via the Internet is carried out by 36.1% of microenterprises in this sector, with a difference of 12 points with respect to the average.

57% of microenterprises in the professional activities sector interact with the public administration via the Internet

Figure 24. Microenterprises that interact with the Public Administration via Internet, by sector



Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2010

Table 8. Type of online interaction with the public administration, by sector

% of companies that interacted with the public administration in 2009 via the Internet	Interaction with eAdministration	Type of interaction				
		To obtain information	To get print outs or forms:	To return filled-in forms	For complete electronic management	(e-procurement)
Total microenterprises	39.8	34.9	34.8	23.7	22.2	3.4
Industry	35.7	29.5	27.3	19.7	20.5	4.9
Construction	34.1	29.7	29.6	22.0	20.8	4.4
Sale and repair of vehicles	20.8	19.6	18.0	9.9	9.0	1.7
Wholesale trade	33.8	27.6	27.6	22.1	18.5	2.7
Retail trade	25.1	21.0	19.3	10.7	10.9	2.3
Hotels and travel agencies	26.7	22.4	21.1	15.6	14.0	0.9
Transport and storage	31.4	23.6	26.4	14.1	12.8	3.1
IT, telecommunications and audiovisual activities	47.7	41.2	42.5	32.5	30.8	7.7
Real estate and administrative activities	41.8	35.8	33.2	23.9	21.6	3.2
Professional activities	57.4	53.2	54.6	36.1	33.9	3.1
Financial	49.7	42.9	46.7	35.2	32.6	1.4

Intervals: (max % - min %) / 4

lower | lower-medium | upper-medium | upper

minimun % — maximun %

Base: all microenterprises with Internet

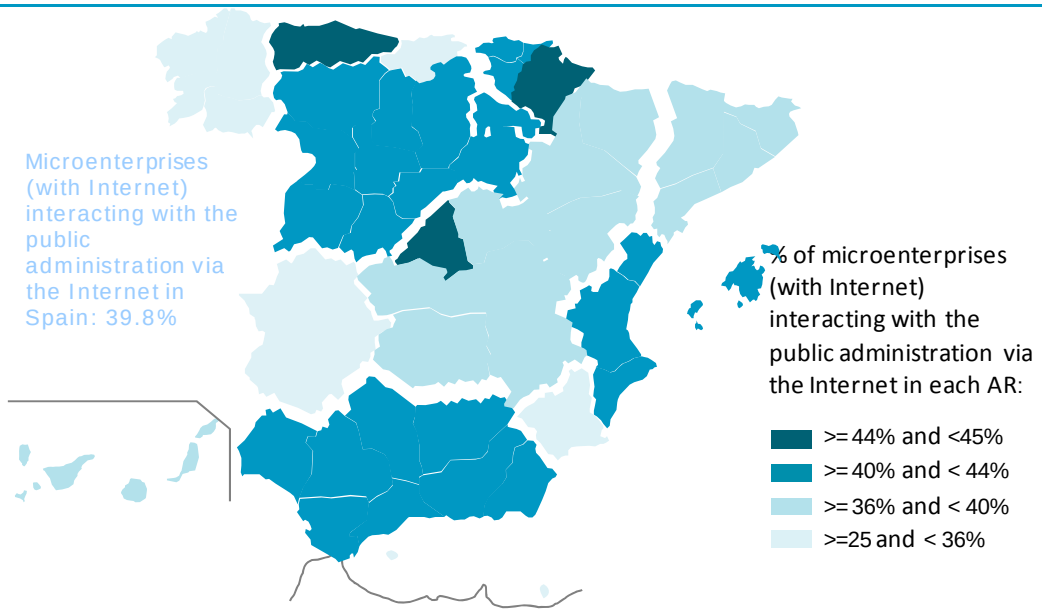
Source: ONTSI using data from the INE 2010

Following this are the financial (49.7%) and the IT, telecommunications and audiovisual (47.7%) sectors, which are 10 and 8 points above the average in interaction with the public administration via the Internet, mainly to deliver materials and complete procedures.

A regional analysis shows that Navarre, Asturias and Madrid have the highest percentages of microenterprises that interact with the e-Administration, of over 4 points above the average.

Over 44% of microenterprises in Navarre, Asturias and Madrid interact with the public administration via the Internet

Figure 25. Percentage of microenterprises that interact with the PA by AR



Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2010

3.5. e-Business

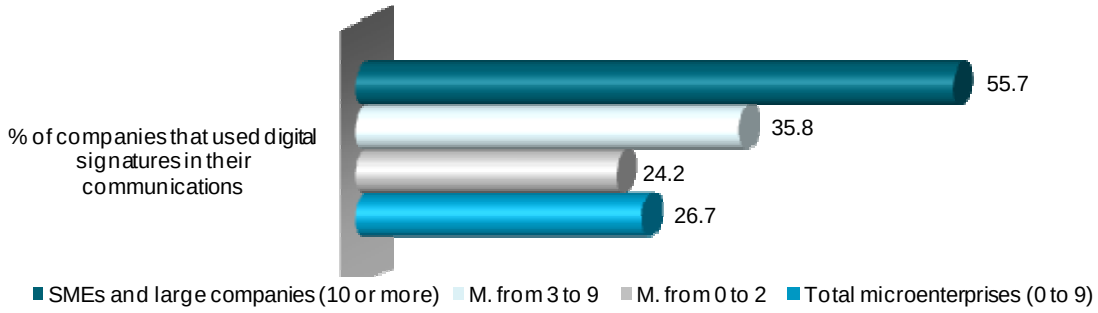
3.5.1. Digital signature

With a year-on-year increase of 2 points, 26.7% of microenterprises with Internet access used digital signatures[5] as for January 2010. While this indicator reaches 35.8% in microenterprises with 3 to 9 employees, there is still a long way to reach the levels of SMEs and large companies (55.7%).

Increase of 2 percentage points: 26.7% of microenterprises used digital signatures in 2010

[5] 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.

Figure 26. Companies using digital signature



Base: total companies with Internet

Source: ONTSI using data from the INE 2010

Dealing with the public administration is an incentive to use electronic signatures, since 86.7% of microenterprises with digital signatures used them to interact with the public administration as for January 2010, compared to 25.5% of these microenterprises that used electronic signatures to interact with customers and/or providers.

3.5.2. Electronic data exchange between companies

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[6], EDIFACT[7], etc.), excluding hand-written e-mails.

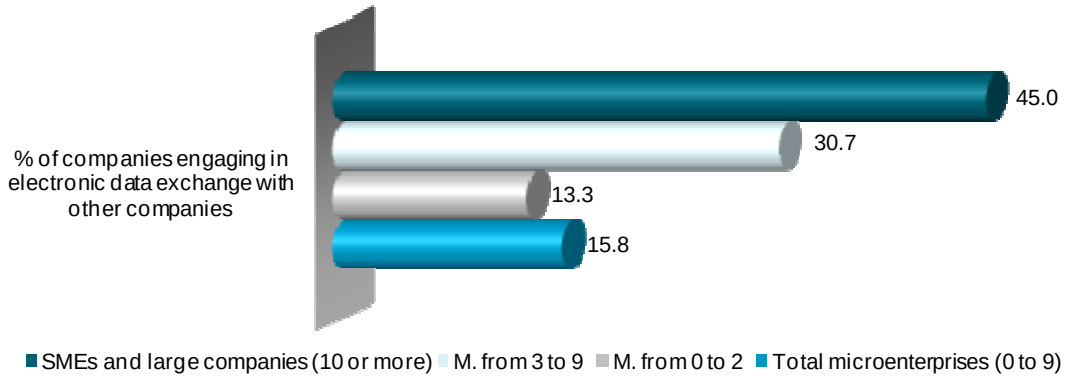
Electronic data exchange between companies is one of the corporate processes that records the greatest growth: between 9% and 16%

Electronic data exchange with other companies is probably the ICT-enabled corporate process that records the greatest growth in the last year. The percentage of microenterprises that exchange information (orders, invoices, product information, etc.) via electronic media has gone from 9% to 15.8% in January 2010. Electronic data exchange implies automation, which leads to time saving, reduction of errors, generation of statistics and capacity to send information to all the stakeholders, among other benefits. In microenterprises with 3 to 9 employees, the percentage of those that carry out automated data exchanges is almost twice as high, reaching 30.7%.

[6] 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.

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

Figure 27. Companies engaging in electronic data exchange with other companies

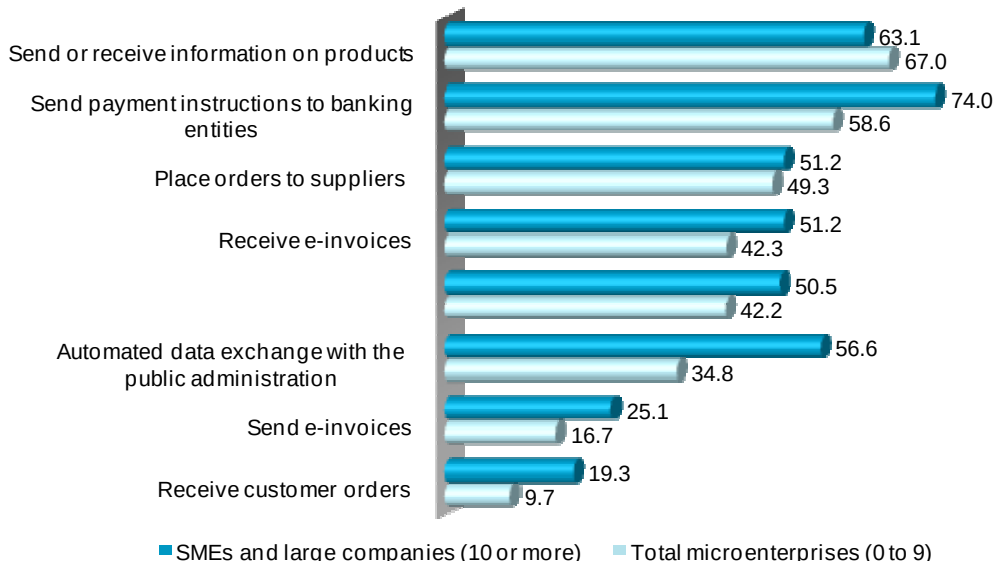


Base: all companies

Source: ONTSI using data from the INE 2010

The most commonly exchanged information between companies via electronic media is product information (67%), followed by payment instructions to banking institutions (58.6%). Almost half of Spanish enterprises that exchange information electronically do so for sending orders to suppliers (49.3%), while four out of ten do it to receive electronic invoices (42.3%) or to send or receive documentation concerning transport, shipments and deliveries (42.2%). These purposes are followed by the automated data exchange with the public administration (34.8%), sending electronic invoices (25.1%) and receiving orders from customers (19.3%).

Figure 28. Type of electronic data exchange with other companies (ranked by reason for the communication)



Base: total number of companies that carry out electronic data exchange with external ICT systems

Source: ONTSI using data from the INE 2010

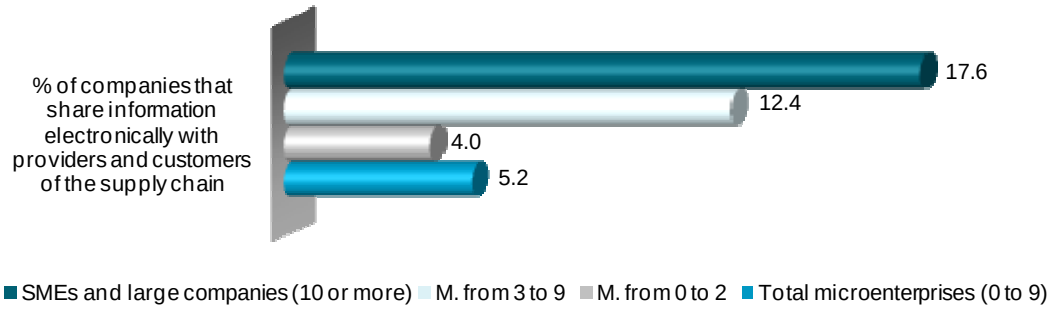
3.5.3. Electronic exchange of information with suppliers and customers

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.

Electronic data exchange can be done via any telematic network (Internet or others).

In Spain, 5.2% of microenterprises exchange information about the supply chain electronically[8] and on a regular basis with their suppliers or customers, a percentage that reaches 12.4% in the case of microenterprises with 3 to 9 employees. The difference between these microenterprises and SMEs and large companies is not so marked, with companies with 10 or more workers leading by 5 percentage points.

Figure 29. Companies that share information electronically with their suppliers or customers



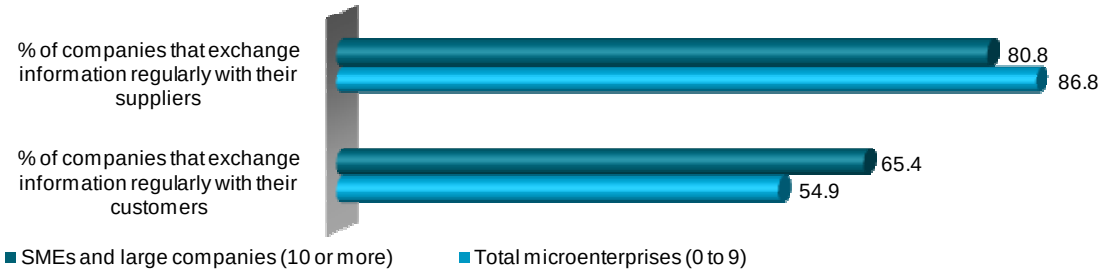
Base: all companies

Source: ONTSI using data from the INE 2010

There are more microenterprises that share information electronically with their suppliers than with their customers, even exceeding the number of SMEs and large companies that do so.

[8] Through telematic networks (Internet or other connections) excluding handwritten e-mail.

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

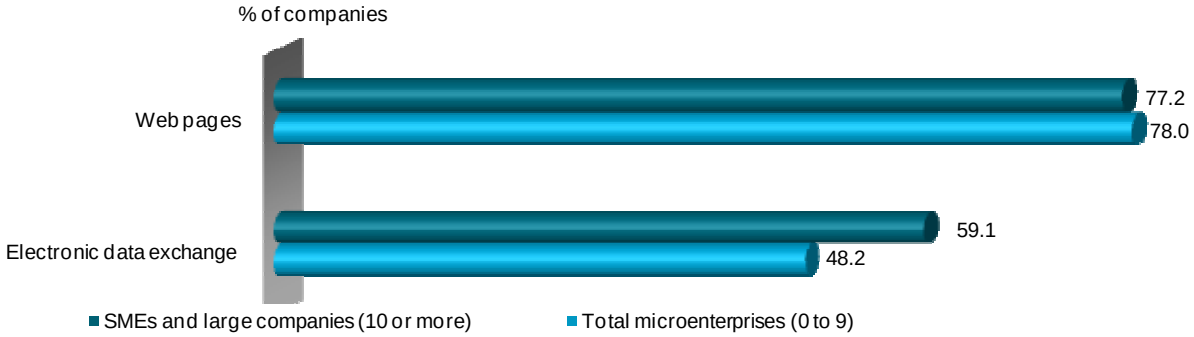


Base: total number of microenterprises that share information electronically with their suppliers or customers on a regular basis

Source: ONTSI using data from the INE 2010

Most of the microenterprises that share information electronically with their suppliers or customers did so via a webpage (78%) –both their own or their providers/customers/partners' webpages-. Another 48.2% did it through electronic data exchange (using an agreed-upon format that allows for automatic processing, such as XML, EDIFACT). In comparison with larger companies, we observe that microenterprises prefer to exchange data via webpages rather than via other electronic media.

Figure 31. Method used for electronic data exchange with suppliers and customers



Base: total number of microenterprises that share information electronically with their suppliers or customers on a regular basis

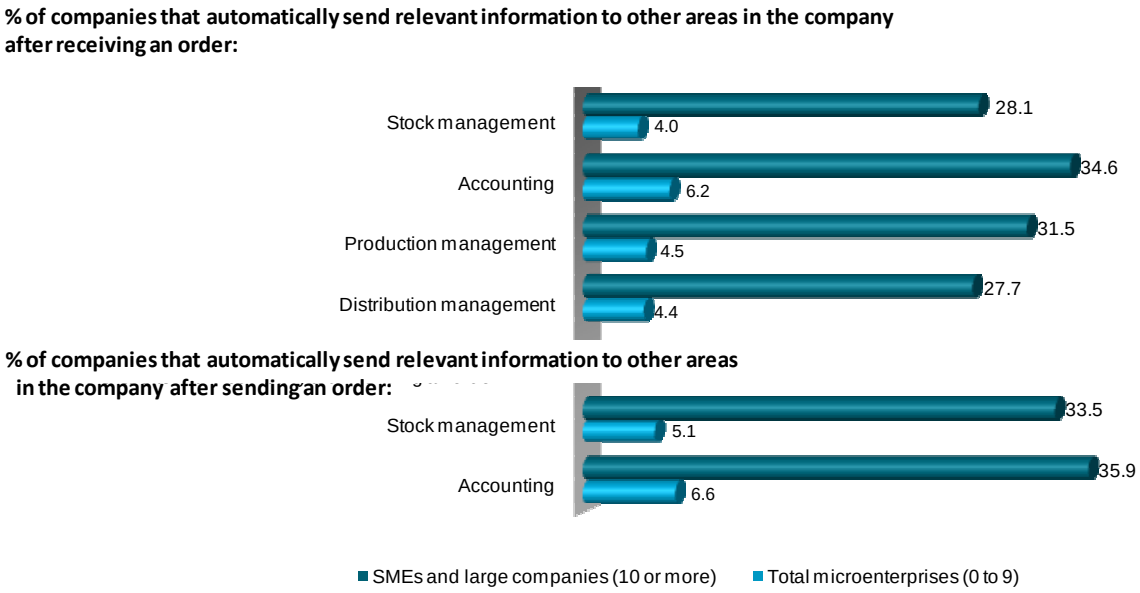
Source: ONTSI using data from the INE 2010

3.5.4. Integration of information within the company

This section refers to the integration of information within the company, meaning by this 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 includes electronic transmission of data that allows for automatic processing in the different functional areas of the company.

This way, between 4% and 6% of all microenterprises automatically send relevant information to other areas in the company after *receiving* (electronically or not) an order, mainly to the accounting area (6.2%). Something similar happens when microenterprises *send* (electronically or not) an order: 5.1% of them automatically receive relevant information in the stock management area and 6.6% in the accounting area.

Figure 32. Companies that automatically send relevant information to other areas in the company after receiving or sending an order



Base: all companies

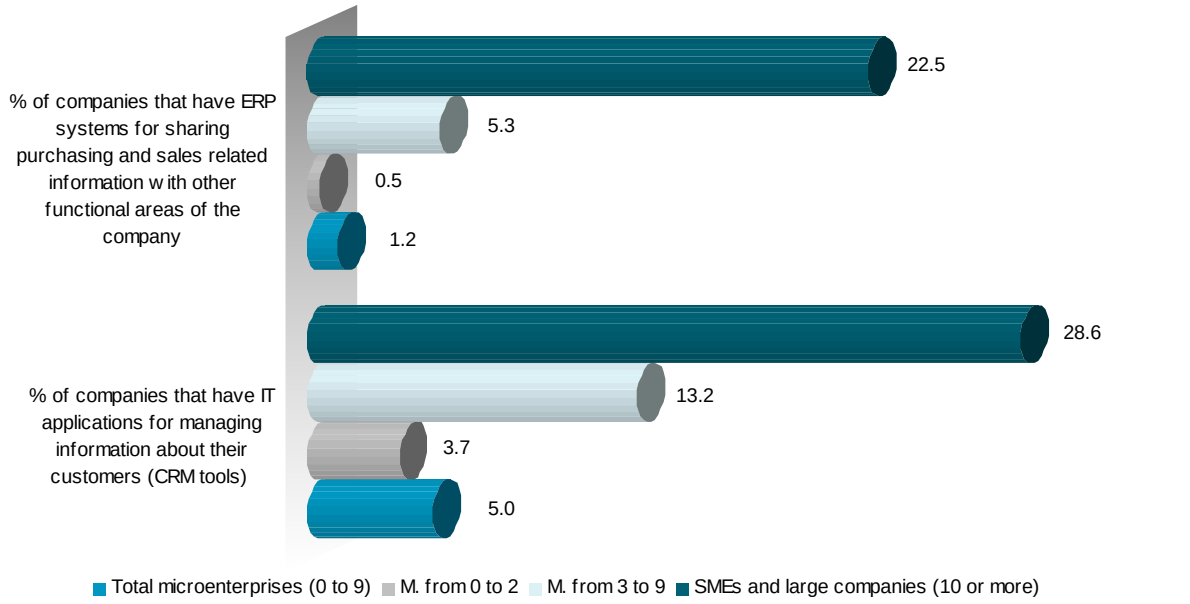
Source: ONTSI using data from the INE 2010

The integration of information within the company can be done using ERP[9] (Enterprise Resource Planning) or CRM[10] (Customer Relationship Management) tools. Use of these systems is still not frequent in microenterprises. Only 5% of them have IT applications for managing information about their customers (CRM tools) and 1.2% have ERP systems for sharing purchasing and sales related information with other functional areas of the company (for example, finance, management, marketing, etc.). Percentages for SMEs and large companies are much higher: 28.6% and 22.5% respectively.

[9] ERP (Enterprise Resource Planning): Set of computer tools which 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.

[10] 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.

Figure 33. Companies with ERP and CRM computer tools



Base: all companies

Source: ONTSI using data from the INE 2010

In terms of scope, 5% of the microenterprises with CRM tools use them for recording, storing and sharing customer information with other departments within the company, while 3% of them use CRM tools for analysing available information for commercial and marketing purposes (setting prices, commercial promotions, selecting distribution channels).

3.6. Electronic commerce

Below there is an analysis of the electronic commerce situation in Spanish microenterprises based on different indicators and by activity sector[11].

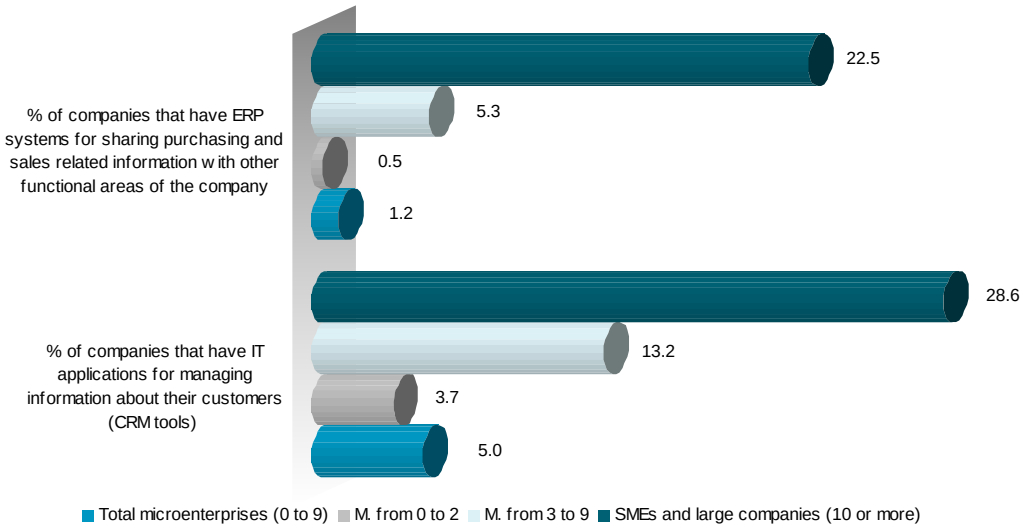
3.6.1. Companies that use electronic commerce

E-Commerce in microenterprises keeps on track, mainly in terms of e-purchases. In 2009[12], 11.2% of microenterprises purchased via e-Commerce, which represents an increase of 2 points over the previous year. However, they remain distant from SMEs and large companies that, with an increase of almost 4 percentage points, record values of 24.1%. Microenterprises with 3 to 9 employees are closer to SMEs and large companies in this respect; 18.3% of them have made purchases via e-Commerce.

[11] The electronic commerce survey does not include the financial sector.

[12] As indicated in the technical specifications, 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.

Figure 34. Companies purchasing and selling via e-Commerce



Base: all companies

Source: ONTSI using data from the INE 2010

The percentage of microenterprises that sold via electronic commerce in 2009 did almost not change with respect to the previous year, standing at 2.6% (compared to 2.4% in 2008). The difference with respect to SMEs and large companies is of 11 percentage points, compared to the 9 points difference in the previous year.

The sector-by-sector breakdown highlights the growing trend in e-sales of microenterprises in the hotel and travel agency sector. In 2009, more than a quarter of microenterprises in this sector sold via e-commerce (26%). This is also the only sector that shows a percentage of e-sales above the average and a balance between purchases and sales.

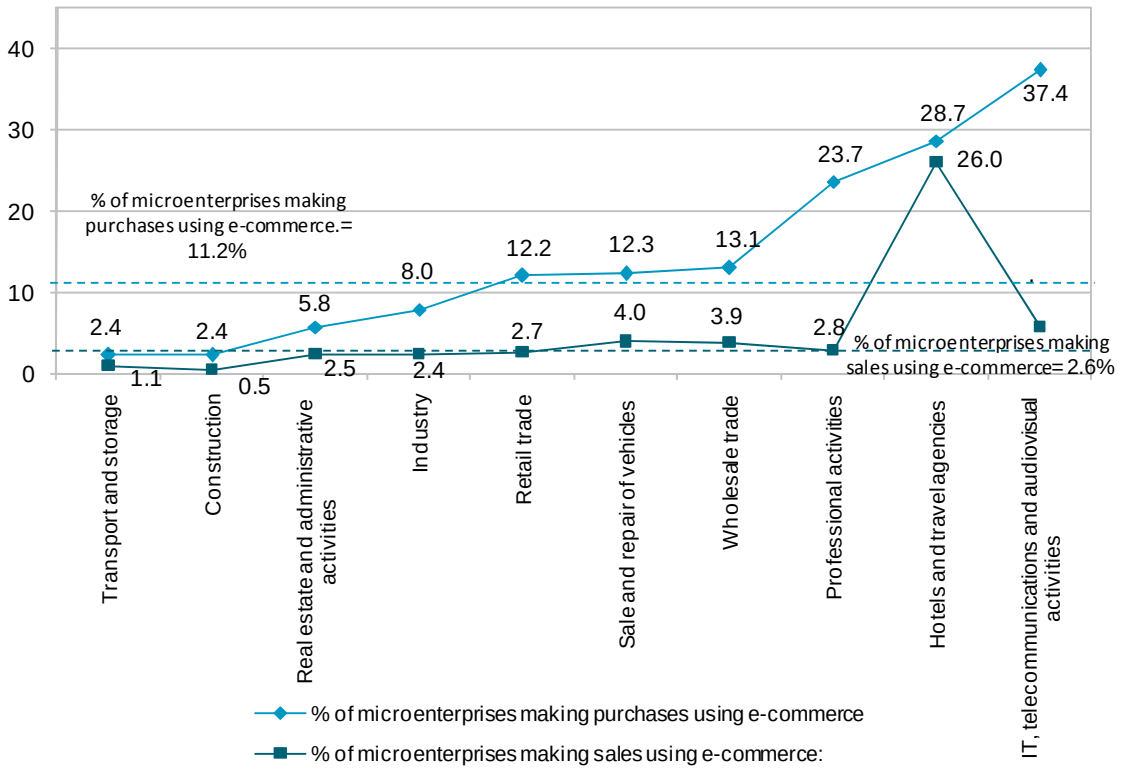
The percentage of microenterprises in the hotel and travel agency sector that used e-Commerce to sell is 26%

The percentages of microenterprises from other sectors that sell via electronic commerce are all near the average -with a variation of ±2 points-, except the IT, telecommunications and audiovisual sector that records a variation of 5.8%.

Compared to sales, there are greater differences in e-purchases by sectors, with bottom values at 2.4% and top values above 23%, specifically in three sectors: professional activities (23.7%), hotels and travel agencies (28.7%) and the IT, telecommunications and audiovisual sector (37.4%).

Great differences in e-purchases by sectors, with bottom values at 2.4% and top values ranging from 23%, and 37%

Figure 35. Companies purchasing and selling via e-Commerce, by sector



Base: all microenterprises

Source: ONTSI using data from the INE 2010

3.6.2. Importance of e-commerce

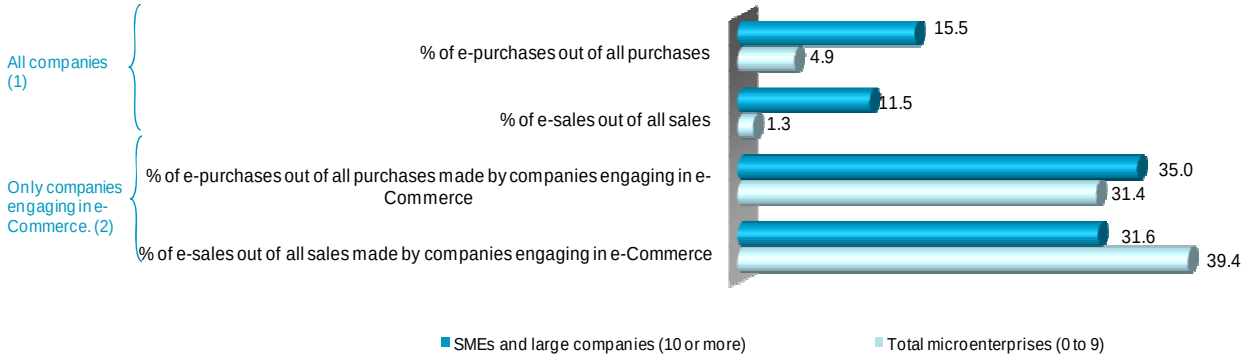
To measure e-Commerce, apart from the number of companies that use it, it is important to calculate e-sales/purchases as a percentage of total turnover. This study takes into account, on the one hand, total turnover of all companies, and on the other hand, total turnover of companies that sell/purchase online.

The percentage of e-Commerce in relation to total turnover of microenterprises that sell online is greater than in the case of SMEs and large companies

This way, we can appreciate that sales of companies that sell online represent 1.3% of total sales of all companies. In the case of microenterprises that sell via e-Commerce, this percentage reaches almost 40%. This percentage is higher than that of companies with 10 and more employees, which demonstrates that microenterprises that already sell via e-Commerce make a more intensive use of it than SMEs and large companies.

E-sales represent 39.4% of total sales of all microenterprises that sell via e-Commerce

Figure 36. Amount of e-commerce purchases/sales in all companies vs. amount of e-commerce purchases/sales in companies engaging in e-commerce purchases/sales



Note 1: Percentage of the amount of purchases/sales via e-Commerce in relation to all purchases/sales of all companies
Note 2: *Percentage of the amount of purchases/sales via e-Commerce in relation to all purchases/sales of companies that purchased/sold via e-Commerce*

Source: ONTSI using data from the INE 2010

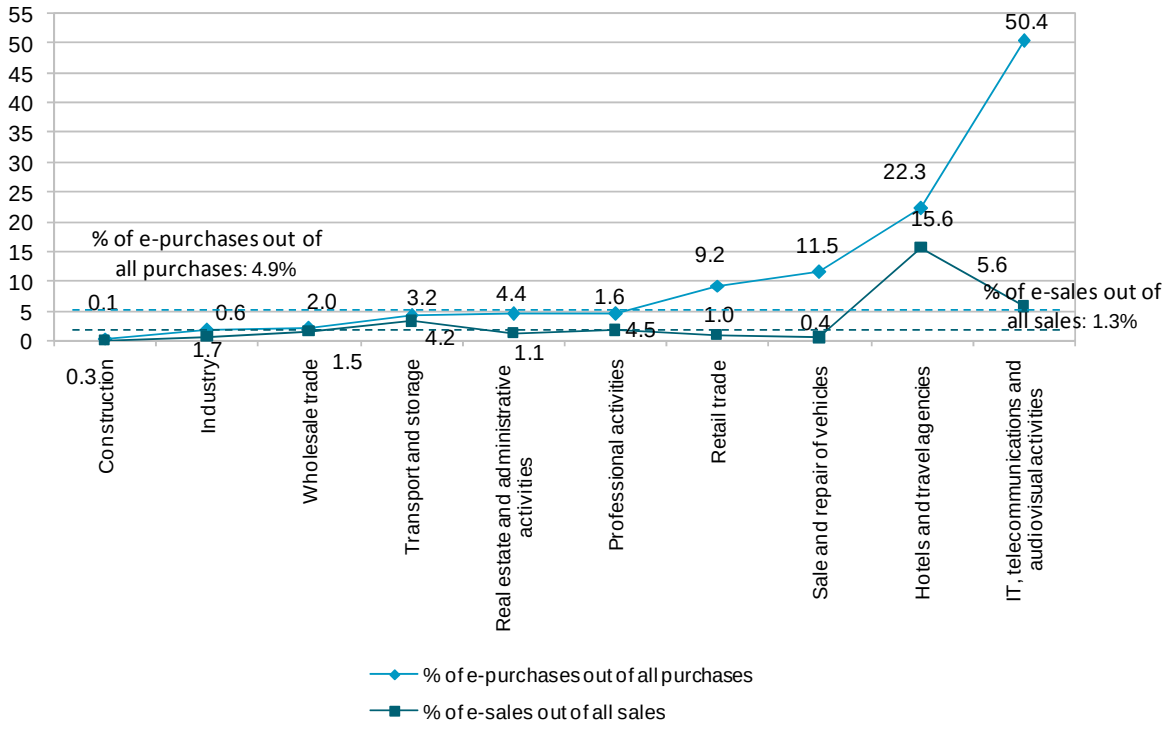
The IT, telecommunications and audiovisual sector stands out in e-purchases as a percentage of total purchases in this sector. Approximately half of its purchases (50.4%) were made via e-Commerce.

This sector is followed by hotels and travel agencies with 22.3% of their purchases made via e-Commerce. In third and fourth place we find sale and repair of motor vehicles and retail trade, with 11.5% and 9.2% respectively.

Half of the purchases (50.4%) of microenterprises in the IT, telecommunications and audiovisual sector were made via e-Commerce

As for e-sales, hotels and travel agencies lead the way with 15.6% of their sales made via electronic means. This is followed by the IT, telecommunications and audiovisual sector with 5.6%. The other sectors show percentages close to the average of 1.3%.

Figure 37. 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



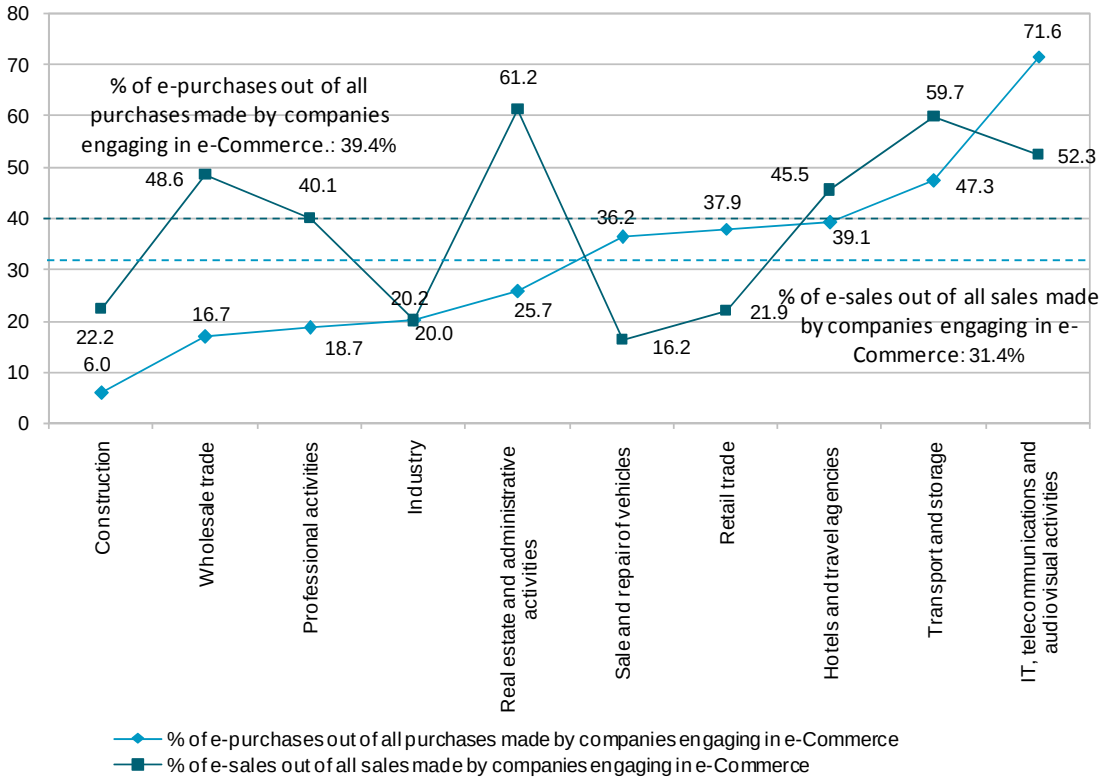
Note: Percentages of the amount of purchases/sales via e-Commerce in relation to purchases/sales of total micro-companies

Source: ONTSI using data from the INE 2010

Focusing only on companies that carried out e-Commerce transactions, the IT, telecommunications and audiovisual sector, with 71.6% of their purchases made online, almost doubles the average. It is followed by the transport and storage sector, with a percentage of 47.3%, in contrast to the average of 31.4%.

Additionally, there are three sectors that have made over 50% of their sales online (only considering microenterprises that sell over the Internet). These are microenterprises engaged in real estate and administrative activities (61.2%), microenterprises of the transportation and storage sector (59.7%), and those in the IT, telecommunications and audiovisual services sector (52.3%).

Figure 38. Amount of e-commerce purchases out of all purchases and amount of e-commerce sales out of all sales in companies that purchase / sell via e-commerce, by sector



Note: Percentages of the amount of purchases or sales made via e-Commerce in relation to all purchases or sales made by micro-companies that purchased or sold via e-Commerce, respectively

Source: ONTSI using data from the INE 2010

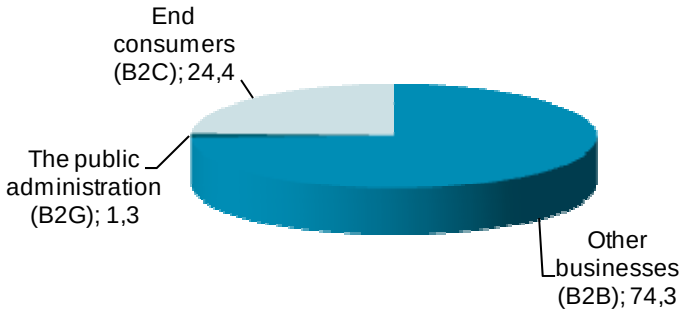
3.6.3. Distribution of the amount of e-commerce sales

By type of customer

There are three e-Commerce classes based on the type of customer. If the customer associated with the sales is another company then the e-Commerce is known as B2B (Business to Business). If it is an individual end consumer, it is called B2C (Business to Consumer). Lastly, if the customer is a Public Administration, it is given the name B2G (Business to Government).

As for microenterprises, 74.3% of their e-sales were B2B transactions (business to business), 24.4% were B2C transactions (business to consumer) and 1.3% were B2G transactions (business to government). The primacy of B2B sales over other types of e-sales is observed regardless of the company size. However, this is most evident in companies with 10 or more employees, where B2B sales represent 89% of all e-Commerce sales.

Figure 39. Distribution of the amount of e-commerce sales according to the type of customer



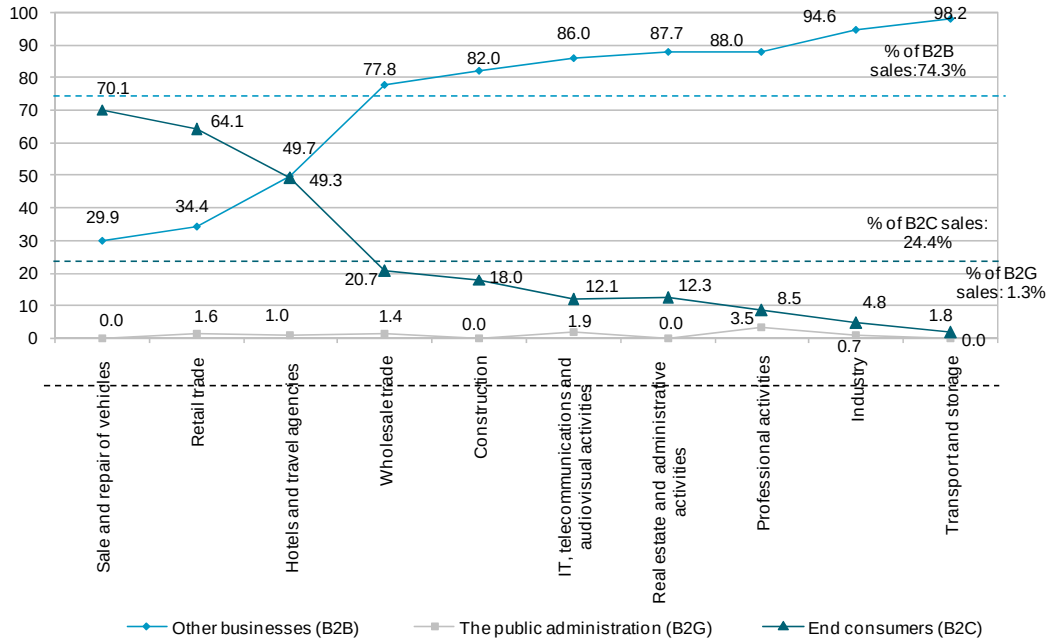
Base: total amount of sales made via the Internet in microenterprises

Source: ONTSI using data from the INE 2010

However, a sectoral analysis demonstrates that the preponderance of B2C sales is not true in all cases. For example, in the vehicle sale and repair sector (with B2C sales representing 70.1% of all online sales), the retail trade (with 64.1%) and the hotel and travel agency sector (with 49.3% B2C and 49.7% B2B) B2C sales stand out.

70.1% of all online sales made by microenterprises in the vehicle sale and repair sector, and 64.1% of those in the retail trade, were B2C

Figure 40. Distribution of the amount of e-commerce sales according to the type of customer, by sector



Base: total amount of microenterprise e-commerce sales

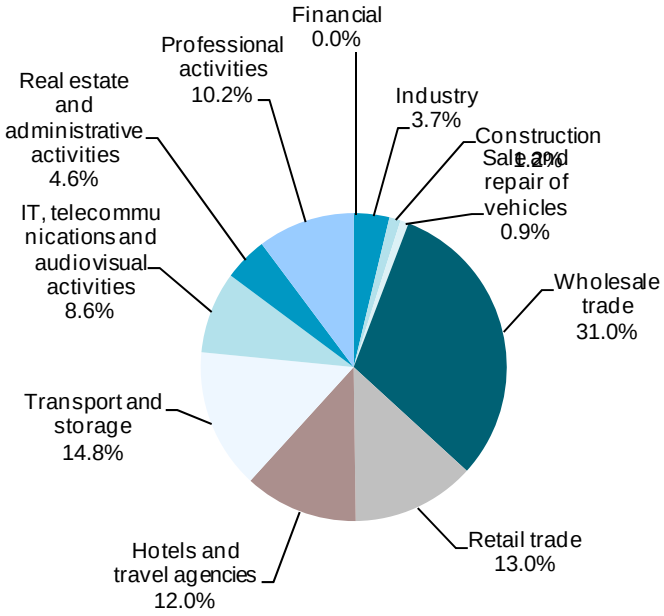
Source: ONTSI using data from the INE 2010

With regard to B2G, the professional activities sector is the one with the highest percentage of e-commerce sales made to the government (3.5% of the total, high above the average).

By sector

The wholesale trade (31%) is the sector that stands out in e-Commerce sales made by microenterprises in Spain. This is followed by transportation and storage (14.8%), retail trade (13%), hotels and travel agencies (12%), and professional activities (10.2%), all with percentages above 10%.

Figure 41. Distribution of the amount of e-commerce sales according to type of client



Base: total amount of sales made via the Internet in microenterprises

Source: ONTSI using data from the INE 2010

3.7. ICT Security

The Survey on the Use of ICT and Electronic Commerce in Companies conducted by the INE (Spanish National Statistical Institute) in 2010 includes, for the first time, a specific section on 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. This section analyses the security policies adopted by companies, their scope, and how the information about risks and obligations is transmitted to employees.

It also studies, similarly as in previous editions, the type of security problems experienced by companies and existing internal security systems.

Incidents associated to ICT systems in companies

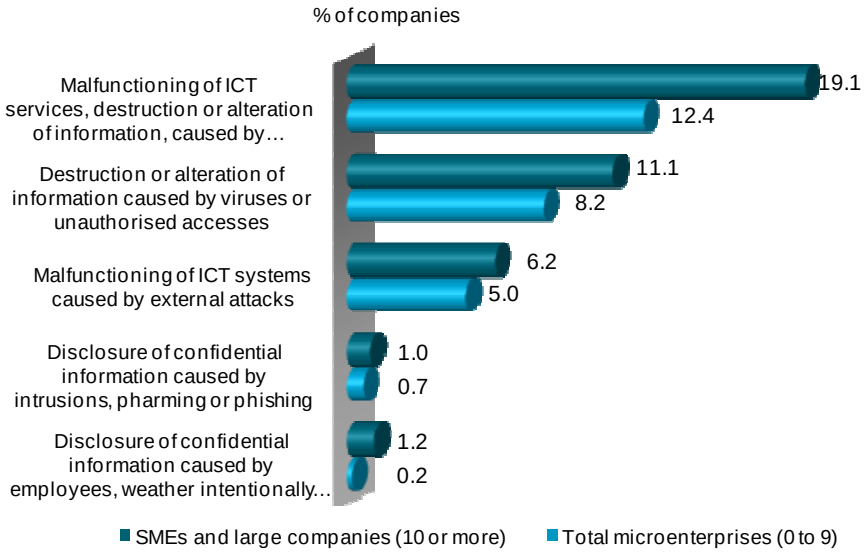
12.4%[13] of microenterprises with computers have been affected by the malfunctioning of ICT services, destruction or alteration of information, caused by software or hardware failures. Due to a change in the formulation of questions in the survey of 2010, this indicator is not clearly comparable with the data of previous years, when the question was if the company had "experienced some security problem related to IT systems". However, the percentages obtained from previous years –despite of the fact that the question was not identical- are quite similar in nature. The percentage of microenterprises that experienced some security problem related to IT systems was 12.3% in 2008 and 11.4% in 2009.

Additionally, we observe that microenterprises with computers have been affected by the malfunctioning of ICT services due to software or hardware failures to a lesser extent than SMEs and large companies (12.4% vs. 19.1%).

As for specific problems caused by security failures, 8.2% of microenterprises have been affected by destruction or alteration of information caused by viruses or unauthorised accesses, and 5% of them by the malfunctioning of ICT systems caused by external attacks. Lastly, less than 1% of microenterprises have been affected by the disclosure of confidential information caused by intrusions, pharming, phishing, or even their employees, weather intentionally or inadvertently.

[13] Questionnaire 2010: ¿Which of the following problems were caused by incidents associated to ICT systems in your company? A) Malfunctioning of ICT services, destruction or alteration of information, caused by software or hardware failures.

Figure 42. Problems caused by incidents associated to ICT systems in companies

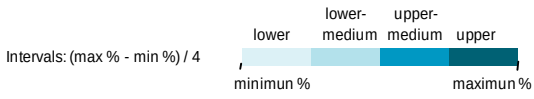


Base: Companies with computers

Source: ONTSI using data from the INE 2010

Table 9. 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.	12.4	10.3	7.0	12.0	13.5	13.8	14.5	11.5	15.3	8.8	16.9	2.8
Destruction or alteration of information caused by viruses or unauthorised accesses	5.0	3.9	4.1	5.5	4.9	7.3	9.3	2.9	5.1	5.2	4.8	5.7
Malfunctioning of ICT systems caused by external attacks	8.2	6.0	8.1	7.9	8.7	6.4	15.2	10.1	10.0	10.4	8.2	11.8
Disclosure of confidential information caused by intrusions, pharming or phishing	0.7	0.7	1.2	0.3	0.2	0.4	2.0	1.1	1.3	0.1	0.8	1.9
Disclosure of confidential information caused by employees, weather intentionally or inadvertently	0.2	0.0	0.1	0.0	0.7	0.1	1.5	0.5	0.2	0.1	0.2	0.0



Base: microenterprises with computers

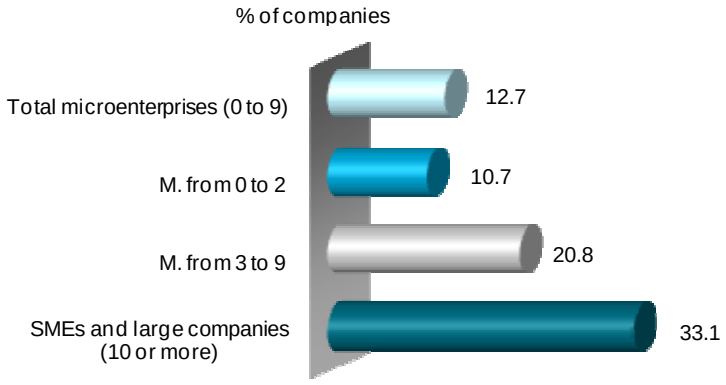
Source: ONTSI using data from the INE 2010

The differences between sectors in percentage of microenterprises that have experienced problems related to their ICT systems, range from 2.8% in the financial sector to 16.9% in the professional activities sector. As for specific problems caused by security failures, microenterprises in the hotel and travel agency sector record the highest percentages; 9.3% of them have experienced incidents caused by external attacks and 15.2% of them incidents caused by viruses or unauthorised accesses. Additionally, 11.8% of microenterprises in the financial sector have been affected by data loss caused by viruses. Lastly, the percentage of microenterprises that have been affected by the disclosure of confidential information caused by external attacks or their own employees is low, barely 2% in all the sectors.

Security policy

While a considerable number of microenterprises have antivirus programs or other security systems, only 12.7% of microenterprises with computers have a security policy that has been formally defined and is regularly updated, as compared to 33.1% of SMEs and large companies.

Figure 43. Companies with a security policy that has been formally defined and is regularly updated

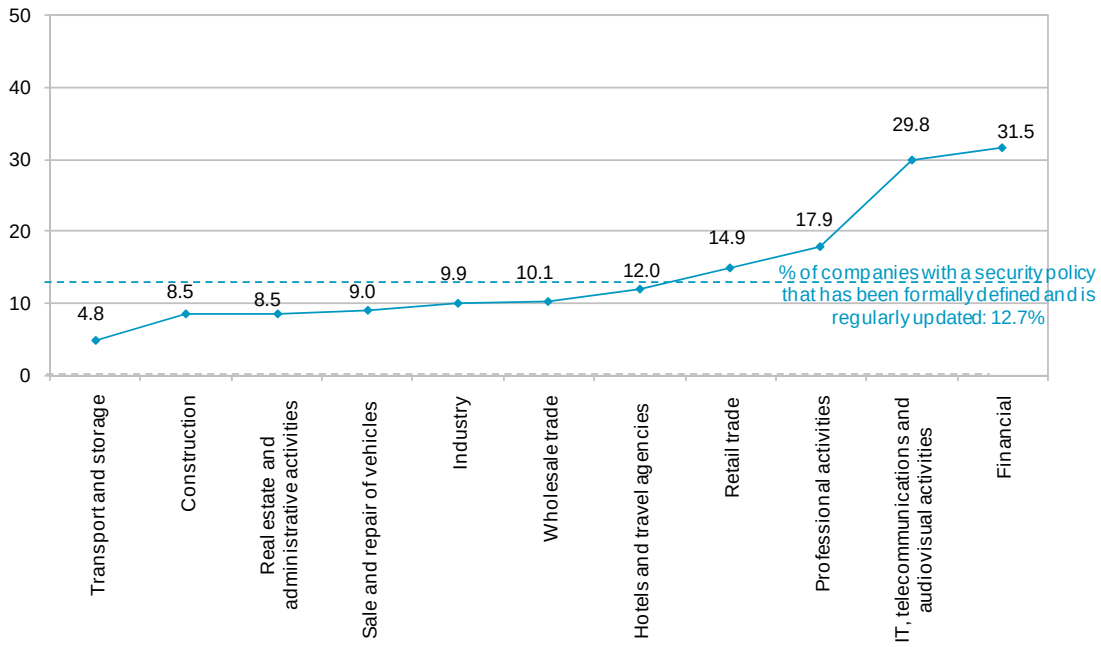


Base: total companies with computers

Source: ONTSI using data from the INE 2010

However, microenterprises in the financial and the IT, telecommunications and audiovisual sectors record percentages of around 30 – 31% in security policy availability, closer to the percentages of larger companies.

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

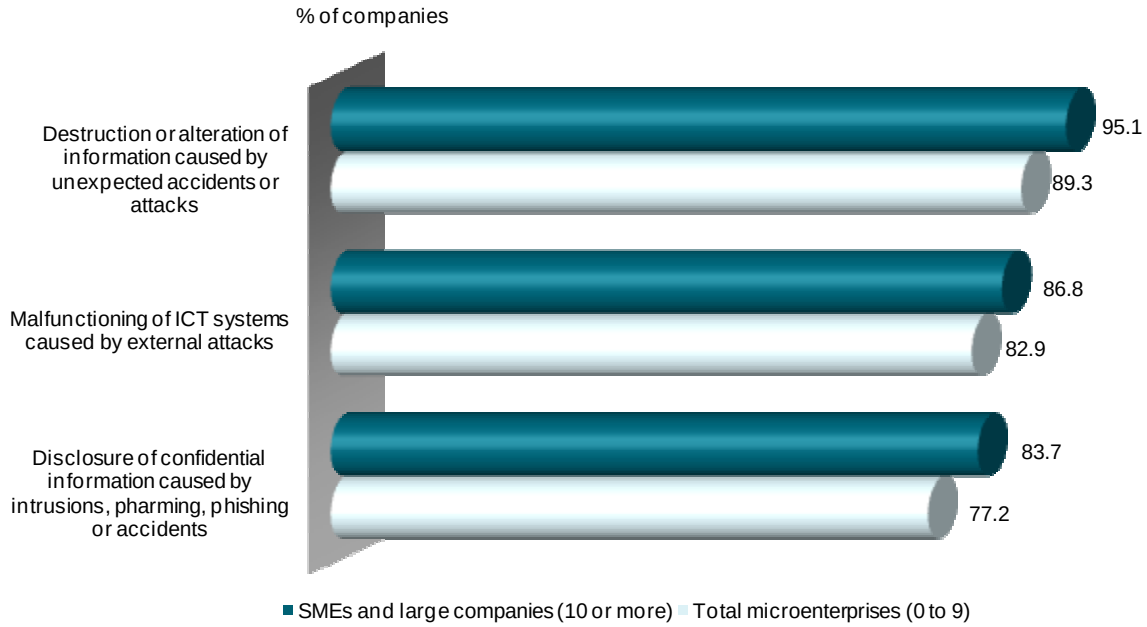


Base: total microenterprises with computers

Source: ONTSI using data from the INE 2010

Microenterprises with a security policy that has been formally defined and is regularly updated use it mainly (89.3% of them) to avoid risks of destruction or alteration of information caused by unexpected accidents or attacks. Malfunctioning of ICT systems caused by external attacks, and disclosure of confidential information caused by intrusions, pharming, phishing or accidents, are observed to a lesser extent, but also record high percentages of 82.9% and 77.2% respectively.

Figure 45. Risks contemplated in corporate security policies



Base: Companies with a security policy that has been formally defined and is regularly updated

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.

Table 10. Risks contemplated in corporate security policies, by sector

% of companies with a security policy that considers:	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	89.3	79.7	87.4	81.0	98.4	87.6	85.6	76.7	97.3	98.6	88.8	99.4
Malfunctioning of ICT systems caused by external attacks	82.9	86.1	82.3	83.7	82.4	81.7	92.5	97.2	95.7	76.8	80.3	94.5
Disclosure of confidential information caused by intrusions, pharming, phishing or accidents	77.2	63.4	85.1	63.8	79.4	76.8	83.3	91.6	89.0	68.9	75.2	91.5

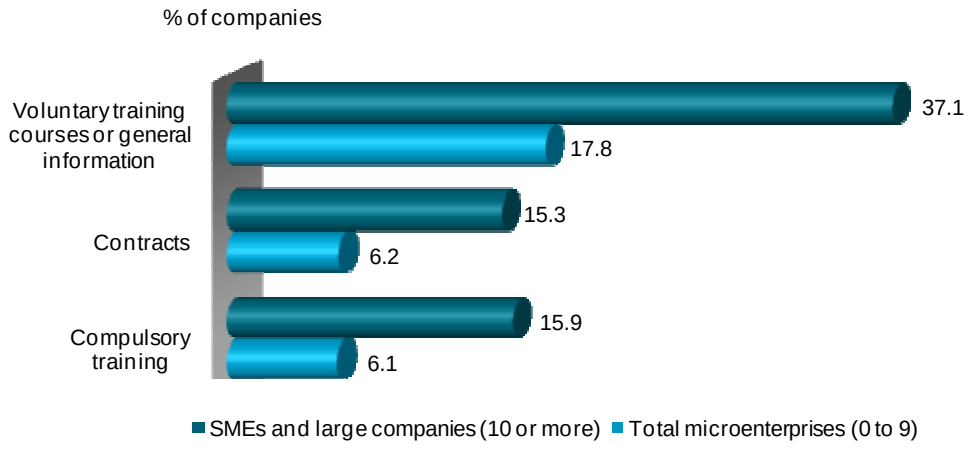
Intervals: (max % - min %) / 4 — lower, lower-medium, upper-medium, upper — minimun %, maximun %

Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2010

Regardless whether the company has a formal ICT security police, it can have some guidelines to inform its employees about their obligations with regard to ICT system security. Taking into account the total number of microenterprises with computers, 17.8% of them put this prevention policy into practice by providing voluntary training courses or general information to their employees. To a lesser extent, around 6% of them execute contracts with their employees or give compulsory training on this regard.

Figure 46. ICT system security prevention policy for employees



Base: Companies with computers

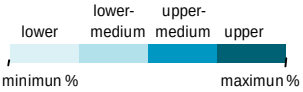
Source: ONTSI using data from the INE 2010

IT, telecommunications and audiovisual activities, together with the financial sector stand out in risk prevention with 30.2% and 27.5% of their respective microenterprises having prevention policies, based on voluntary training courses or general information in the first case, and in compulsory training in the second.

Table 11. 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
Voluntary training courses or general information	17.8	14.9	15.2	16.0	16.1	21.9	23.4	14.3	30.2	17.1	18.0	23.9
Contracts	6.2	4.6	5.8	4.1	4.7	8.6	7.0	4.5	10.6	6.1	6.4	7.3
Compulsory training	6.1	6.1	6.8	5.3	4.3	8.1	8.4	4.8	11.6	5.1	5.0	27.5

Intervals: (max % - min %) / 4



Base: microenterprises 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 less than 10 employees: 12,229 microenterprises

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.

5. LIST OF FIGURES AND TABLES

Figures

Tables