

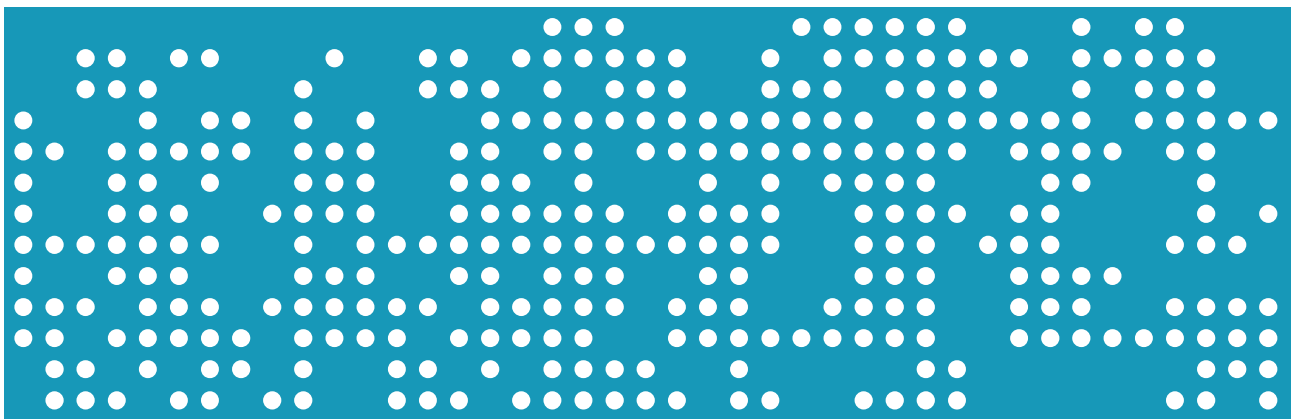


GOBIERNO
DE ESPAÑA

MINISTERIO
DE INDUSTRIA, TURISMO
Y COMERCIO

Information and Communication Technologies in Spanish microenterprises

2010 Edition



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1. NOTEWORTHY ASPECTS

- **In the area of ICT infrastructure the major role played by the mobile phone and the computer is noteworthy.** Both mobile telephone and computer uptake stands at 66.3% of microenterprises. In the 3 to 9 employees segment, the percentage for mobiles reaches 81.5% and for computers 90.1%.
- **For the very first time the computer penetration in microenterprises has reached the same levels as mobile phones.** 66.3% of companies with fewer than 10 employees have a personal computer which is exactly the same percentage as that of microenterprises with a mobile phone. Last year there was a 4.4 point advantage of mobile phone over computer penetration.
- **Around 56% of microenterprises have Internet access and just over 52% have broadband access.** Broadband is the basic ICT indicator that has shown most growth over the past year with 3.2 percentage points. Internet access has increased by 2.9 points.
- **93.3% of microenterprises with Internet access connect via broadband.** The percentages for microenterprises of 0 to 2 and 3 to 9 employees are 92.6% and 95.2%, respectively.
- **After broadband, mobile telephony is the most widely-used Internet access technology.** 22.4% of connections in microenterprises of 0 to 2 employees and 23.3% in the 3 to 9 employees section give an average of 22.6% for microenterprises as a whole. The percentages exceed both those for traditional modem and ISDN access.
- **Internet access via mobile telephony has grown more than 4 percentage points in a year.** The biggest growth was seen in the 3 to 9 employees segment with an increase of 5.2 points compared to last year. For microenterprises with 0 to 2 employees the increase was 4.1 points. SMEs and large companies together witnessed an annual increase of 4.4 points.
- **The percentage of employees who receive ICT training is higher in microenterprises than in SMEs and large companies.** Although microenterprises provide their employees with ICT training in 2.1% of cases compared to 13.4% of SMEs and large companies, once the training is offered, it reaches a higher percentage of the workforce in companies with less than 10 employees (60.8%) than in those with 10 or more employees (26.7%).
- **37.3% of microenterprises with 3 to 9 employees with Internet access have their own website.** The percentage is 16.6% in those smaller microenterprises with 0 to 2 workers. The website's main aim is to present the company.
- **Around 39% of microenterprises with Internet access use it as a means of contacting the Public Administration.** Larger microenterprises use the Internet

as a means of connection to a greater extent (45.6%) than smaller ones (36.5%). The main reasons for interacting with the e-Administration are getting information, 34.6%, and downloading forms, 33.1%.

- **The percentage of companies which experienced a security problem in the last twelve months continues its downward trend.** The percentage of microenterprises with Internet that have had a security problem in the last twelve months stands at 11.4%, which represents a drop of one percentage point. The main problem remains computer virus attacks and this means that the most widely-used security services are virus protection or scanning software.
- **The electronic signature has full acceptance in dealings with the Administration.** Almost a quarter of microenterprises with Internet (24.7%) use electronic signatures. Of these, more than 85% use it in their dealings with the Administration and just over 21% with suppliers and/or customers.
- **CRM (customer relationship management) tools are more common than ERP process management tools.** Compared to 1% of microenterprises that have ERP tools to manage processes and information for different business areas of the company, 4% have incorporated CRM, which enables them to manage customer information in an integrated manner.
- **8.9% of companies with 0 to 9 employees have made purchases via electronic commerce.** In the sector of microenterprises with 0 to 2 workers the percentage is 7.2%, while in the 3 to 9 sector it stands at 17.1%, nearing the average for SMEs and large companies.
- **2.4% of microenterprises have made e-commerce sales.** The breakdown based on company size puts the percentage for microenterprises with 0 to 2 employees at 1.6% and for those with 3 to 9 employees at 6.3%.
- **The hotels and travel agencies sector is the only one where the percentage of companies who sell through electronic commerce is greater than those that make purchases.** A higher percentage of companies make purchases than sales through electronic commerce. This is not only the case in general terms for companies with less than 10 employees but in virtually all the activity sectors in question. The percentage of microenterprises that make e-commerce sales is only higher in the case of hotels and travel agencies.
- **Other companies are the customers in 58.8% of e-commerce sales.** The end consumer and the Public Administration receive 29.5% and 12% of sales, respectively.
- **Wholesale and retail trade account for more than 70% of revenue from e-commerce sales.** 44.1% of all e-commerce sales were by wholesale trade microenterprises. Retail trade accounts for the next highest percentage with 26.5%. In all other sectors the percentages range between 8% of real estate and administrative activities to 0.1% in restaurants and bars.



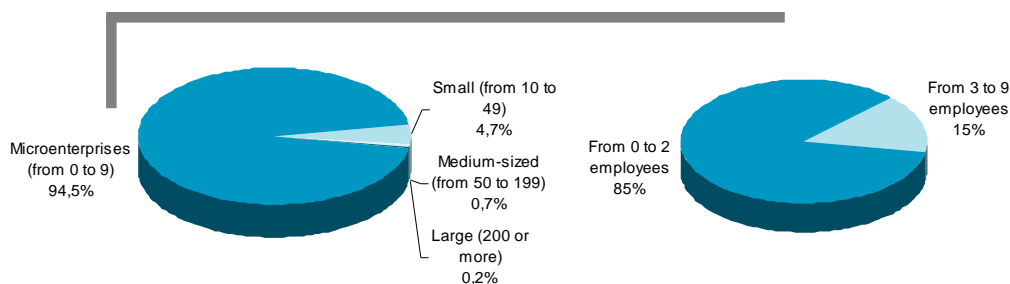
- **Radio-frequency Identification Technologies (RFID) are used in 0.8% of microenterprises.** Those in the transportation and storage sector are those that most use RFID with almost 3.5%. Implementing it in payment systems (48.5%) and product identification (38.7%) stand out as the main uses of this technology.
- **More than 10 percentage point growth in B2C sales in microenterprises.** B2C sales have grown from 19% of all e-commerce sales last year to 29.5% this year. This increase consolidates microenterprises in this e-commerce category compared to companies with 10 or more employees where B2C represents 7.5%.

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 2009), the total number of companies in Spain amounts to 3,355,830, with microenterprises (0 to 9 employees) playing a major role as they represent 94.5% of the business fabric. Small companies (10 to 49 employees) represent 4.7%, followed by medium-sized companies (50 to 199 employees) with 0.7% and, lastly, large companies (with 200 or more employees) which account for 0.2% of the total number of companies in Spain. Among microenterprises, those with 0 to 2 employees stand out with more than 2.6 million companies of this type which form 85% of all microenterprises in the country, compared to 15% for those with 3 to 9 workers.

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



All companies: 3,355,830

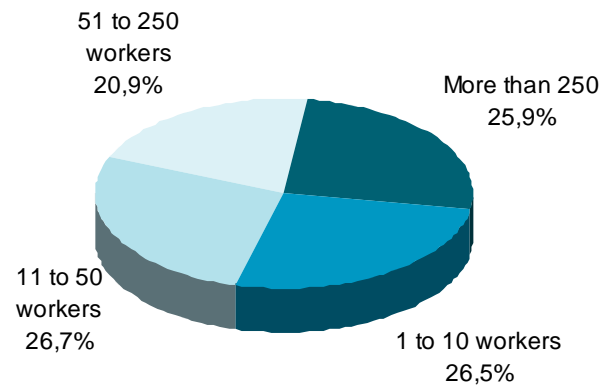
Total number of microenterprises: 3,170,466

Source: ONTSI (Spanish Observatory for Telecommunications and the Information Society) based on DIRCE (Central Companies Directory) data for 2009

2.2. Representativeness of the workforce

Although microenterprises account for 94.5% of the Spanish business fabric, these companies only represent around 26.5% of the country's workers. In general, we can see that the workforce is distributed in a relatively equal manner between the four types of companies that are classified according to the number of employees. Thus, according to data from the Survey on the Labour Situation conducted by the Ministry of Labour and Immigration in 2008, companies with 11 to 50 workers employ 26.7% of the workforce, closely followed by 26.5% for the sector of 1 to 10 workers and 25.9% for companies with more than 200. Almost 21% corresponds to companies with 51 to 250 employees.

Figure 2. Distribution of the workforce (2008)



Source: ONTSI (Spanish Observatory for Telecommunications and the Information Society) based on the Labour Situation Survey 2008

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 each contain more than 10% of the total number of Spanish companies. Taken together, these four account for 59.8% of companies: Catalonia (18.5%), Madrid (15,3%), Andalusia (15,2%) and the Valencia Autonomous Region (10.8%). Some 5 percentage points behind are regions like Galicia, which has 6% of the country's companies, and the Basque Country and Castile and León, with 5.1% each. Ceuta and Melilla and La Rioja have percentages below 1%.

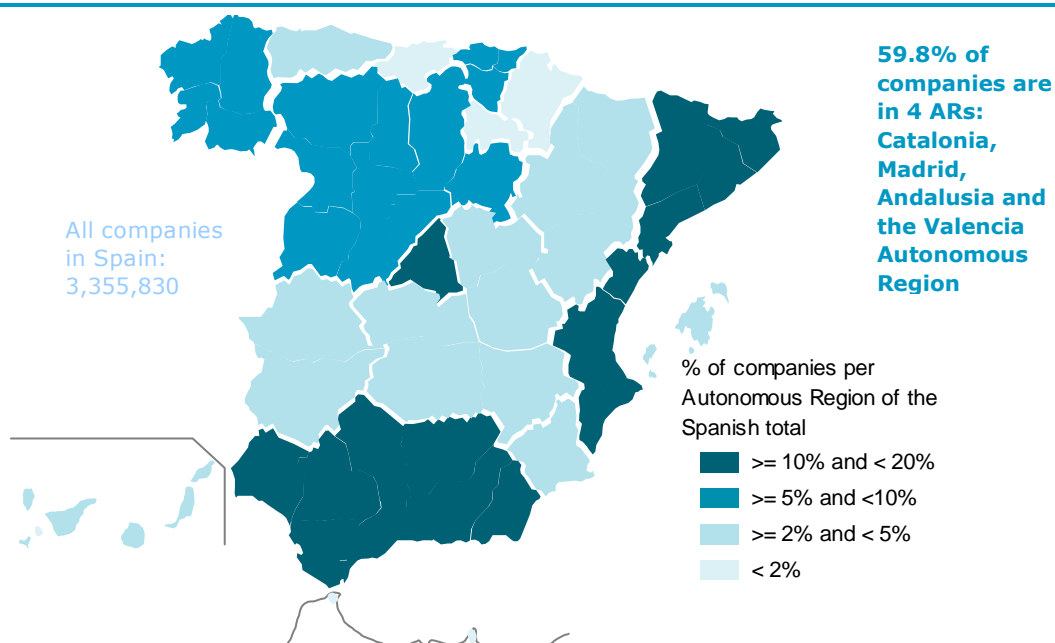
Table 1. Companies per Autonomous Region

	Total companies	% total companies per AR	Total microenterprises (0 to 9 workers)	% total microenterprises per AR	% microent/all companies in the AR	Total SMEs and large companies (of 0 or more)	% total SMEs and large companies per AR	% SMEs and large companies/all companies in the AR
Total Spain	3.355.830	100,0%	3.170.466	100,0%	94,5%	185.364	100,0%	5,5%
Andalusia	510.072	15,2%	484.857	15,3%	95,1%	25.215	13,6%	4,9%
Aragon	93.283	2,8%	87.693	2,8%	94,0%	5.590	3,0%	6,0%
Asturias	71.853	2,1%	68.372	2,2%	95,2%	3.481	1,9%	4,8%
Balearic Islands	91.826	2,7%	87.140	2,7%	94,9%	4.686	2,5%	5,1%
Canary Islands	139.381	4,2%	131.868	4,2%	94,6%	7.513	4,1%	5,4%
Cantabria	39.611	1,2%	37.526	1,2%	94,7%	2.085	1,1%	5,3%
Castile and León	170.626	5,1%	162.271	5,1%	95,1%	8.355	4,5%	4,9%
Castile-La Mancha	134.479	4,0%	127.395	4,0%	94,7%	7.084	3,8%	5,3%
Catalonia	619.624	18,5%	583.228	18,4%	94,1%	36.396	19,6%	5,9%
Valencia Autonomous Region	362.844	10,8%	342.473	10,8%	94,4%	20.371	11,0%	5,6%
Extremadura	67.181	2,0%	64.191	2,0%	95,5%	2.990	1,6%	4,5%
Galicia	201.263	6,0%	191.251	6,0%	95,0%	10.012	5,4%	5,0%
Madrid	511.804	15,3%	481.804	15,2%	94,1%	30.000	16,2%	5,9%
Murcia	95.636	2,8%	89.688	2,8%	93,8%	5.948	3,2%	6,2%
Navarre	43.282	1,3%	40.153	1,3%	92,8%	3.129	1,7%	7,2%
Basque Country	172.152	5,1%	161.446	5,1%	93,8%	10.706	5,8%	6,2%
La Rioja	23.525	0,7%	22.056	0,7%	93,8%	1.469	0,8%	6,2%
Ceuta and Melilla	7.388	0,2%	7.054	0,2%	95,5%	334	0,2%	4,5%

Source: ONTSI (Spanish Observatory for Telecommunications and the Information Society) based on DIRCE (Central Companies Directory) data for 2009

The map below shows the distribution of companies included in the table above.

Figure 3. Distribution of companies per Autonomous Region



Source: ONTSI (Spanish Observatory for Telecommunications and the Information Society) based on DIRCE (Central Companies Directory) data for 2009

2.4. Sectoral grouping of companies

The sectoral distribution of Spanish companies varies according to whether they are microenterprises (companies with 0 to 9 employees) or SMEs and large companies (with 10 or more employees), although in both cases the financial sector is the one that contains the smallest percentage of companies compared to construction which has the highest.

This study will go into detail on Spanish microenterprises, in other words, those companies with less than 10 employees, although it will also attempt to provide a comparison with SMEs and large companies with more than 10 employees.

The table below shows the distribution according to activity sectors. The main groups shown follow the National Economic Activity Classification (CNAE-2009) of the National Statistics Institute (INE). This classification is used throughout the study thereby enabling us to show a more detailed breakdown of results.

Construction is the sector with the highest percentage of microenterprises with more than 16% of the total. It is followed by retail trade and professional activities, with 16% and 12.4%, respectively. These three sectors account for almost 45% of all Spanish microenterprises. The following block comprises restaurants and bars, real estate and administrative activities, transportation and storage, industry as well as wholesale trade. In these cases the percentage varies from a little over 8% for restaurants and bars to 6.4% for industry and wholesale trade. 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; hotels, campsites and travel agencies and the financial sector).

The study on Information and Communication Technologies (ICT) in Spanish microenterprises takes¹ the companies in the 12 sector groups shown in the table which represent almost 85% of Spanish microenterprises as its basis.

¹ Survey on the Use of Information and Communication Technologies and Electronic Commerce 2008-2009, carried out by the Spanish National Statistics Institute

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

No.	Category name	CNAE (Spanish Economic Activity Code)	Category description	Total microent.	% 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	202.183	6,4%
2	Construction	41 to 43	Construction	520.202	16,4%
3	Sale and repair of motor vehicles	45	Sale and repair of motor vehicles and motorcycles	64.085	2,0%
4	Wholesale Trade	46	Wholesale commerce	204.322	6,4%
5	Retail Trade	47	Retail trade (except motor vehicles)	506.257	16,0%
6	Hotels, campsites and travel agencies	55 and 79	Hotels and campsites; travel agencies	30.255	1,0%
7	Restaurants and bars	56	Restaurants and bars	259.433	8,2%
8	Transportation and storage	49 to 53	Transportation and storage (including postal service)	224.899	7,1%
9	IT, Telecommunications and Audiovisual	58 to 63	Information and Communications (including audiovisual services)	46.749	1,5%
10	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)	235.114	7,4%
11	Professional activities	69 to 74	(69 to 74) Scientific and Technical Professional activities (without 75: veterinary)	391.718	12,4%
12	Financial	64.19 + 64.92 + 65.1 + 65.2 + 66.12 + 66.19	Financial and insurance activities	6.197	0,2%
Total microenterprises in the sectors covered by the survey (Universe)				2.691.414	84,9%
All other microenterprises (from sectors not covered by the survey)				479.052	15,1%
ALL SPANISH MICROENTERPRISES				3.170.466	100,0%

Source: ONTSI (Spanish Observatory for Telecommunications and Information Society) based on DIRCE (Central Company Directory) data for 2009

3. ICTS IN SPANISH MICROENTERPRISES

3.1. Infrastructure and connectivity

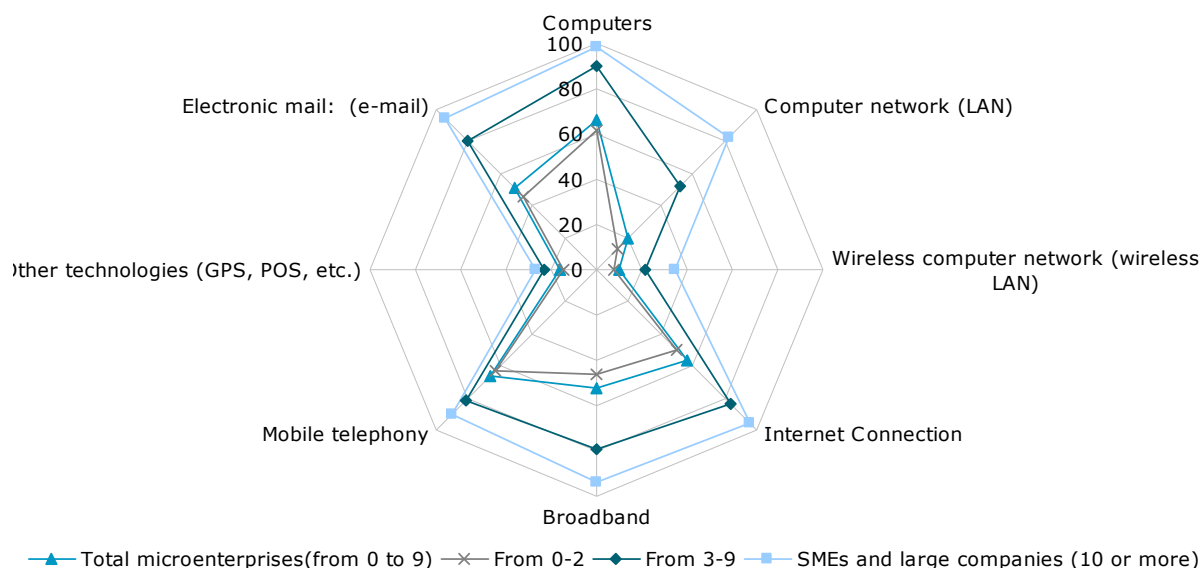
3.1.1. Access and network devices

Analysis of the infrastructure of Spanish microenterprises (0 to 9 employees) highlights the important role played by mobile telephony and personal computers. Around 66% of microenterprises have both types of equipment. This figure shows that, for the very first time, computer penetration in microenterprises has reached the same levels as mobile phones. In the case of SMEs and large companies (10 or more employees) the computer (98.6%) and Internet access (96.2%) stand out. 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.).

The main measures in terms of connectivity are considered to be Internet access, e-mail and broadband; it is notable that in more than 50% of microenterprises employees have access to these. Wireless local Area Network and other technologies such as GPS, POS, etc., have less of a presence in the microenterprise environment. These also represent the lowest percentages in the case of SMEs and large companies.

Around 56% of microenterprises have Internet access

Figure 4. ICT infrastructure and connectivity by type of company



Base: all companies

Source: ONTSI using data from the INE 2009

If we take the number of employees in microenterprises into account we see slight differences in terms of infrastructure resources. Companies with higher employee numbers in this category (3 to 9) have resources more similar to SMEs and large companies where the computer and Internet access stand out from the rest; however, it is the mobile telephone and the computer in the case of companies with 0 to 2 employees.

From the point of view of communication networks, also taking the number of employees into account, more than 83% of microenterprises with 3 to 9 employees have Internet access and more than 79% have a broadband connection. In the case of companies with 0 to 2 workers these percentages stand at around 50% and 46%, respectively. In the two microenterprise segments considered, the percentages referring to companies with intranet or extranet are low compared to other connectivity indicators as in no case do they exceed 11%, with the average values being 3% and 2.1% of companies, respectively.

More than 90% of microenterprises with 3 to 9 employees have computers, while around 83% have Internet access

Table 3. Availability of ICT infrastructure by company size

% of companies with:	Microenterprises (from 0 to 9)	From 0-2	From 3-9	SMEs and large companies (10 or more)
Mobile telephony	66,3	63,2	81,5	90,9
Computers	66,3	61,4	90,1	98,6
Internet Connection	55,9	50,3	83,5	96,2
Electronic mail: (e-mail)	51,7	46,0	79,6	94,7
Broadband	52,1	46,5	79,5	93,8
Computer network (LAN)	20,0	13,3	52,6	83,0
Wireless computer network (wireless LAN)	10,1	7,8	21,5	34,7
Intranet (website for internal use)	3,0	1,5	10,4	23,1
Extranet (external access to the Internet)	2,1	1,2	6,5	14,6
Other technologies (GPS, POS, etc.)	15,8	14,4	22,8	26,8

Base: all companies

LAN²

Intranet³

Extranet⁴

Source: ONTSI using data from the INE 2009

² 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.

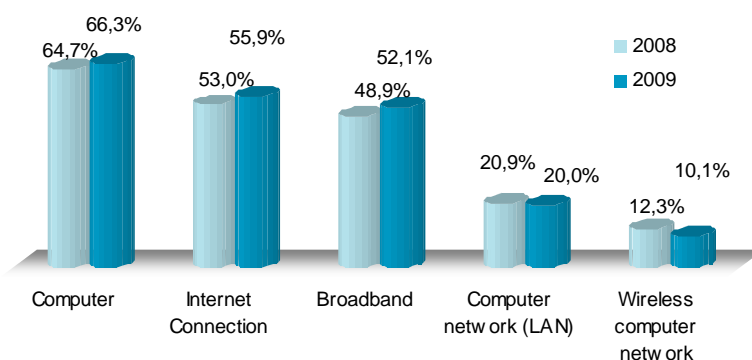
³ Intranet: Internal network of an organisation that provides content and services for the exclusive use of the organisation, usually based on Internet standards.

⁴ Extranet: Secure extension of the Intranet enabling an external user to access some parts of the organisation's Intranet.

We can see that the percentage of microenterprises that have a personal computer, Internet access and broadband increased over the course of the past year. Increases have ranged between 1 and 3 percentage points. Broadband has seen the most growth in the year. For its part, the computer network (LAN), as well as the wireless computer network experienced slight drops with a presence in a lower percentage of microenterprises in 2009.

The percentage of microenterprises with broadband grew more than 3 percentage points in a year

Figure 5. Evolution of the main ICT indicators 2008-2009



Base: all microenterprises

Source: ONTSI using data from the INE 2009

Access and use of ICTs by economic activity sector

In the same way that an analysis of the ICT infrastructure and connectivity in Spanish microenterprises is carried out according to the number of employees, it is important to consider an analysis for each activity sector.

As has been the case in recent years, there is a marked difference in ICT infrastructure and connectivity resources depending on what sector the company belongs in. Firstly, and considering the selected indicators as a whole, we can see that the IT, telecommunications and audiovisual sector displays the highest percentages of best-equipped companies. It is the leading sector in 9 of the 10 indicators (mobile telephony, computers, Internet access, e-mail, broadband, computer network, wireless computer network, intranet, extranet and other technologies, i.e. in all except the indicator that refers to other technologies). In some cases this sector is the undisputed leader, as is true for the computer network, wireless computer network or intranet, while in the case of computers, Internet access, e-mail and broadband it share the top position with the professional activity and the financial

The IT, telecommunications and audiovisual sector is the leader in ICT infrastructure and connectivity

sectors. Restaurants and bars have the lowest percentages in virtually all infrastructure and connectivity indicators.

If we take an individual sector-by-sector analysis of each of the 10 indicators included in the table into account we can see that mobile telephony stands out in the IT, telecommunications and audiovisual sector alongside retail trade, construction and professional activities. Mobile device is the only leading indicator in the construction sector.

The percentage of microenterprises with mobile telephone in the construction sector stands out with close to 74%

With regard to computers, Internet access, e-mail and broadband, they maintain similar sectoral distribution, with sectors where they have a large presence (IT, telecommunications and audiovisual, professional activities, financial and hotels and travel agencies), sectors where they have a considerable presence (wholesale trade, sale and repair of motor vehicles or real estate and administrative activities) and all the other sectors where they have a lower presence. Local computer networks, including wireless networks, intranet and extranet are the indicators that had lower percentages in the sectors identified for the study.

There are marked differences in availability both in terms of the activity sector in which the microenterprise operates and of the infrastructure or connectivity indicator in question. Thus, we can see sectoral differences that range between more than 78 points for Internet connection and e-mail and 14 and 17 points in the case of extranet and intranet, respectively.

Sectoral differences of more than 78 percentage points can be seen in Internet connection

Table 4. ICT infrastructure and access by sector

% of microenterprises with:	Total Spain	Industry	Construction	Vehicle sales and repairs	Wholesale Trade	Retail Trade	Hotels and travel agencies	Restaurants and bars	Transportation and storage	IT, Telecommunications and Audiovisual	Real estate and Admin Activities.	Professional activities	Financial	% Max-%Min (percentage points)
Mobile telephony	66,3	67,8	73,6	69,3	78,9	47,4	64,4	37,8	69,9	82,5	57,0	73,0	65,2	44,7
Computers	66,3	65,4	63,4	76,8	80,5	49,7	80,4	25,9	30,1	97,8	69,3	94,5	86,7	71,9
Internet Connection	55,9	51,4	47,9	63,9	69,0	40,1	77,5	17,1	24,3	95,7	61,1	87,7	85,2	78,7
Electronic mail: (e-mail)	51,7	47,8	44,3	57,2	65,1	34,7	75,8	14,1	20,5	92,7	52,6	85,5	83,0	78,6
Broadband	52,1	48,4	44,2	58,6	63,4	37,2	70,6	16,8	22,0	92,6	56,9	83,0	78,7	75,8
Computer network (LAN)	20,0	17,3	12,2	17,4	30,0	17,6	28,5	2,4	4,3	63,5	18,9	33,1	38,4	61,1
Wireless computer network (wireless LAN)	10,1	7,8	7,4	10,1	13,4	6,8	11,8	1,0	1,6	42,6	9,5	18,2	19,1	41,5
Intranet (website for internal use)	3,0	2,7	1,7	2,0	4,8	1,9	10,4	0,9	0,6	17,3	4,6	3,7	10,2	16,7
Extranet (external access to the Internet)	2,1	1,6	0,9	1,4	3,9	1,4	5,8	0,2	0,3	14,1	1,6	3,6	11,7	13,9
Other technologies (GPS, POS, etc.)	15,8	7,8	8,7	16,9	17,2	26,7	27,9	13,0	27,7	22,4	8,1	11,3	11,0	20,1

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Base: all microenterprises

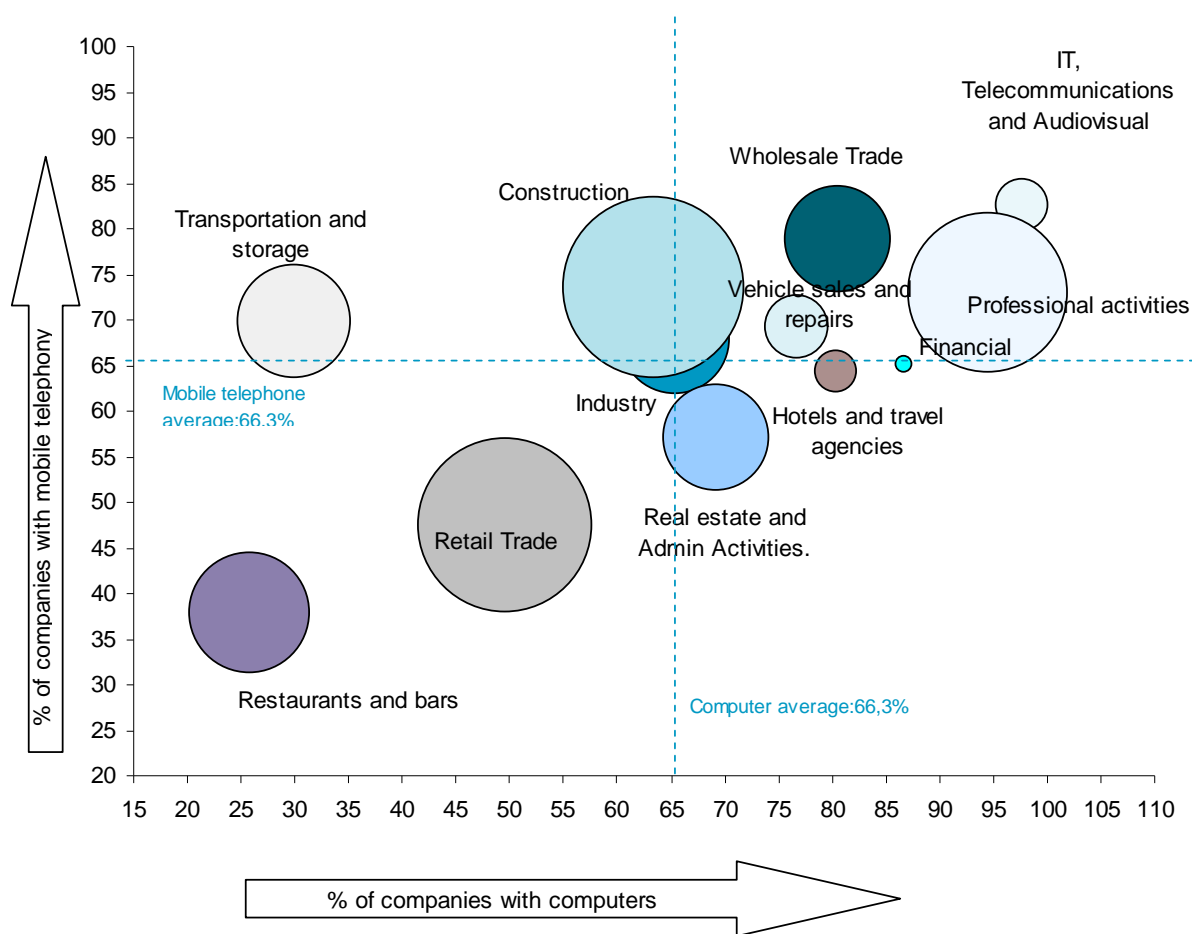
Source: ONTSI using data from the INE 2009

The figure below takes the number of companies (that determines the size of the bubble) and their situation in terms of computers and mobile telephony for business use into account. The layout of the bubbles demonstrates that retail trade and restaurants and

bars are the sectors that lag behind with less access to both mobile telephony and computers.

With regard to computers alone, the sectors that fall below the average are construction, transportation and storage, retail trade and restaurants and bars. Similarly, if we focus only on mobile telephones then real estate and administrative activities, hotels and travel agencies, as well as retail trade and restaurants and bars are below average. IT, telecommunications and audiovisual together with wholesale trade, professional activities and the sale and repair of motor vehicles are in the best quadrant.

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 2009

3.1.2. Type of Internet connection

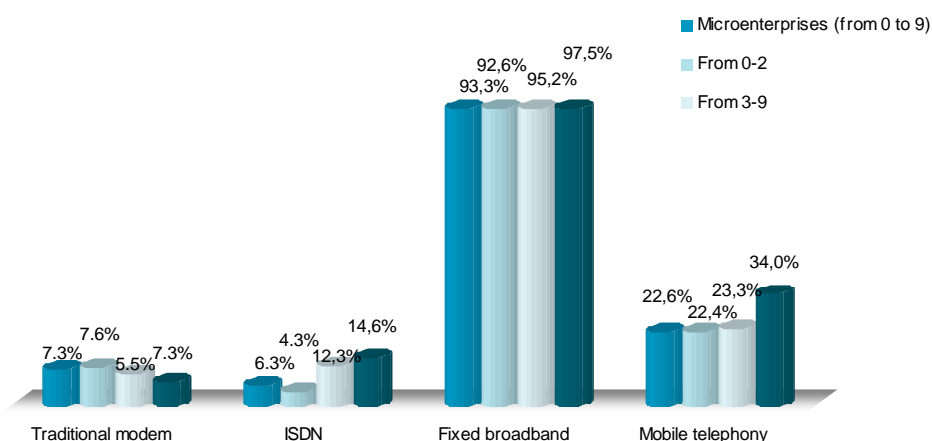
More than 93% of microenterprises with Internet access are connected via broadband, almost one percentage point higher than last year. In this regard, microenterprises have a similar access pattern to SMEs and large companies where broadband also has the highest percentages. The mode of access used by the minority is ISDN technology, although in the case of companies with 10 or more employees it is via a traditional modem.

More than 93% of microenterprises with Internet access connect via broadband

Differences by company size are not as high with broadband as with other technologies. More than 95% of microenterprises with 3 to 9 employees have broadband Internet access, almost 3 percentage points more than microenterprises with 0 to 2 workers. If access is by ISDN, then the difference between both segments rises to more than 8 percentage points.

Although still far off the values for fixed broadband, mobile telephony has become the second most widely-used Internet access technology, having increased more than 4 percentage points in relation to the total number of microenterprises that used this technology for access in the previous year.

Figure 7. Type of Internet connection



Base: total companies with Internet

Source: ONTSI using data from the INE 2009

3.1.3. Infrastructure and connectivity by Autonomous Region

Analysis of infrastructure in companies and connectivity indicators by Autonomous Regions reveals that Madrid is the best-equipped region as it has the highest percentages in 8 of the 10 indicators selected. It is followed by Catalonia and the Valencia Autonomous Region, which head 6 and 4 of the indicators, respectively. Aragon, Asturias, the Basque Country and Rioja have the highest percentages in mobile telephones, broadband and extranet specifically.

According to the results in the table we can see that mobile telephony, personal computers, Internet connection and broadband are the basic infrastructure and connectivity variables, being present in higher percentages in more Autonomous Regions. Thus, for example, the block of Regions with a higher percentage of microenterprises with mobile telephones comprises 6 regions and runs from 67.9% for Castile-León to 70.5% for Extremadura. Ceuta and Melilla have the lowest percentage (55.4%). In relation to broadband, the leading group formed by Regions with more than 95% of microenterprises that have this network access mode has 5 Regions.

Table5. microenterprises with access to the main ICT components by AR.

% microenterprises with	Mobile telephone	Computers	Internet Connection	Broadband (of no. companies w/internet)	E-mail	Computer network (LAN)	Wireless computer network	Intranet	Extranet	Other technologies (GPS, POS, etc.)
Total Spain	66,3	66,3	55,9	93,3	51,7	20,0	10,1	3,0	2,1	15,8
Andalusia	65,9	63,7	53,3	92,7	48,2	20,1	9,2	2,5	1,3	17,1
Aragon	70,0	65,3	55,7	96,2	51,2	18,2	7,5	2,7	2,4	12,2
Asturias	61,8	47,6	38,1	95,5	36,6	14,2	5,8	1,9	1,4	19,0
Balearic Islands	61,3	65,6	55,4	89,6	52,6	20,3	10,6	2,1	0,9	16,0
Canary Islands	61,0	63,0	55,9	89,1	51,9	20,4	9,1	1,7	0,6	11,9
Cantabria	61,3	58,6	50,4	88,9	46,9	15,0	6,7	3,1	3,0	15,3
Castile and León	67,9	60,2	49,8	91,6	44,9	16,5	9,6	2,5	1,5	15,2
Castile-La Mancha	62,4	53,8	41,3	92,6	38,4	17,3	11,3	3,0	2,0	13,1
Catalonia	68,2	72,4	62,9	95,6	60,0	17,2	7,7	3,5	2,2	14,8
Valencia Autonomous Region	69,3	68,0	57,0	94,2	54,1	24,9	13,4	4,3	2,2	18,3
Extremadura	70,5	57,0	46,6	95,2	44,1	13,7	7,1	1,6	1,7	14,9
Galicia	64,2	57,0	46,7	92,0	42,0	15,9	6,3	2,5	1,9	13,4
Madrid	65,7	76,0	64,5	94,1	59,0	26,3	17,2	3,5	3,6	18,0
Murcia	66,5	63,4	52,7	90,7	43,4	17,0	6,3	2,1	1,9	12,9
Navarre	65,4	62,8	52,4	92,1	49,1	18,4	6,9	2,5	2,1	17,4
Basque Country	68,6	65,5	54,1	88,9	49,6	18,5	6,2	2,7	2,5	15,1
Rioja (La)	58,9	62,7	53,9	89,7	46,6	18,3	8,8	2,1	3,0	13,0
Ceuta and Melilla	55,4	60,3	49,3	96,2	46,6	20,4	13,3	0,4	0,4	7,9

Intervalos: (% máx - % . mín) / 4

inferior inferior superior superior

% mínimo % máximo

Base: all microenterprises

Source: ONTSI using data from the INE 2009

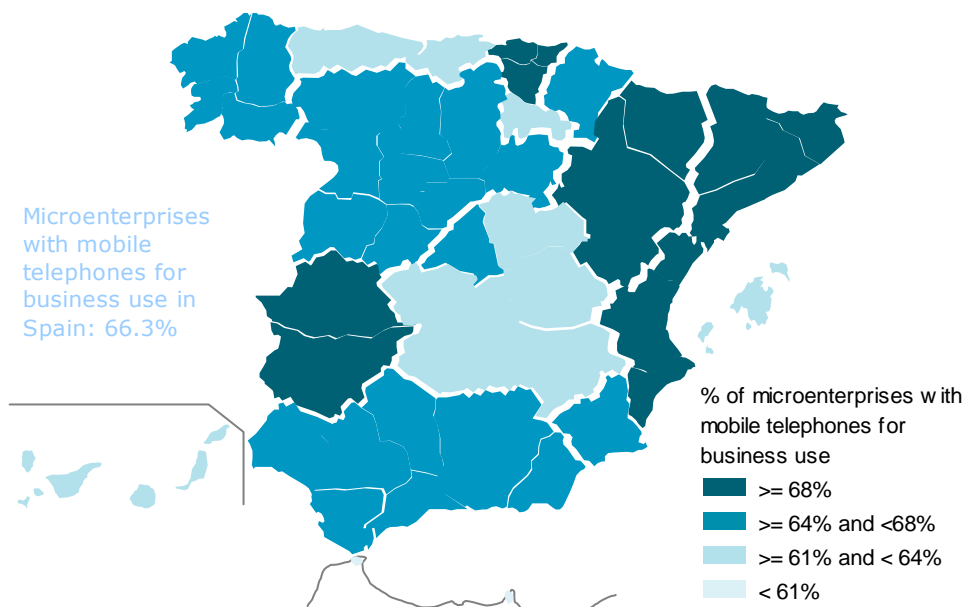
The number of microenterprises with personal computers and Internet access represents the maximum differences between Regions, as the distance between the maximum and minimum percentages is more than 28 and 26 percentage points, respectively, while in the case of mobile telephony and broadband we find only 15 and 7 points difference. In the case of intranet and extranet there are smaller gaps of less than 4 percentage points in both cases.

66.3% of microenterprises have mobile telephones for business use. Five Regions (Extremadura, Aragon, the Valencia Autonomous Region, the Basque Country and Catalonia) have values above 68%, compared to Ceuta and Melilla and La Rioja, which have lower percentages, below 60% in both cases.

With regard to Internet connection, the average of microenterprises with Network access in Spain is almost 56%. In Madrid, Catalonia and the Valencia Autonomous Region the percentages stand at 64.5%, 62.9% and 57%, respectively.

In relation to broadband, 7 Autonomous Regions have percentages of microenterprises with access to this type of connection that is above the national average of 93.3%. There are very slight differences between the group of leading regions which comprises Aragon, Ceuta and Melilla, Catalonia, Asturias and Extremadura. There are only two in the block of those with lower rates.

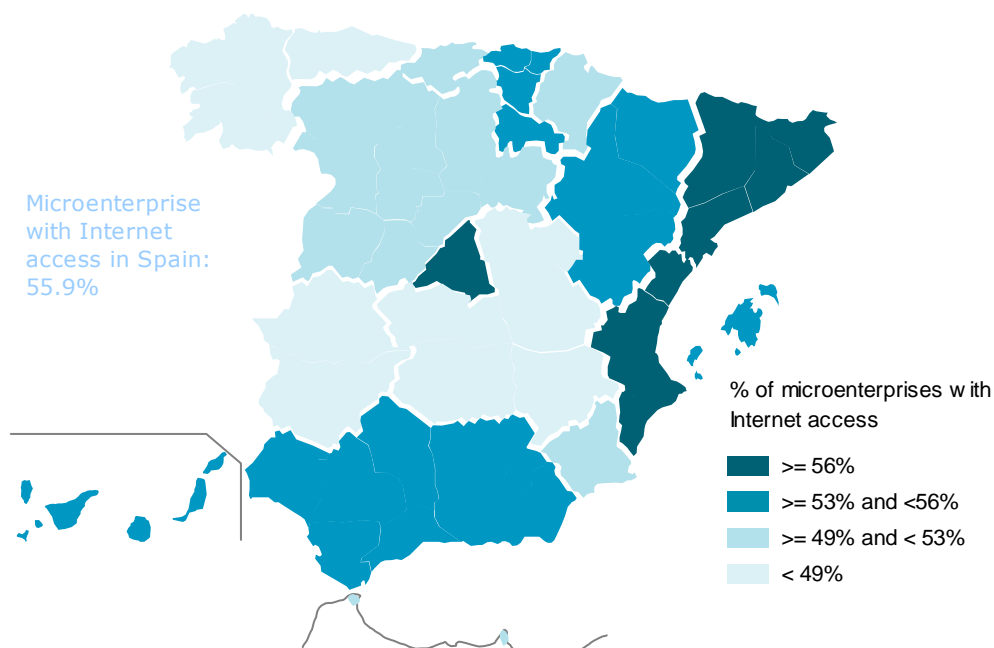
Figure 8. Microenterprises with mobile telephones by AR



Base: all microenterprises

Source: ONTSI using data from the INE 2009

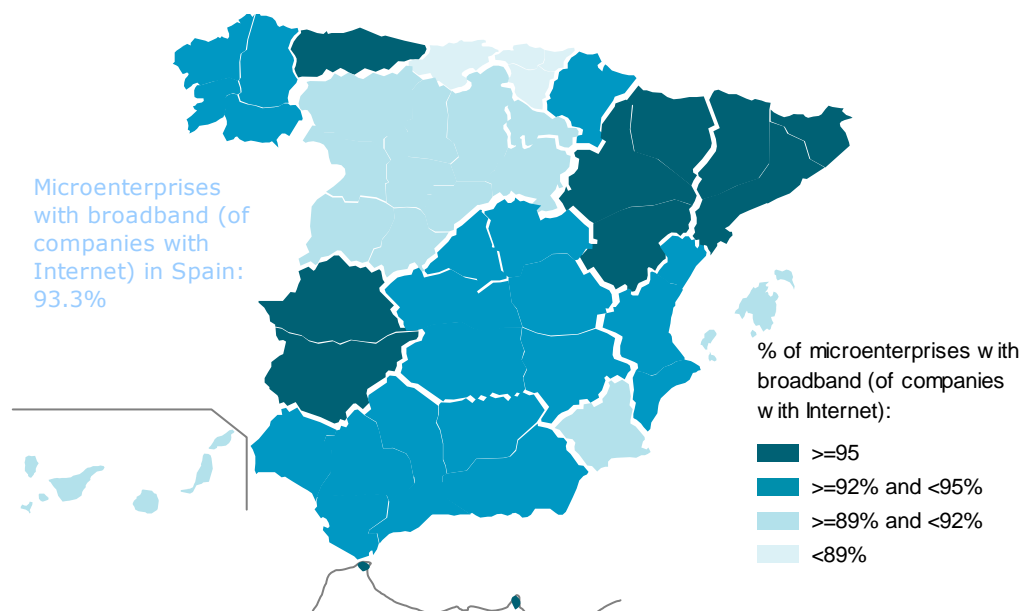
Figure 9. Microenterprises with Internet connection by AR.



Base: all microenterprises

Source: ONTSI using data from the INE 2009

Figure 10. Microenterprises with broadband by AR.



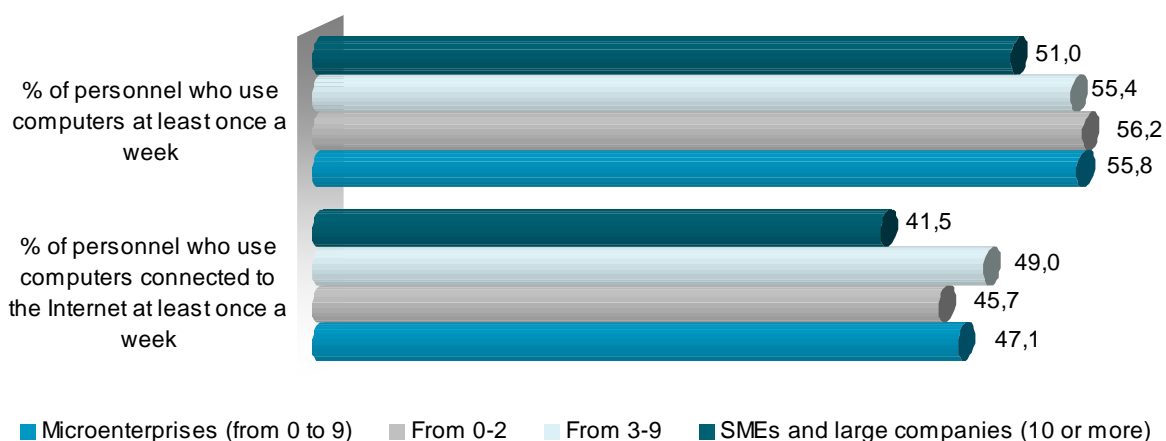
Base: total number of microenterprises with Internet access

Source: ONTSI using data from the INE 2009

3.2. Employees' use of ICT

As was already seen last year, the percentage of personnel that use computers with or without Internet on a weekly basis is higher in microenterprises than in companies with 10 or more workers. Almost 56% of microenterprise employees use a computer on a weekly basis compared to 50% of the workforce in SMEs and large companies. In cases where the computer also has Internet access the percentages are 47.1% compared to 41.5%, respectively. We find no fixed pattern by company size as in one case those with 0 to 2 employees have a higher percentage while in other cases those with 3 to 9 employees have the higher percentage.

Figure 11. Personnel that use computers and computers connected to the Internet, at least once a week

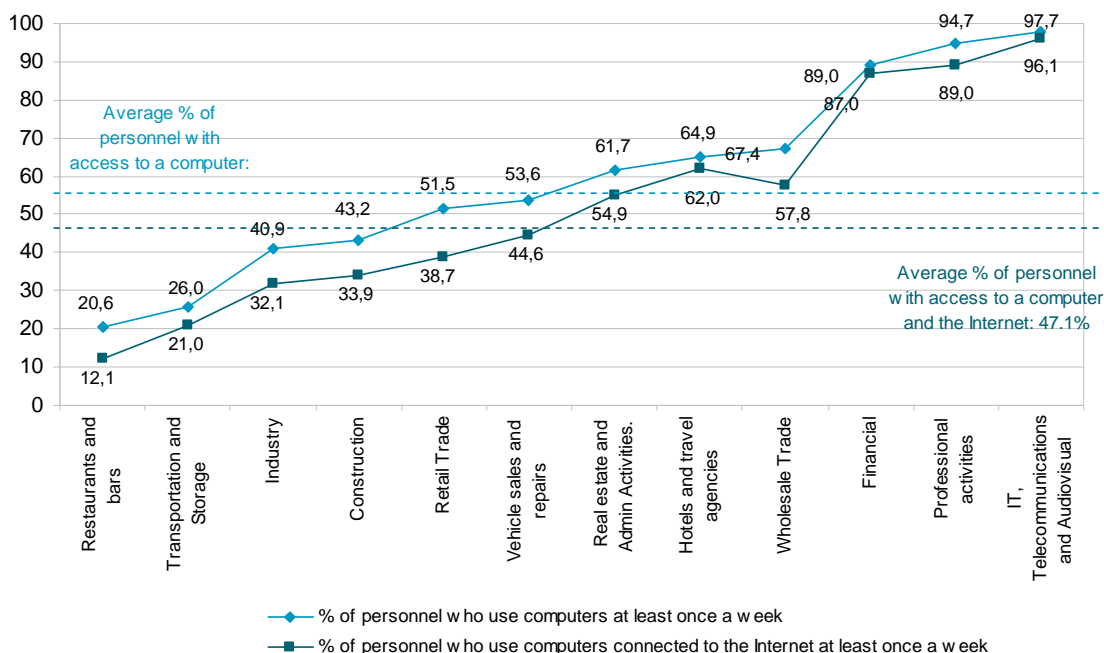


Base: total employees in each company

Source: ONTSI using data from the INE 2009

Five sectors have percentages that exceed the average values of personnel that use computers and computers connected to the Internet at least once a week (55.8% and 47.1%, respectively). In the IT, telecommunication and audiovisual sector a higher percentage of employees connect to computers with and without the Internet, in both cases exceeding 95%. The professional activities sector, alongside the financial sector had rates higher than 85% for both indicators. Restaurants and bars have the lowest percentages due to the type of activity that characterises the sector, followed by the transportation and storage sector.

Figure 12. Personnel that use computers and computers connected to the Internet at least once a week, by sector



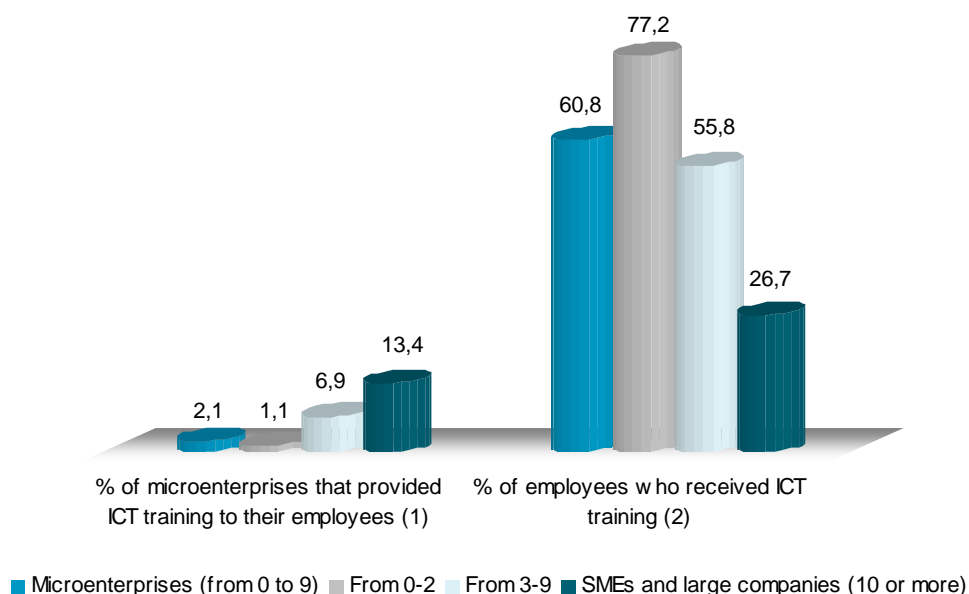
Base: total microenterprise employees

Source: ONTSI using data from the INE 2009

The indicators that have a significant impact on employees' use of ICT are those included below on training. Firstly, we find that the percentage of microenterprises that provide ICT training activities to their employees is low, barely 2% of all Spanish microenterprises. In the case of larger microenterprises, those with 3 to 9 employees, we see that the percentage is somewhat higher (close to 7%). Although the percentage rises more than 11 points above the microenterprise average, the percentage in SMEs and large companies does not exceed 15%.

The other training indicator we must analyse reflects that although microenterprises offer ICT training to their employees to a lesser degree, once it is offered it is provided to a higher percentage of personnel than in SMEs and large companies. Indeed, almost 61% of employees in microenterprises that provide ICT training received this training compared to less than 27% in companies with 10 or more workers. We can see that the percentage of workers in smaller microenterprises that receive training once it is offered is higher than that found in bigger microenterprises (with 3 to 9 workers). In this regard, it would appear that smaller companies are aware of the importance of ICT training and its impact on subsequent ICT use by their employees.

Figure 13. ICT training for employees



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

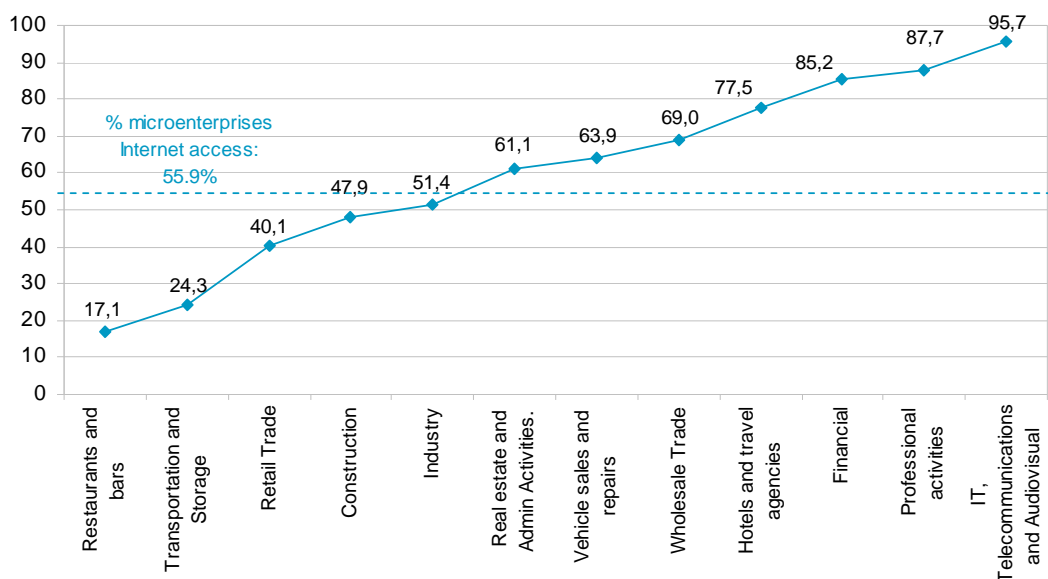
Source: ONTSI using data from the INE 2009

3.3. Internet

3.3.1. Internet access by sector

In general, 55.9% of microenterprises have Internet access. Among these, the companies in the IT, telecommunications and audiovisual sector stand out and have access in almost 96% of cases. Those in the professional activities and financial sectors have access to a lesser extent although the percentages remain high at above 85%. There is a rate close to average in industry. Restaurants and bars, together with transportation and storage lag behind the most at more than 30 percentage points below the average.

Figure 14. Microenterprises with Internet access by sector



Base: all microenterprises

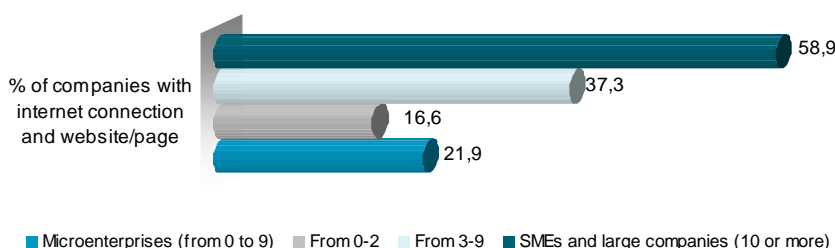
Source: ONTSI using data from the INE 2009

3.3.2. Web page

More than 37% of microenterprises with 3 to 9 employees that have Internet access have their own website, together with almost 17% of those with 0 to 2 employees that also have one; the average percentage for microenterprises with a website in Spain, therefore, is 21.9%. There are marked differences in relation to SMEs and large companies with close to 37 percentage points between them.

37.3% of microenterprises with 3 to 9 employees with Internet access have their own website

Figure 15. Companies with a website



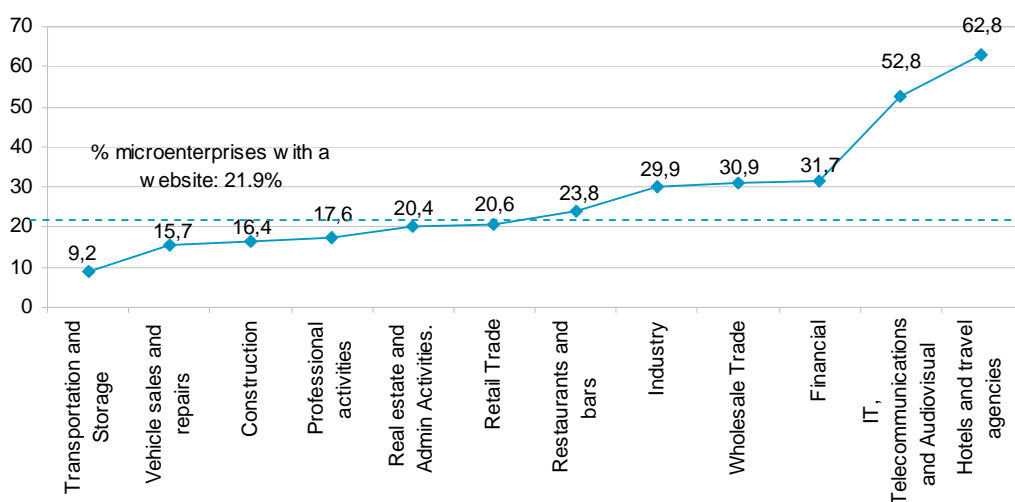
Base: total companies with Internet

Source: ONTSI using data from the INE 2009

The hotels and travel agencies sector is not the sector in which most microenterprises have Internet access although those that have access are leaders in terms of having a business website, as close to 63% of the connected microenterprises in the sector have one. This figure puts them 10 points above the companies in the next-highest sector, which is IT, telecommunications and audiovisual. These two sectors, although separated, are at the top of the sectoral classification of this indicator with more than 20 percentage points difference with the financial sector, which is ranked third.

Despite the fact that there are 6 activity sectors whose percentages of microenterprises with a website are below the national average, the difference is only marked in the case of transportation and storage.

Figure 16. Microenterprises with websites by sector



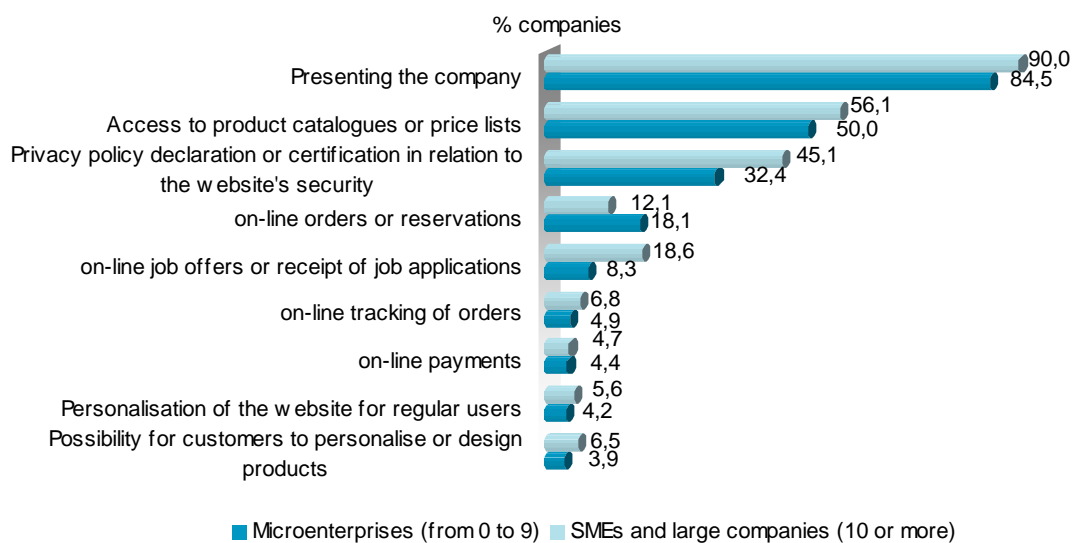
Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2009

The main use of the website which stands out clearly from all other aims is the same for SMEs, large companies and microenterprises alike, and that is to present the company. 90% (10 or more employees) and 84.5% (0 to 9 employees) use it for this purpose. Other significant uses, but which are noticeably far behind the major use, are access to product catalogues or price lists, as well as the privacy policy statement or certification of website security which is prioritised as a service in microenterprises by 50% and 32.4%, respectively.

A higher percentage of microenterprises than SMEs and large companies state that placing online orders or reservations is an objective for the website. In the case of online payments there is hardly any difference.

Figure 17. Aims / services of company websites



Base: all companies with Internet and a website

Source: ONTSI using data from the INE 2009

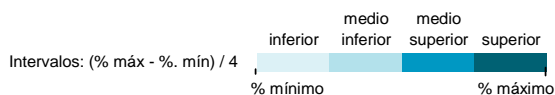
The company's aims in creating a website vary according to the sector these companies are in, given that the needs change depending on the activity they carry out. Thus, for example, presenting the company is the priority for companies in the retail trade sector, hotels and travel agencies, restaurants and bars, transportation and storage, real estate and administrative activities and the financial sector. The lowest percentage of microenterprises with this aim can be found in the wholesale trade sector.

Another one of the priority objectives for microenterprises as a whole is access to product catalogues and price lists. In addition, we can see that this is particularly notable in the case of hotels and travel agencies, the financial sector and wholesale trade, while it is least important in the case of professional activities.

The privacy policy statement or certification for website security is the third objective overall but ranks first in the financial sector. Personalisation of the website for regular users, which is one of the uses considered in a lower percentage of microenterprises, is taken into account in particular in companies in the construction, transportation and storage and the IT, telecommunications and audiovisual sectors.

Table 6. Aims / services of company websites by sector

% of microenterprises	Total Spain	Industry	Construction	Vehicle sales and repairs	Wholesale Trade	Retail Trade	Hotels and travel agencies	Restaurants and bars	Transportation and Storage	IT, Telecommunications and Audiovisual	Real estate and Admin Activities.	Professional activities	Financial
Presenting the company	84,5	83,6	87,2	82,1	77,2	90,4	90,1	90,2	91,1	82,4	89,6	81,2	92,1
Privacy policy declaration or certification in relation to the website's security	32,4	26,5	26,4	48,3	28,3	39,1	26,3	27,2	41,9	33,3	52,7	28,6	70,7
Access to product catalogues or price lists	50,0	54,1	48,4	48,1	61,8	58,3	73,0	35,5	57,2	50,5	58,5	27,5	64,5
Possibility for customers to personalise or design products	3,9	3,6	3,4	3,1	3,5	3,4	6,9	0,3	3,8	6,7	6,1	2,5	14,1
on-line orders or reservations	18,1	9,4	8,9	23,5	18,0	24,2	47,1	12,4	22,6	14,8	25,3	15,6	38,8
on-line payments	4,4	3,6	0,3	9,2	7,4	9,8	6,2	0,1	0,0	4,4	3,3	2,1	6,3
on-line tracking of orders	4,9	2,4	0,3	10,5	4,3	9,2	10,9	0,4	14,5	8,1	4,0	3,4	5,8
Personalisation of the website for regular users	4,2	1,1	9,6	6,9	1,2	1,2	4,6	0,2	8,4	8,0	7,2	2,8	1,5
on-line job offers or receipt of job applications	8,3	3,0	9,2	16,8	6,1	5,5	2,3	24,2	18,9	11,3	10,7	11,2	8,2



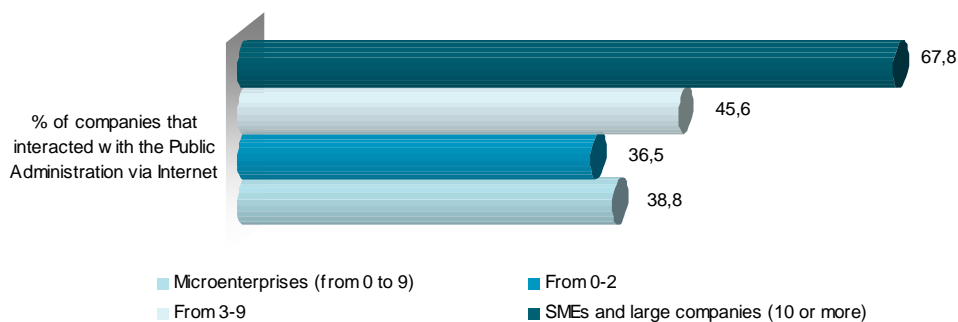
Base: total number of companies with Internet and a website

Source: ONTSI using data from the INE 2009

3.3.3. Interaction with the Administration

Around 39% of microenterprises with Internet access have some kind of interaction with the Public Administration via the Internet. The higher the number of employees, the higher the percentage of companies that have contact and deal with the e-Administration. The distances with regard to SMEs and large companies are still considerable given that in many cases it is a question of resources.

Figure 18. Companies that interact with the Public Administration via the Internet



Base: total companies with Internet

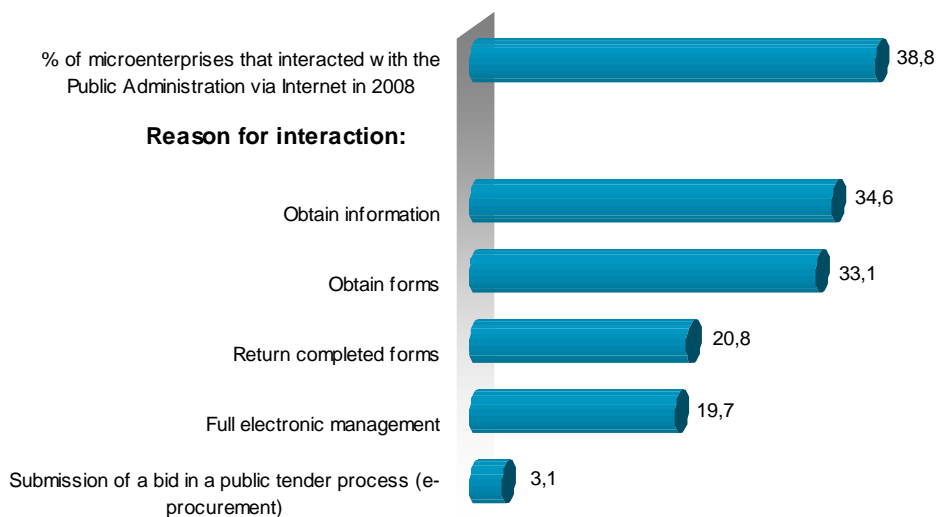
Source: ONTSI using data from the INE 2009

Spanish microenterprises' interaction with the Public Administration via the Internet is mainly in one direction as the two reasons for contacting that stand out are obtaining information and downloading forms, which is carried out by 34.6% and 33.1% of microenterprises, respectively. Two-way communication is scarcer, with almost 21% that return filled-in forms once they have been downloaded and almost 20% that carry out complete electronic management.

Obtaining information and downloading forms, main reasons for interacting with the e-Administration

Furthermore, the percentage of microenterprises that use the Internet to present a commercial proposal to a public tender, although it has grown around 2 percentage points in relation to the previous year, continues to be low (1.2%, to 3.1% at present).

Figure 19. Type of interaction with the Public Administration via the Internet



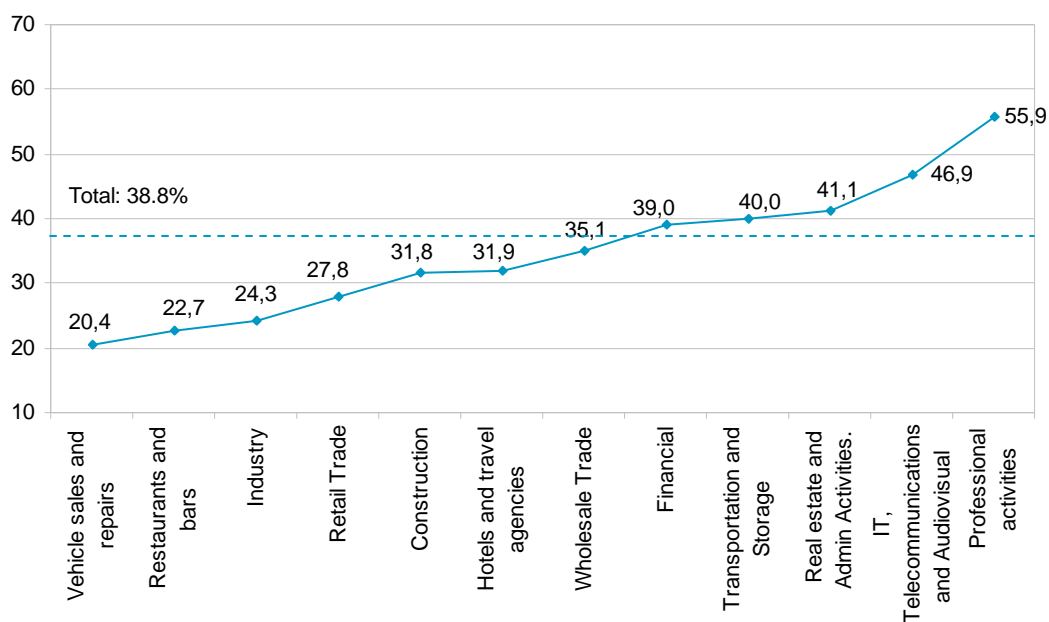
Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2009

The sector called professional activities has the highest percentage of companies with 0 to 9 employees that contact the Public Administration via the Internet (55.9%), putting it more than 17 points above the national average. IT, telecommunications and audiovisual activities are 9 points behind and 8 above the average, at 46.9%. The sale and repair of motor vehicles as well as restaurants and bars are two sectors with rates below 25%, while the financial sector is closer to the average.

Close to 56% of professional activities microenterprises interact with the PA via the Internet

Figure 20. Microenterprises that interact with the Public Administration via the Internet, by sector



Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2009

Microenterprises' one-way interaction with the Public Administration is most notable in the professional activities sector. The IT, telecommunications and audiovisual sector as well as the financial sector, although not as high, also have significant percentages of microenterprises that interact with the e-Administration either in order to get information or to get print outs or forms.

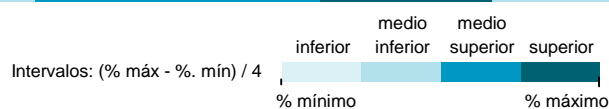
If we focus on two-way interaction, returning filled-in forms is more representative in the professional activities sector (32.4%), followed by the IT, telecommunications and audiovisual (24.5%), and the financial sectors (22.2%). With regard to full electronic management, the three previous sectors are at the forefront again with percentages within the maximum intervals. In relation to public tenders via the Internet, the financial sector is outside the leading group.

In this regard, it seems clear that irrespective of the type of interaction undertaken with the Public Administration via the Internet, the professional activities, IT, telecommunications and audiovisual, and the financial sectors, in that order, are those that have most telematic contact with the Administration.

The sector with the highest percentage of microenterprises that interact with the Public Administration via the Internet is the professional activities sector, irrespective of the type of interaction

Table 7. Type of interaction with the Public Administration via the Internet by sector

% microenterprises	Interaction with the eAdministration	Type of interaction:				
		Obtain information	Obtain forms	Return completed forms	Full electronic management	(e-procurement)
Total microenterprises	38,8	34,6	33,1	20,8	19,7	3,1
Industry	24,3	21,9	19,5	12,1	11,5	3,0
Construction	31,8	24,9	29,4	19,2	14,5	2,5
Vehicle sales and repairs	20,4	18,0	18,2	11,0	10,3	1,0
Wholesale Trade	35,1	29,9	27,0	18,4	16,1	1,8
Retail Trade	27,8	24,5	19,2	11,5	13,7	2,2
Hotels and travel agencies	31,9	26,6	24,0	16,8	15,3	0,9
Restaurants and bars	22,7	11,6	16,7	9,7	12,3	1,7
Transportation and Storage	40,0	31,4	29,3	13,2	15,1	1,9
IT, Telecommunications and Audiovisual	46,9	43,1	41,3	24,5	28,2	5,1
Real estate and Admin Activities.	41,1	35,0	35,9	20,4	20,2	3,5
Professional activities	55,9	54,0	50,1	32,4	30,9	4,7
Financial	39,0	32,6	33,6	22,2	27,9	2,2



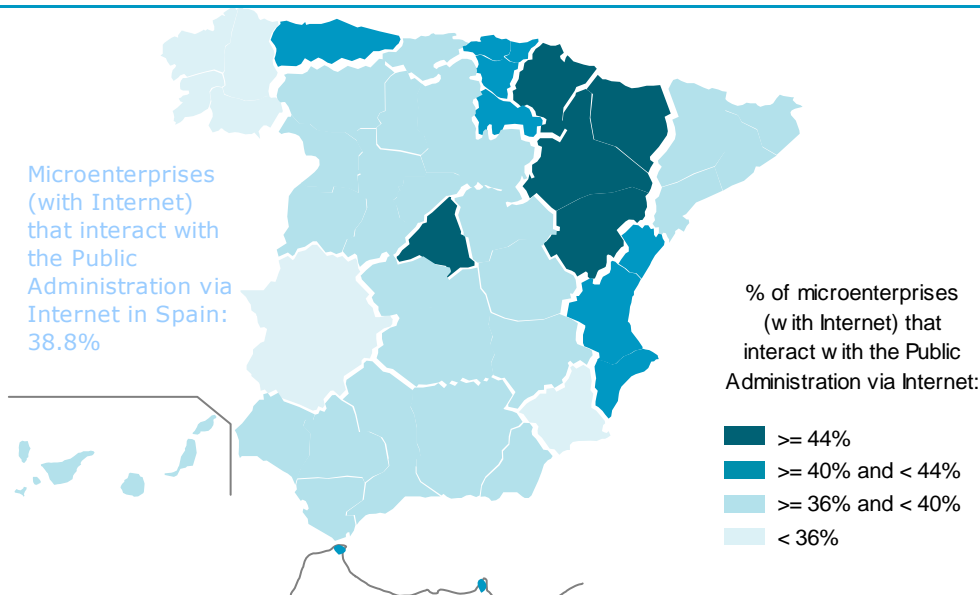
Base: all microenterprises with Internet

Source: ONTSI using data from the INE 2009

A regional analysis shows that Navarre, Aragon and Madrid have the highest percentages of microenterprises that interact with e-administration. Castile-Leon and Castile-La Mancha are two regions with values close to the national average.

46.3% of microenterprises in Navarre, 44.8% in Aragon and 44% in Madrid are in contact with the PA via the Internet

Figure 21. Percentage of microenterprises that interact with the PA by Autonomous Region



Base: all microenterprises with Internet

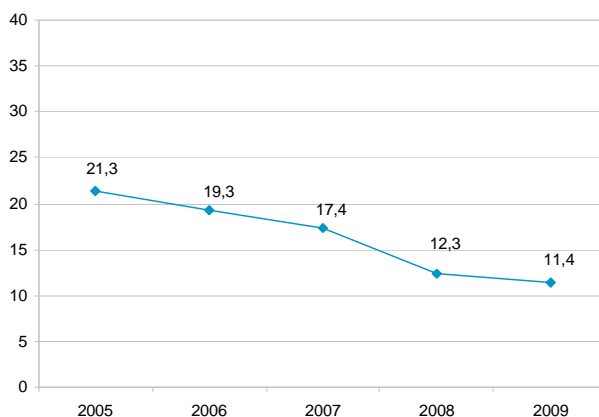
Source: ONTSI using data from the INE 2009

3.3.4. IT security

The general trend seen over recent years is that IT security is gradually improving. The percentage of microenterprises that have experienced some security problem in the past twelve months has dropped by almost one percentage point compared to last year. The main cause of problems is computer virus attacks and more than 11% of microenterprises have experienced this problem. With 10 percentage points difference, unauthorised access to the computer system or to company data is the second most common security problem. In last position is financial fraud, also known as phishing, with less than 1% of microenterprises having suffered this problem.

The percentage of microenterprises that have experienced security problems in the past twelve months has dropped one point to 11.4%

Figure 22. Evolution in the percentage of enterprises that had some type of security problem in the last 12 months

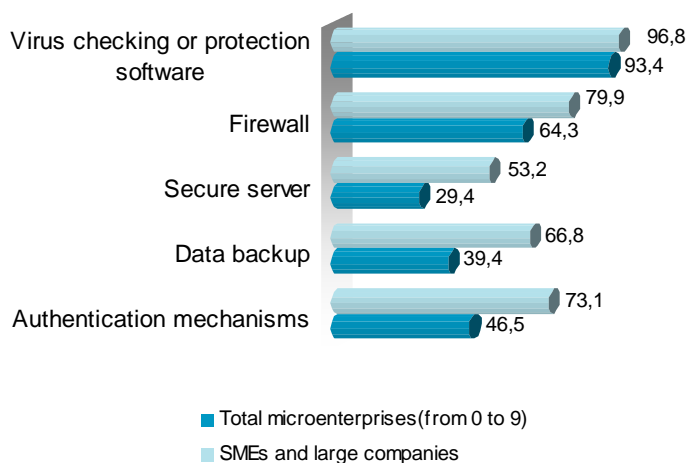


Base: total number of microenterprises with Internet access

Source: ONTSI using data from the INE 2009

Given that the major security problem microenterprises in the country are facing is in relation to computer viruses, it is logical that the main security service used is virus protection or scanning software; it is used by more than 93% of microenterprises with Internet access. The security services that follow this are firewalls (64.3%), authentication mechanisms (46.5%), data back-up (39.4%) and secure server (29.4%). We can see that the same pattern of adopting security measures is maintained both in the case of different-sized microenterprises as well as with SMEs and large companies.

Figure 23. Percentage of companies that use internal security services, by type of service



Base: all companies with Internet access

Source: ONTSI using data from the INE 2009

3.4. e-Business

New technologies and the Internet in particular are having a considerable impact on organisations. They have opened up a lot of business opportunities for companies with the particular feature that they must adapt to the new values and rules of the market. In this new way of doing business, known as e-business, the model is based on completely transforming agents' relationships which in turn has a direct impact on the way efficiency, innovation and creating value are managed.

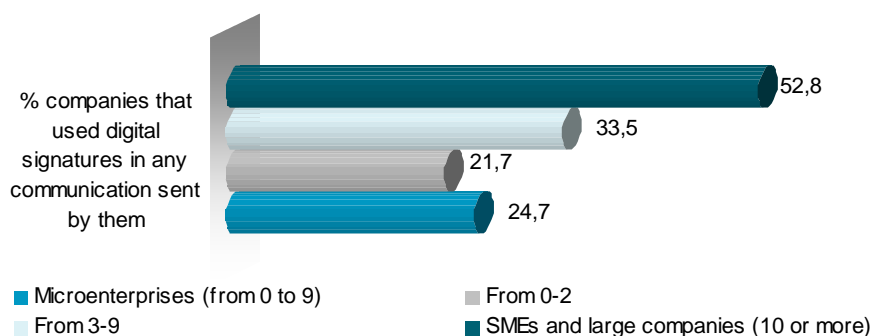
This section analyses the main indicators relating to the transformation of relationships between agents. Specifically, it analyses the degree of ICT integration in corporate administrative and production processes, both for external (with customers, suppliers or other agents in the field) and internal management purposes (between the different functional areas of the company).

Comparative analysis of indicators associated with e-business between microenterprises and SMEs and large companies must be conducted taking the differences in technological infrastructure resources between these two categories of companies into account. In this regard, the values of indicators in the case of companies with 10 or more workers are higher than those for microenterprises (0 to 9 employees).

3.4.1. Digital signature

There has hardly been any variation from last year; virtually a quarter of microenterprises with Internet (24.7%) have used digital signatures to communicate with some external agent over the course of the year. The percentage rises to almost 53% in SMEs and large companies. We can also see that the bigger the company, the higher the percentage of companies that have used it. In the case of those with 10 or more workers, the percentage stands at 33.5%, compared to 21.7% for companies with 0 to 2 employees.

Figure 24. Companies that use digital signature



Base: total companies with Internet

Source: ONTSI using data from the INE 2009

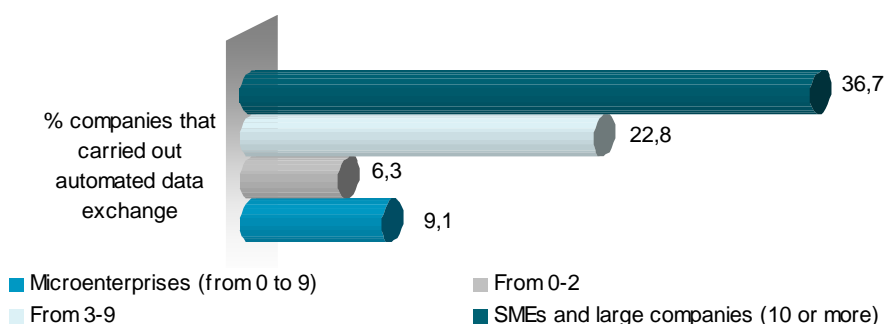
The digital signature is more widely-used in the area of dealings with the Public Administration (85.32% of microenterprises) than in relations with customers and/or suppliers (21.45%).

The digital signature has full acceptance in relations with the PA

3.4.2. Automated data exchange with external ICT systems

A little over 9% of microenterprises have used automated data exchange⁵ with other external ICT systems. In the case of companies with 3 to 9 employees the percentage rises to 23%, almost 14 points more than in microenterprises with 0 to 2 employees.

Figure 25. Companies that carry out automated data exchange with external ICT systems



Base: All companies

Source: ONTSI using data from the INE 2009

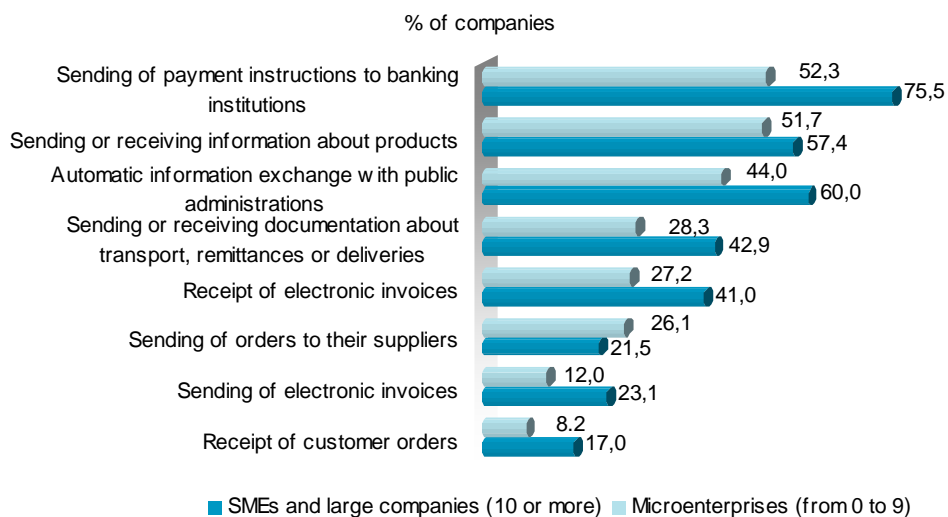
The two types of automated data exchange carried out by more than 50% of microenterprises, with very slight differences between them, were sending payment instructions to banking entities (52.3%) and sending or receiving product information (51.7%).

The exchange carried out in SMEs and large companies is mainly centred around automated information exchange with Public Administrations (60%) in addition to sending payment instructions to banking entities (75.5%).

Sending electronic invoices, alongside receiving customer orders were at the bottom of the list of reasons for exchanging data both for microenterprises and for SMEs and large companies.

⁵ Automated data exchange between the company and other external ICT systems consists of exchanging information (for example, orders, invoices, payment transaction or product descriptions) via the Internet or other telematic networks, in an agreed format that enables the data to be processed automatically (e.g. XML⁵, EDIFACT⁵, etc.). Handwritten e-mails are not included in the automated data exchange item.

Figure 26. Type of automated data exchange with external ICT systems (ranked by reason for the communication)



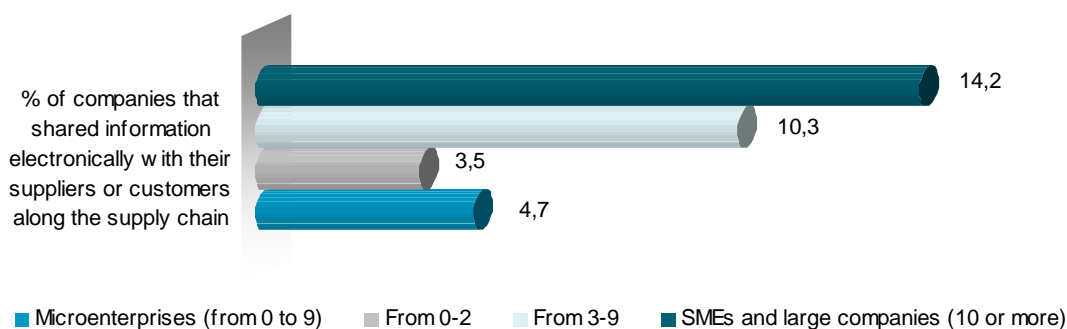
Base: total number of companies that carry out automated data exchange with external ICT systems

Source: ONTSI using data from the INE 2009

3.4.3. Electronic exchange of information with suppliers and customers

Almost 5% of microenterprises exchange information electronically⁶ with their suppliers or customers on a regular basis, a rate that doubles in the case of microenterprises in the category of 3 to 9 employees (10.3%). The difference between these microenterprises and SMEs and large companies is not so marked, with companies with 10 or more workers leading by barely 4 percentage points.

Figure 27. Companies that shared information electronically with their suppliers or customers



Base: All companies

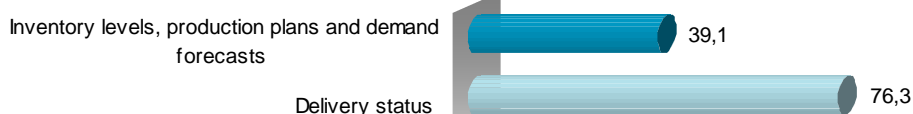
Source: ONTSI using data from the INE 2009

⁶ Through telematic networks (Internet or other connections) excluding handwritten e-mail.

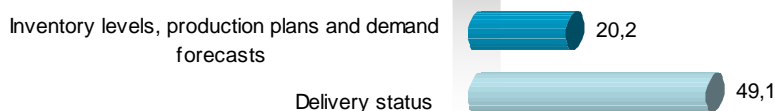
Regardless of whether the contact is with customers or suppliers, the main aim of electronic communication is to share information on the status of shipments. Thus, 76.3% of microenterprises communicate with their suppliers for this reason, compared to a little over 39% that monitor inventory levels, production plans and demand forecasts. The percentages for customer relations are 49.1% for queries about shipment status and 20.2% for monitoring inventory, production and demand.

Figure 28. Type of information shared electronically with suppliers or customers

% of companies that shared with their suppliers on a regular basis:



% of companies that shared with their customers on a regular basis:



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 2009

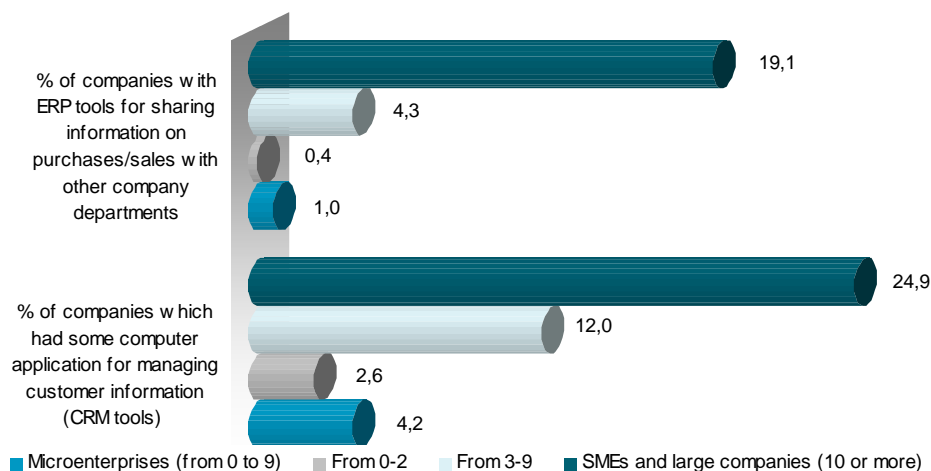
3.4.4. ERP and CRM tools

Barely 1% and 4% of microenterprises have ERP tools⁷ for sharing information on purchase/sales with other company departments and CRM tools⁸ for managing information on their customers, respectively. The percentages increase in line with the size of the company. It is worth noting that in both SMEs and large companies as well as in microenterprises, CRM tools are more common than ERP tools.

⁷ ERP (Enterprise Resource Planning): Group 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.

⁸ 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 29. Companies with ERP and CRM computer tools



Base: All companies

Source: ONTSI using data from the INE 2009

3.5. Electronic commerce

The purchase/sale of products or services by electronic means such as the Internet and other computer networks has become an increasingly common practice in the business world. The benefits associated with its implementation have led it to become widespread.

Below is an analysis of the electronic commerce situation in Spanish microenterprises based on different indicators. In addition to conducting a sector-by-sector study⁹, that provides proof of how variable e-commerce is, microenterprises are also compared to SMEs and large companies. Although commercial transactions via electronic means are more common in companies with 10 or more employees, in recent years the presence of microenterprises in this area has increased considerably.

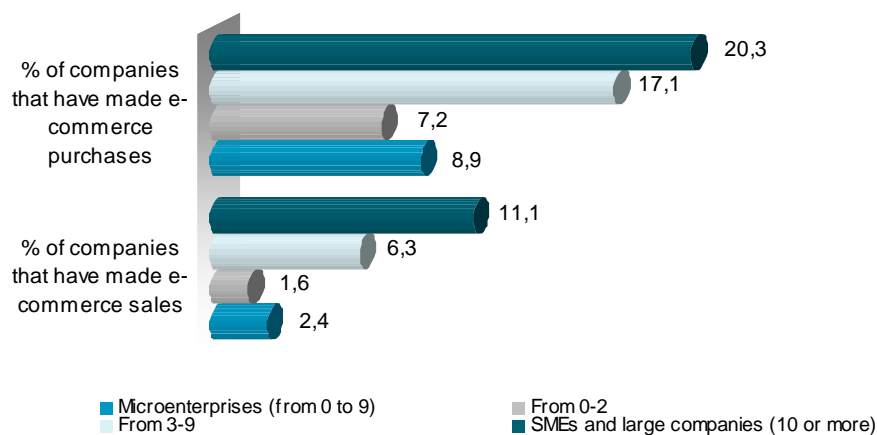
3.5.1. Companies that use electronic commerce

Just over 17% of microenterprises with 3 to 9 employees purchase via e-commerce, barely 3 percentage points less than in SMEs and large companies (20.3%). Microenterprises with 0 to 2 employees have 7.2% and this puts the average at around 9%.

17% of microenterprises with 3 to 9 employees make purchases via e-commerce

⁹ The electronic commerce survey does not include the financial sector

Figure 30. Companies purchasing and selling by electronic commerce



Base: All companies

Source: ONTSI using data from the INE 2009

An average of 2.4% of microenterprises have made e-commerce sales. Breakdown according to company size shows that 1.6% corresponds to microenterprises with 0 to 2 employees and 6.3% to those with 3 to 9 workers. The latter shows the least difference compared to SMEs and large companies, which have a percentage of a little over 11%.

A higher percentage of companies make purchases than sales through electronic commerce. This is not only the case in general terms for companies with less than 10 employees as a whole but in virtually all the activity sectors in question. The percentage of microenterprises that make sales via electronic commerce is only higher in the case of hotels and travel agencies.

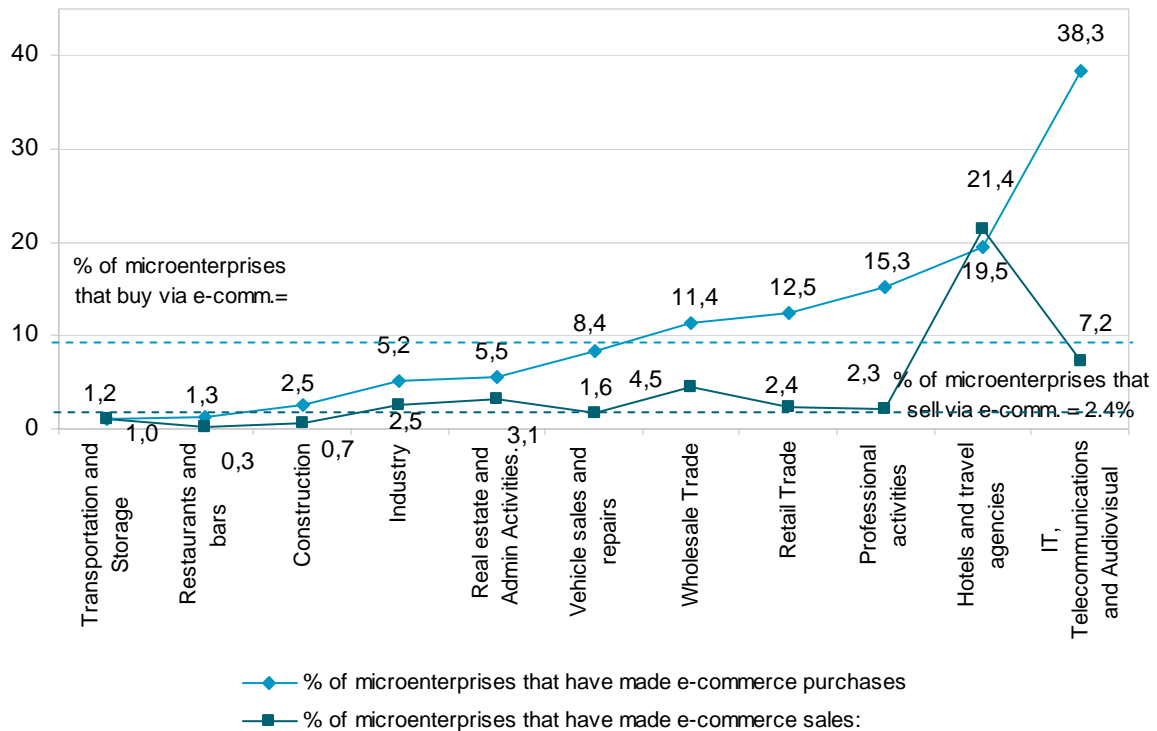
The sector-by-sector breakdown for the purchase indicator highlights that IT, telecommunications and audiovisual companies are, by a wide margin, those that make the most e-commerce purchases (38.3%); behind, at almost 17 percentage points is the hotels and travel agencies sector, in second place (21.4%). Five sectors of the 12 included in this study had above-average values (8.9%).

Hotels and travel agencies, the only sector where electronic sales are higher than purchases. 21.4% of its microenterprises use e-commerce for sales

Furthermore, hotels and travel agencies not only have the highest percentage of microenterprises that sell via electronic commerce (21.4%), as was mentioned above, it is the only sector where e-commerce sales by companies exceed purchases. The difference in relation to the second-ranked sector, IT, telecommunications and audiovisual, is a little over 14 percentage points.

Companies with activities connected to transportation and storage, as well as bars and restaurants have the lowest percentages when it comes to buying and selling via electronic commerce. Construction and industry also have very low values.

Figure 31. Companies purchasing and selling by electronic commerce, by sector



Base: all microenterprises

Source: ONTSI using data from the INE 2009

3.5.2. Importance of electronic commerce

Analysis of the importance of electronic commerce should be conducted taking both the ratio between purchases and sales via e-commerce out of all sales and purchases in all companies as well as in those that used e-commerce into account.

We can see that the percentage of e-commerce purchases out of all purchases is 4.2% in the case of all microenterprises. If we refer to sales, the rate does not reach 3%. In both cases the differences in relation to SMEs and large companies are marked, with higher values in companies with 10 or more employees.

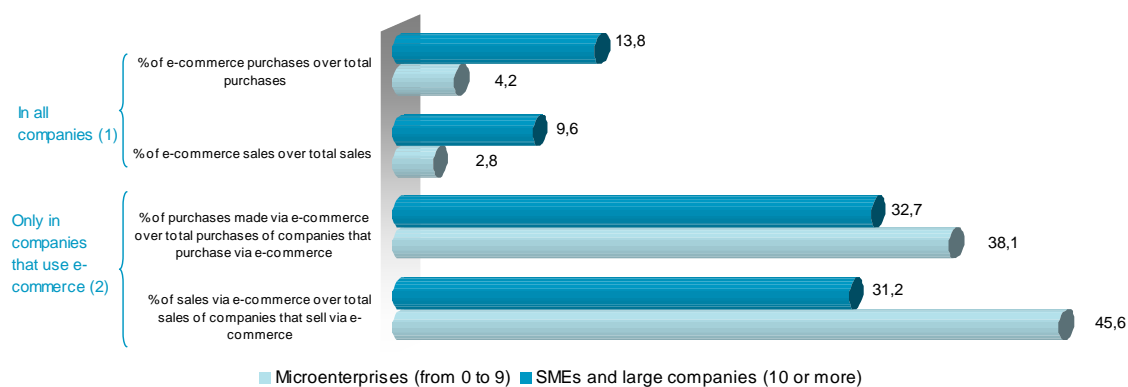
The importance of electronic commerce in companies that use it is more significant in microenterprises than in larger companies

However, if we only take the importance in those companies that have carried out electronic purchase/sale transactions into account, we see that both the percentage of e-commerce purchases over all purchases, as well as sales out of all sales, are higher in the case of microenterprises.

The percentage of sales via e-commerce out of all sales in microenterprises that sell via e-commerce stands at 45.6%

Another of the issues that should be highlighted is that, taking the total number of companies into account, purchases are more important than sales, while if we conduct the analysis specifying only those that use e-commerce, sales are more important than purchases.

Figure 32. Amount of e-commerce purchases/sales in all companies vs. the amount of e-commerce purchases/sales in companies that purchase/sell via e-commerce

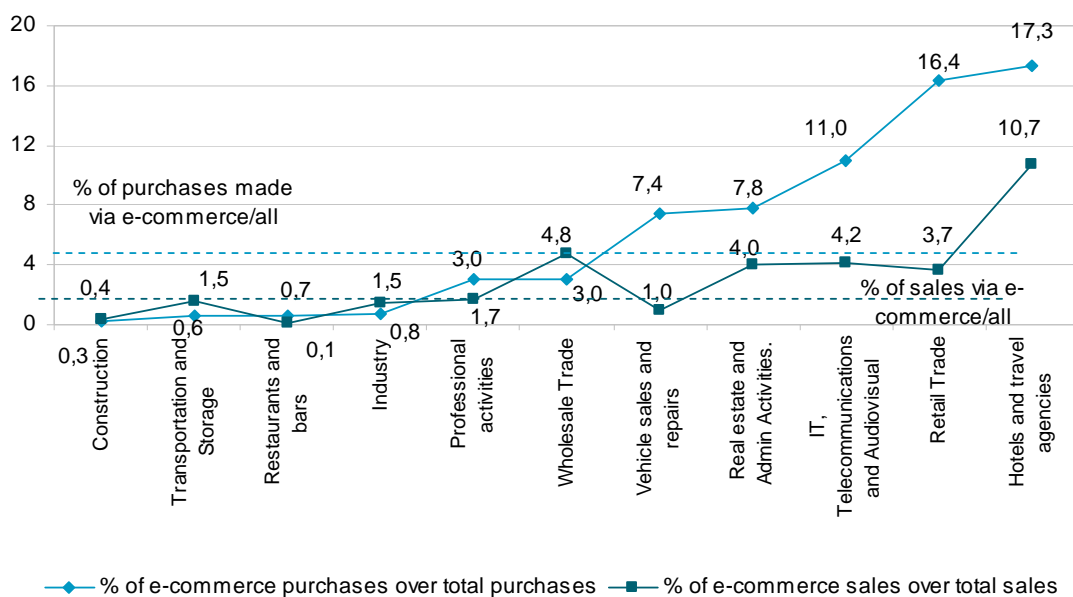


Base 1: Percentage of the amount of purchases/sales via e-Commerce in relation to all purchases/sales of all companies
Base 2: Percentage of the amount of purchases/sales via e-Commerce in relation to all purchases/sales of companies that purchased/sold via e-Commerce

Source: ONTSI using data from the INE 2009

Although the number of microenterprises that use e-commerce for selling products has not changed greatly since last year, there is a more notable change in the volume of sales through this channel, as the importance of these sales has virtually doubled in companies that sell using this means.

Figure 33. 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: 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 2009

Most notable are microenterprises in the hotels and travel agencies sector with an amount of e-commerce purchases out of all purchases that reaches 17.3%. It is followed by retail trade (16.4%). Other sectors that are above average are, in this order, the IT, telecommunications and audiovisual sector, real estate and administrative activities and the sale and repair of motor vehicles, whose percentages of e-commerce purchases out of all purchases range between 7 and 11%.

Hotels and travel agencies have the highest amount of e-commerce purchases and sales out of all purchases and sales

The remaining six sectors are below the overall average. The difference between the sector with the highest percentage and the minimum, which corresponds to construction (0.3%), is 17 percentage points.

On the sales side, the order changes. Although microenterprises categorised as hotels and travel agencies are at the top of the percentage of e-commerce sales out of all sales (10.7%), wholesale trade microenterprises are in second place (4.8%).

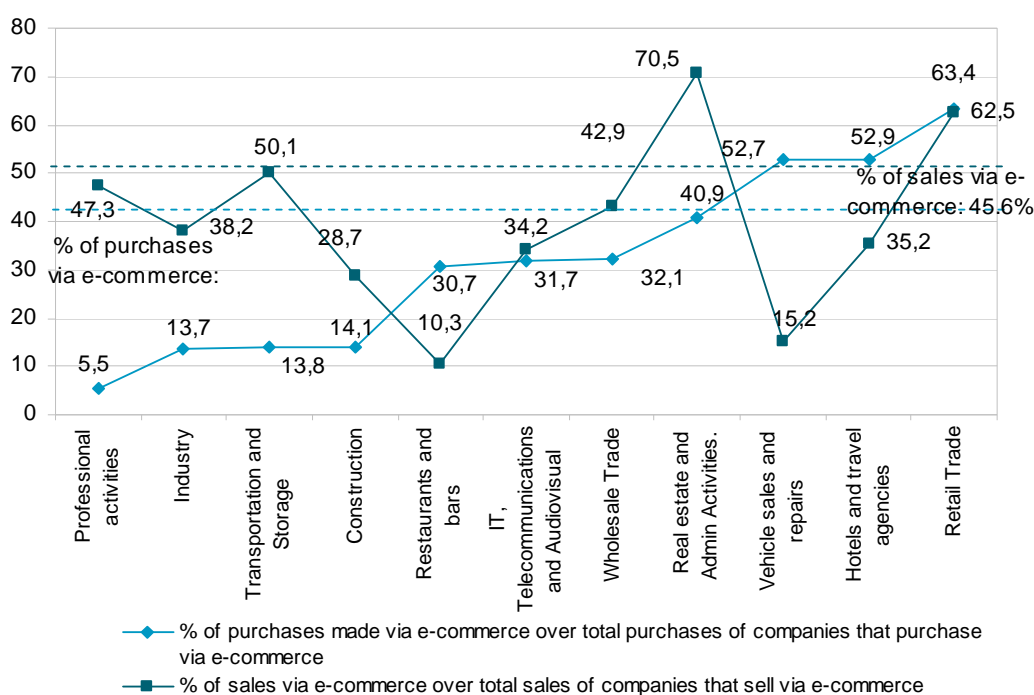
Although in general terms, as was pointed out previously, the importance of e-commerce purchases out of all purchases is higher than the importance of e-commerce sales out of all sales, in certain sectors the opposite is true, as is the case with wholesale trade where the importance of

Wholesale trade, industry and transportation and storage are the sectors where the percentage of e-commerce sales out of all sales is higher than e-commerce purchases out of all purchases

sales is 4.8% while the importance of purchases is 3%. The same is true with industry and transportation and storage, where the importance of sales is 1.5%, compared to 0.8% and 0.6% for purchases, respectively.

Considering only companies that carried out e-Commerce transactions, purchases were led by retailers: more than 60% of purchases in companies that made e-commerce purchases were made through this channel. In the case of sales, real estate and administrative activities head the ranking of sectors (70% of all sales).

Figure 34. 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



Base: 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 2009

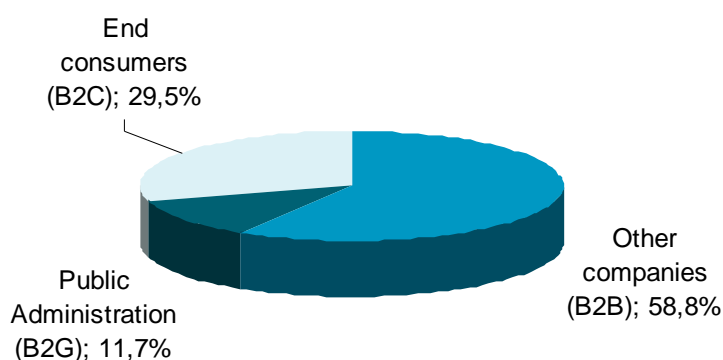
3.5.3. Distribution of the amount of e-commerce sales according to the type of customer

The type of customer that receives the sales determines the different e-commerce categories. Thus, 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).

In this regard, we can see that the major customers of microenterprises that sell via e-commerce are other companies (58.8%). We can see that end consumers are targeted by 29.5% of e-commerce sales. Lastly, with 12% of sales, is the Public Administration.

The growth of a little over 10 percentage points in B2C sales in microenterprises is noteworthy, where it grew from 19% of all e-commerce sales last year to 29.5%. This increase consolidates microenterprises in this e-commerce category compared to companies with 10 or more employees where B2C represents 7.5%.

Figure 35. Distribution of the amount of e-commerce sales according to the type of customer



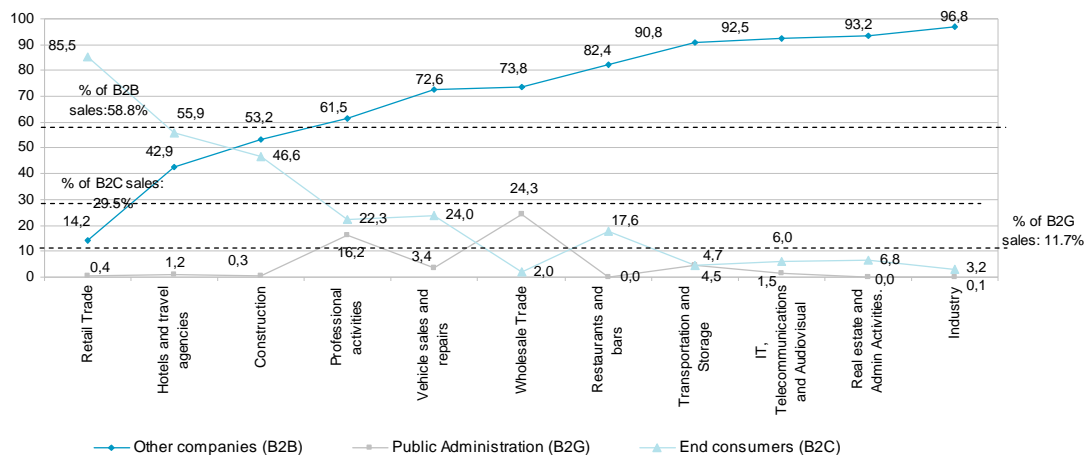
Base: total amount of sales made via the Internet in microenterprises

Source: ONTSI using data from the INE 2009

Although the distribution of e-commerce sales varies depending on the microenterprise's activity sector, in general the average pattern that Spanish microenterprises follow remains the same. This means that in the majority of sectors the main customer is another company, followed by the end consumer. The only cases where this distribution is not maintained are retail trade and hotels and travel agencies, where the main customer is the end consumer.

The only sector where the Public Administration has more significance as a customer (24.3%) than the end consumer (2%) is in wholesale trade.

Figure 36. Distribution of the amount of e-commerce sales according to the type of customer, by sector



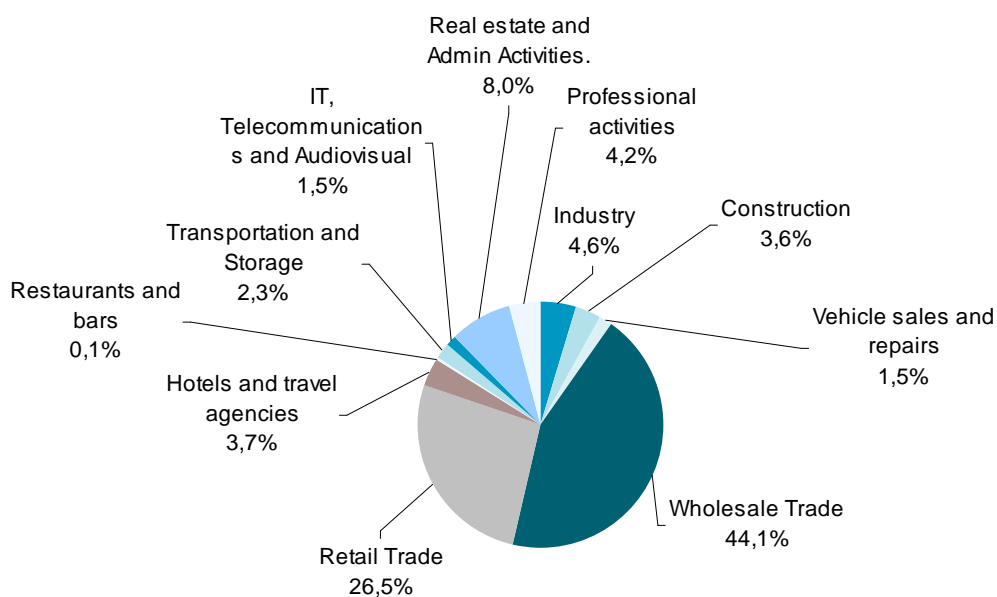
Base: total amount of microenterprise e-commerce sales

Source: ONTSI using data from the INE 2009

Two sectors account for more than 70% of e-commerce sales in terms of revenue: wholesale trade (with 44.1% of all sales) and retail trade (26.5%). In all other sectors the percentages range between 8% of real estate and administrative activities to 0.1% in restaurants and bars.

Wholesale and retail trade account for more than 70% of revenue from e-commerce sales

Figure 37. Distribution of the amount of e-commerce sales by sector



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

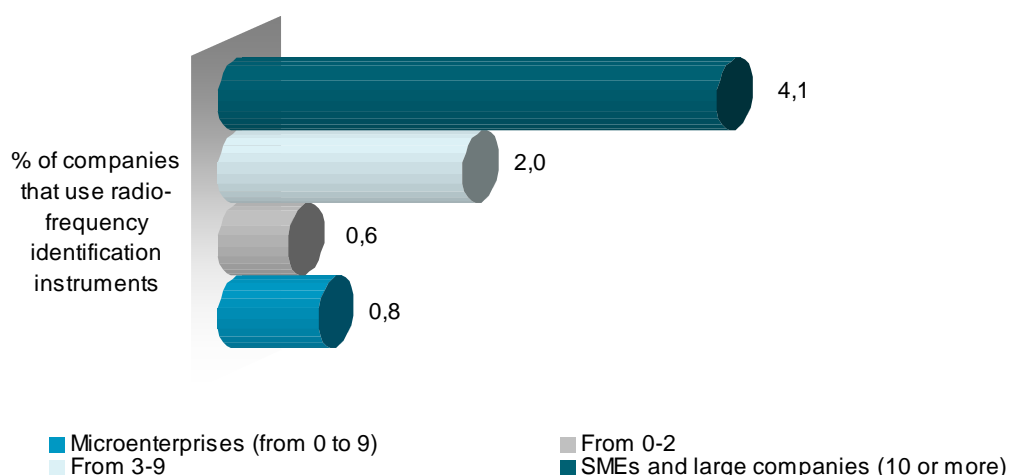
Source: ONTSI using data from the INE 2009

3.6. Use of Radio-Frequency Identification Technology (RFID)

Radio-Frequency Identification Technology (RFID) forms an automatic identification system for storing and recovering data remotely through devices known as RFID identification labels, transponders or tags. An RFID tag is a device that can be incorporated into a product or object to transmit information by radio-frequency.

The percentage of companies that use this technology is still very low, both for microenterprises and SMEs and large companies. In the first group the average stands at 0.8%. A size-based breakdown highlights that microenterprises with a larger number of employees are the ones that most use RFID technology (2%). Although the rate doubles in the case of companies with 10 or more workers (4.1%), they still have low percentages.

Figure 38. Use of Radio-Frequency Identification Technology (RFID)

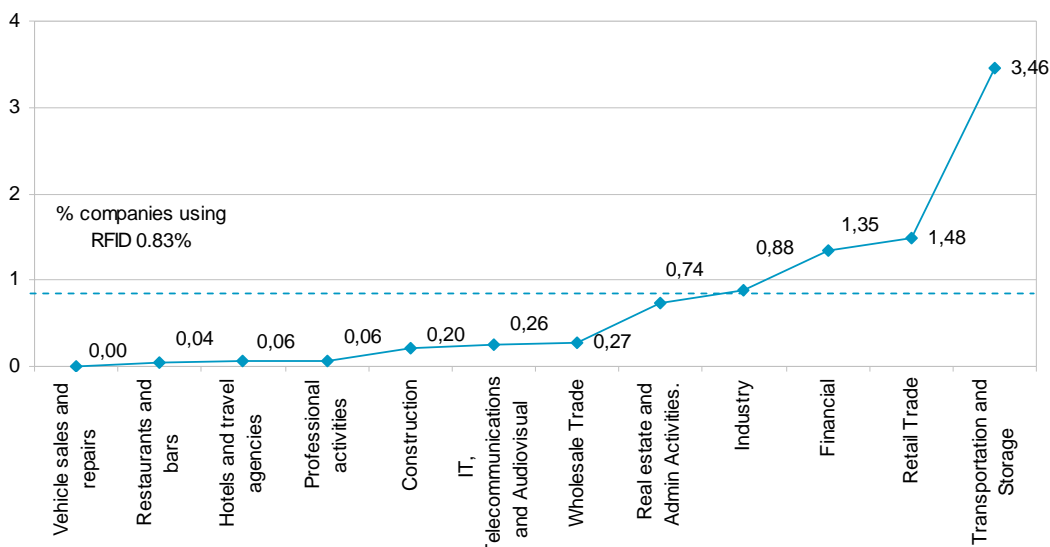


Base: All companies

Source: ONTSI using data from the INE 2009

Companies in the transportation and storage sector clearly stand out in the use of this technology, as around 3.5% state that they use RFID. Almost two percentage points below this and 0.6 points above the average that stands at 0.8%, we find retail trade microenterprises (1.5%). Two sectors with percentages around the average are industry (0.9%) and real estate and administrative activities (0.7%). All other sectors have residual levels.

Figure 39. Use of Radio-Frequency Identification Technology (RFID), by sector

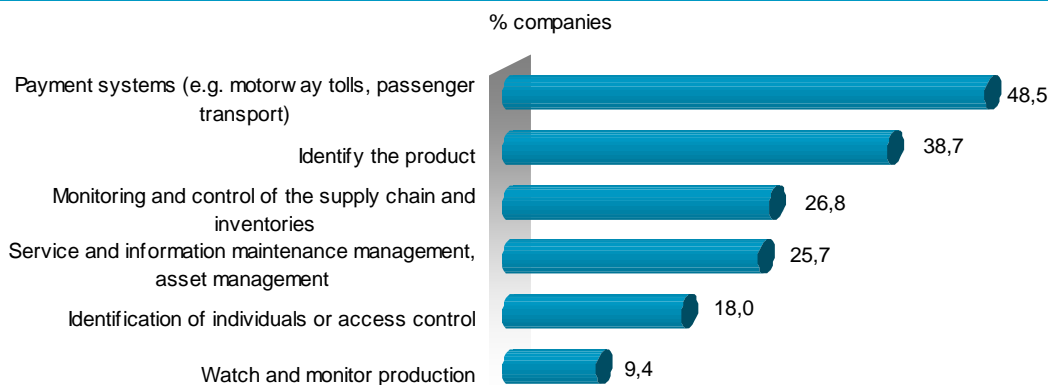


Base: all microenterprises

Source: ONTSI using data from the INE 2009

More than 48% of the companies that use RFID technology have incorporated it into payment systems such as motorway tolls or passenger transport, for example. Almost 39% use it for product identification. Monitoring and controlling the supply chain and inventories as well as service and information maintenance management are carried out by 25.7% and 26.8% of companies with RFID. 18% corresponds to identifying individuals or access control and 9.4% to production control.

Figure 40. Aims of Radio-Frequency Identification Technology (RFID) use



Base: total number of microenterprises that use RFID technologies

Source: ONTSI using data from the INE 2009

4. TECHNICAL DATA ON THE STUDY

Statistics source

Tables of the Survey on the Use of Information and Communication Technologies and Electronic Commerce Use in Companies 2009, carried out by the INE (Spanish Statistics Institute) and supplied to Red.es through a collaboration agreement.

Sample

Companies with less than 10 employees: 13,514 microenterprises

Demographic scope

Population formed by companies whose main activity is described in sections C, D, E, F, G, H, I, 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 and section N according to the National Economic Activity Classification (CNAE-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, hotel and catering, information and communications, financial and insurance activities, real estate activities, scientific and technical professional activities and administrative activities and auxiliary services.

Territorial scope

Spain (Detailed analysis by Sector and Autonomous Region)

Date of fieldwork

The information referring to ICT infrastructures and use was compiled in the first quarter of 2009 while the reference period for electronic commerce is December 2008.

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