



Integration of Digital Technology

Digital Economy and Society Index Report 2018
Integration of Digital Technologies

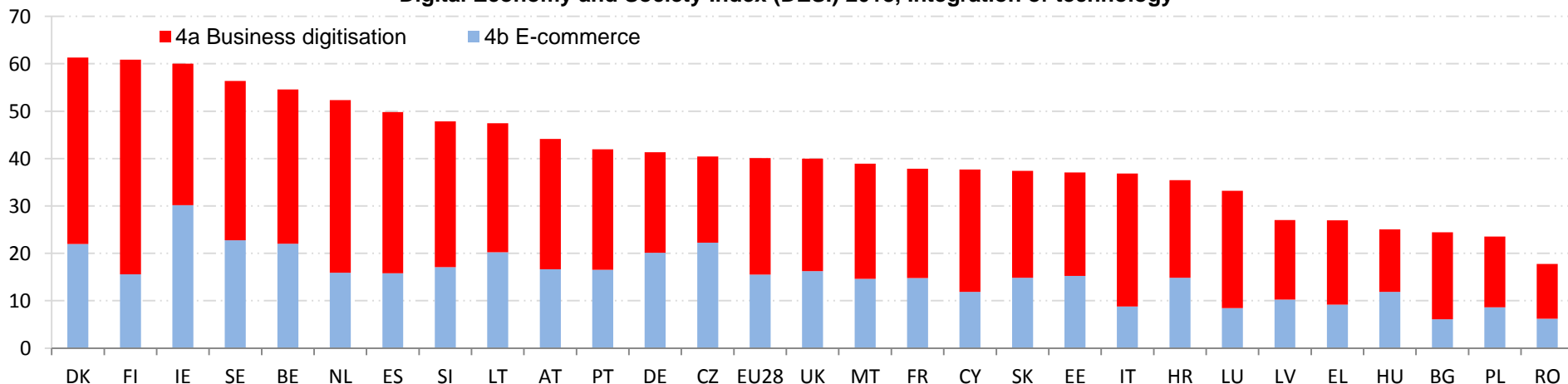
On **Integration of digital technology**, Denmark scored highest, followed by Finland, Ireland and Sweden. Romania, Poland, Bulgaria and Hungary scored lowest.

Integration of digital technology covers (a) 'business digitisation' and (b) 'e-commerce'. 'Business digitisation' has five indicators (as % of firms using): electronic information sharing, Radio Frequency Identification (RFID), social media, e-invoices and cloud solutions. E-commerce has three indicators: the percentage of small and medium-sized enterprises (SMEs) selling online, e-commerce turnover as a percentage of total turnover of SMEs; and the percentage of SMEs selling online cross-border.

Northern countries continue to be leading in the integration of digital technologies.

EU 28	Value 2018	Value 2017
4a1 Electronic Information Sharing % enterprises	34% 2017	NA 2015
4a2 RFID % enterprises	4.2% ↑ 2017	3.9% 2014
4a3 Social Media % enterprises	21% ↑ 2017	20% 2016
4a4 e-invoices % enterprises	NA 2017	17.7% 2016
4a5 Cloud % enterprises	NA 2017	13.5% 2016
4b1 SMEs Selling Online % SMEs	17.2% → 2017	17.2% 2016
4b2 E-commerce Turnover % SME turnover	10.3% ↑ 2017	9.4% 2016
4b3 Selling Online Cross-border % SMEs	8.4% ↑ 2017	7.5% 2015

Digital Economy and Society Index (DESI) 2018, Integration of technology



Source: European Commission services based on Eurostat data

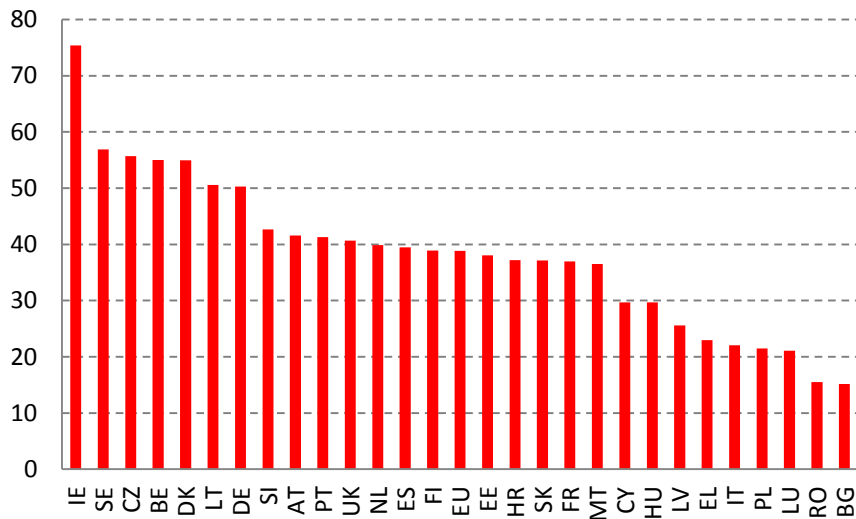
The opportunities of **e-commerce** have been largely exploited by Ireland, Sweden and the Czech Republic whereas the adoption of **eBusiness** technologies is larger in Finland, Denmark and the Netherlands

Enterprises are, to a similar extent, implementing both eBusiness and e-commerce solutions. When analysing the relative shares, e-commerce is the main driver of digitisation for the Czech Republic, while Italy, Bulgaria, Finland and Luxemburg are mainly investing in eBusiness.

SMEs in Ireland over-perform in all the e-commerce dimensions considered in the indicator. 29.5 % of Irish SMEs are selling online (more than half of them are selling cross-border). This helps them to generate nearly a quarter of their turnover (22.9 %).

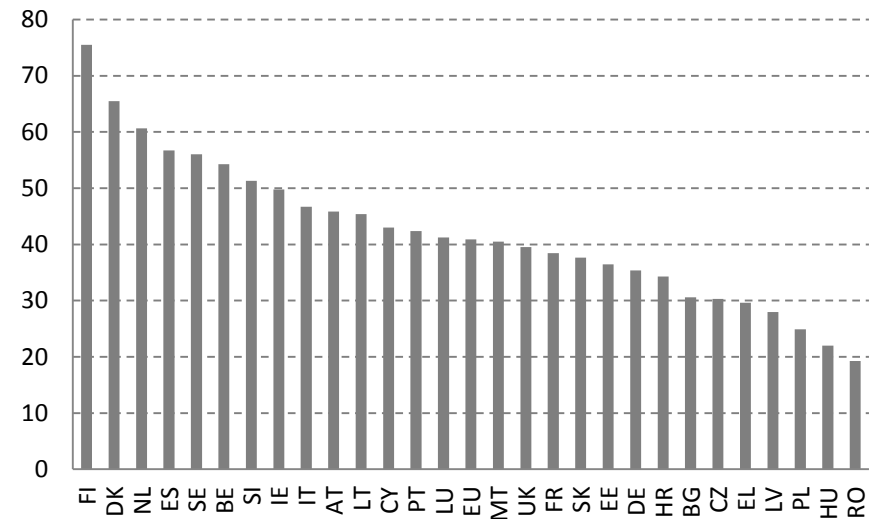
More than half of the businesses in Belgium have implemented an electronic information sharing system (54 %). The adoption of RFID in Bulgaria (9.2 %) is more than the double of the EU average. 42.4 % of the United Kingdom enterprises are active on social media while 31.7 % of the Spanish companies make use of eInvoices. Cloud services turn out to be adopted by almost half of the enterprises in Finland (48.4 %).

DESI 2018 - E-commerce index



Source: European Commission services based on Eurostat data

DESI 2018 - Business digitization index



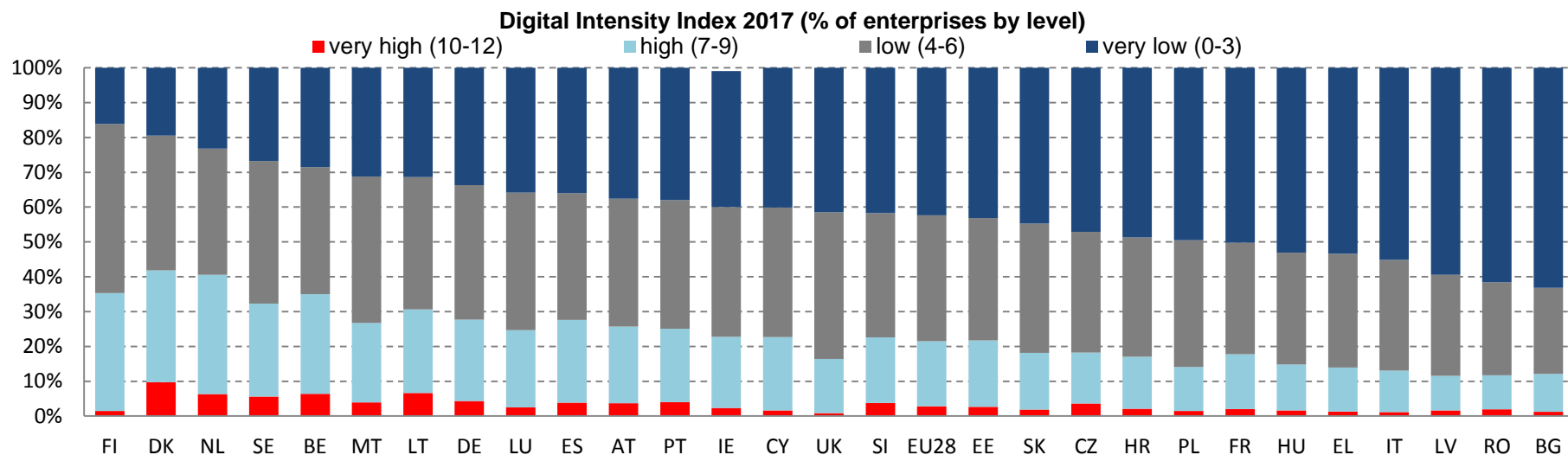
Source: European Commission services based on Eurostat data

Only **a fifth of companies** in the EU-28 are **highly digitised**, but the situation across countries is varied: while **40 %** of companies in Denmark and the Netherlands are highly digitised, in Bulgaria and Romania it is **1 in 10**.

The Digital Intensity Index (DII) measures the availability at firm level of 12 different digital technologies: internet for at least 50 % of persons employed, recourse to ICT specialists; fast broadband (30 Mbps or above); mobile internet devices for at least 20 % of persons employed; a website or homepage; a website with sophisticated functions; social media, sharing supply chain management data electronically; the use of Enterprise Resource Planning (ERP) software packages; the use of Customer Relationship Management (CRM); e-commerce web sales accounting for over 1 % of total turnover and business-to-consumer (B2C) web sales of over 10 % of total web sales. The value for the index therefore ranges from 0 to 12.

Denmark is the only country in the EU where the percentage of firms with a very high DII (i.e. possessing at least 10 out of the 12 monitored digital technologies) is close to 10% .

By contrast, in some countries such as Bulgaria, Romania, Latvia, Italy, Greece, Hungary and France, the majority of businesses (more than 50%) have not yet invested heavily in digital technologies (i.e. have a very low DII), often having just a simple website and a few computers.



Source: Eurostat

Digital transformation of European businesses is driven by fast broadband connections, social media and mobile applications.

The table below shows the degree of penetration and speed of adoption of the different technologies monitored by the DII. Large companies are more digital than SMEs. While some dimensions seem to be reaching saturation (e.g. having a simple website), at least for large companies, for most there is still room for improvement.

Key indicators tracking digitisation processes	Year	% of EU28 enterprises		Variation 2017-2015 (pp)	
		Large	SMEs	Large	SMEs
Having a web site or homepage	2017	94%	76%	0	2
Website has some interactive functionalities	2017	74%	58%	2	3
Use any social media	2017	72%	47%	9	8
>50% of the persons employed use computers & Internet	2017	50%	40%	3	2
Fastest broadband connection is at least 30 Mb/s	2017	69%	37%	15	12
Have ERP software package to share information	2017	76%	33%	Not comparable with 2015	
Use Customer Relationship Management (CRM)	2017	62%	32%	0	1
>20% of workers with portable devices for business use	2017	38%	32%	7	5
Employ ICT specialist		75%	18%	-3	-1
Selling online (at least 1% of turnover)	2017	39%	17%	1	1
Share electronically supply chain management data	2017	47%	17%	-1	1
Exploit B2C eCommerce	2017	9%	7%	1	1

Source: European Commission services based on Eurostat data

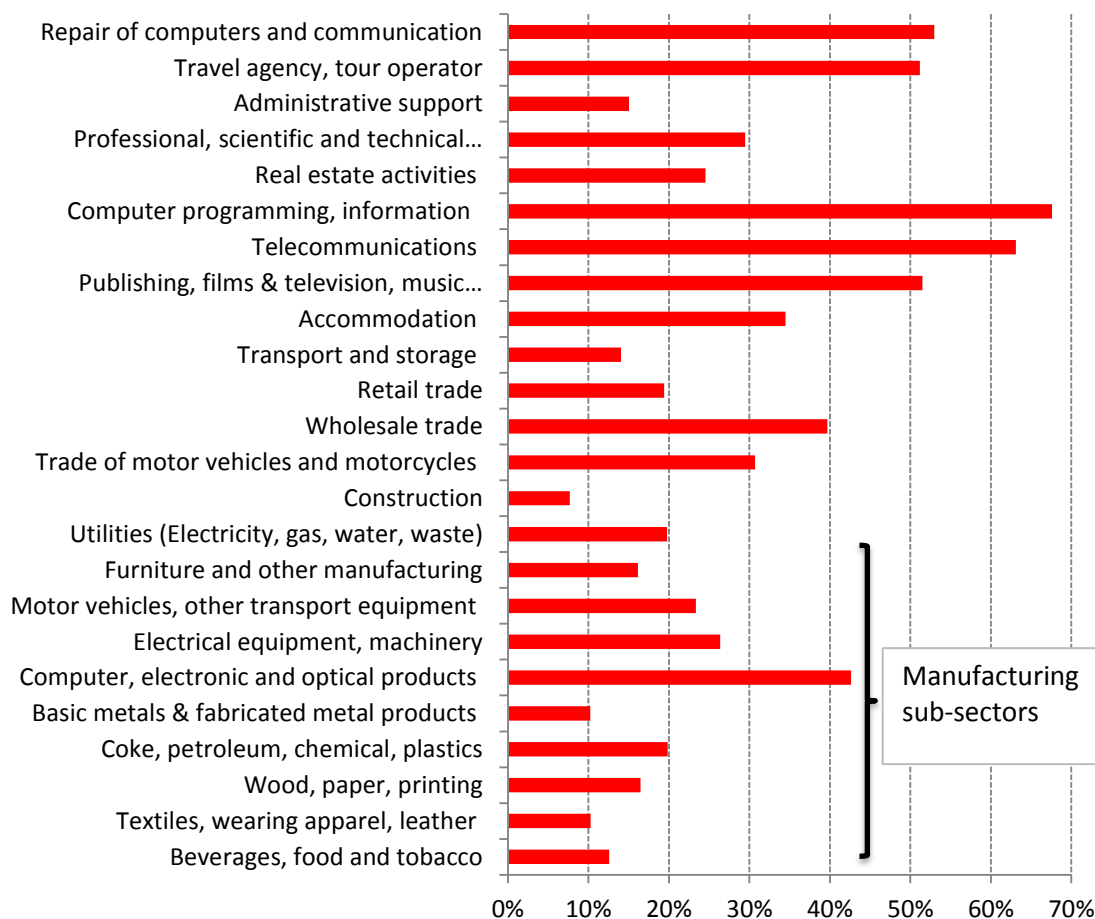
The digitisation of economic sectors is progressing at different speeds, according to their own specific needs and starting points.

As expected, it is the different segments of the ICT sector (from telecoms to the manufacture of computers) that tend to be the most digitised sectors of the economy. However, other sectors such as 'Repairs of computers and communication', as well as travel agencies and the media sectors are also highly digitised.

Some sectors are still impervious to digital changes: for example, in the construction sector only 7.7 % of the enterprises have a high or very high DII.

The distribution of the DII by economic activity is similar across EU countries. Denmark, The Netherlands, Finland and Sweden are over performing in many of the sectors. Some positive exceptions of higher digitisation exist in the 'accommodation' sector (Malta, Lithuania, Slovenia, Spain, Estonia, Portugal and Croatia), 'professional scientific and technical activities' (Belgium, Malta and Lithuania), real estate (Cyprus and Spain) and 'transport and storage' (Cyprus)

Enterprises with high or very high digital intensity index by economic activity, EU, 2017
(% enterprises)



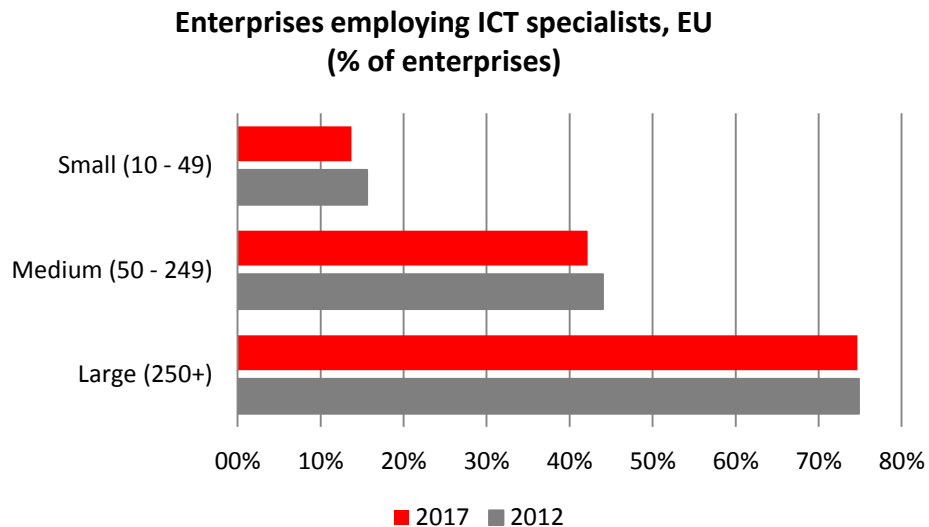
Source: European Commission services based on Eurostat data

Size is a major factor enabling companies to digital transform. **SMEs** are closing the gap with large companies but there are a lot of opportunities still to be exploited.

The adoption of digital technologies varies strongly with company size. Large enterprises have a scale advantage and more capacity to employ at least some internal ICT specialists.

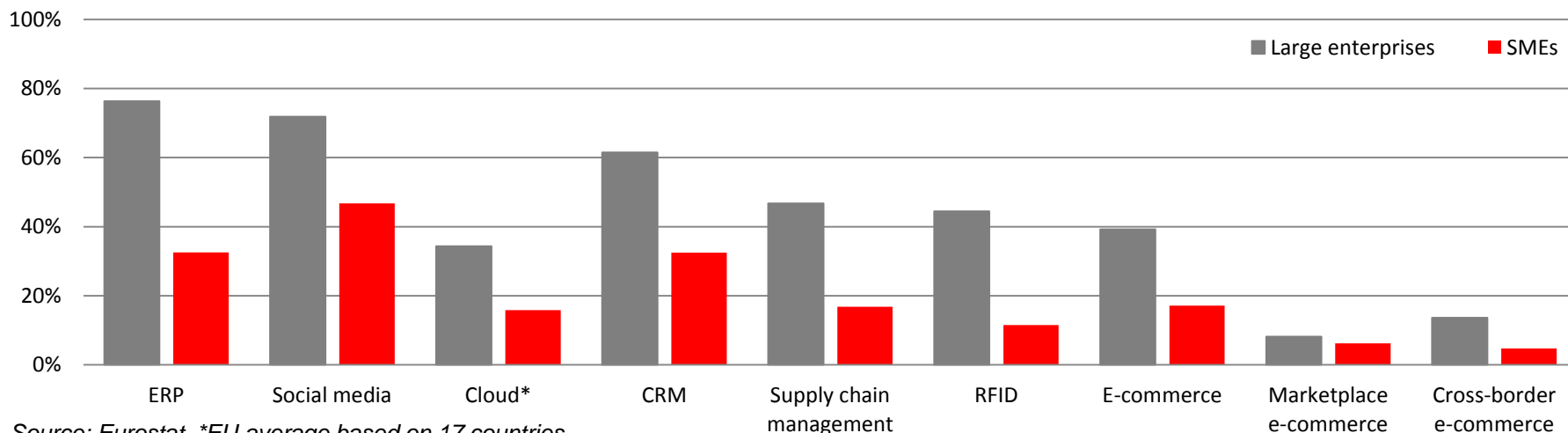
The result is that data sharing infrastructure such as ERP is much more common in large companies. SMEs are relatively active on social media (47 %) and, to a limited extent, they try to exploit e-commerce possibilities by selling through marketplaces.

Nevertheless, there are a lot of technological opportunities still to be exploited by SMEs such as cross-border e-commerce, cloud services and automation.



Source: Eurostat

Adoption of digital technologies, EU, 2017 (% enterprises)

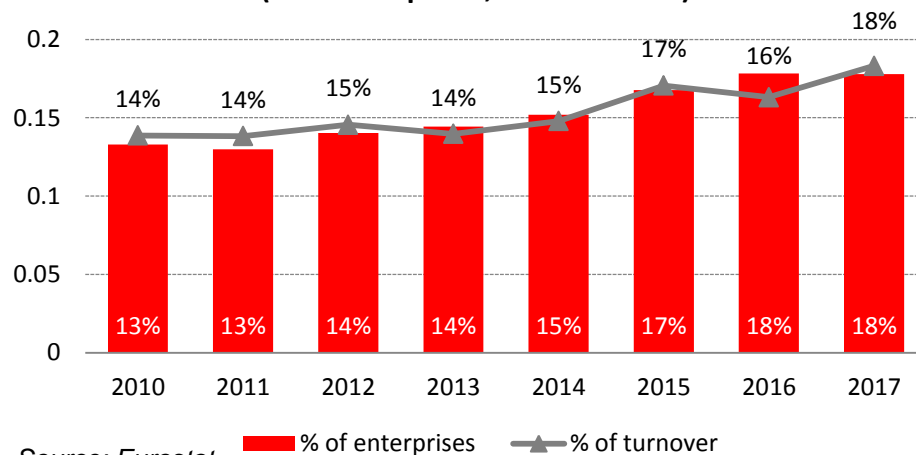


Source: Eurostat. *EU average based on 17 countries

E-commerce: slow progress in electronic sales by companies. one out of five made electronic sales. Larger enterprises are better at exploiting the possibilities of e-commerce

One out of five enterprises in the EU-28 made electronic sales. The percentage of turnover on e-sales amounted to 18 % of the total turnover of companies with 10 or more persons employed. In the EU-28, during the period 2010-2017, the percentage of companies that had e-sales increased by 5 pps and the companies' turnover realised from e-sales increased by 4 pps.

Trends in e-commerce, EU
(% of enterprises, % of turnover)



Source: Eurostat

E-sales and turnover from e-sales, by firm size, EU, 2010 - 2017
(% of enterprises, % of turnover)

	Enterprise with e-sales (turnover >1%) (%)			Turnover from e-commerce (%)		
	2010	2014	2017	2010	2014	2017
All enterprises	13.3%	15.2%	17.8%	13.9%	14.8%	18.3%
Large (250+)	31.3%	35.3%	39.3%	19.1%	20.2%	25.7%
Medium (50-249)	19.8%	22.0%	25.5%	11.3%	11.1%	13.0%
Small (10-49)	11.6%	13.4%	15.8%	4.9%	5.8%	7.4%

The share of companies conducting e-sales and the turnover from e-sales varies significantly according to size.

The share of small enterprises making e-sales (15.8 %) is less than half compared to the share of the large ones (39.3 %). Even more striking is that the share of the e-sales' turnover on the total turnover by small enterprises (7.4 %) is less than a third of the share generated by the large ones (25.7 %).

25.5 % of medium sized enterprises made e-sales, corresponding to 13 % of total turnover in this size class.

Source: Eurostat

Different types of e-commerce: **Web and EDI-type**

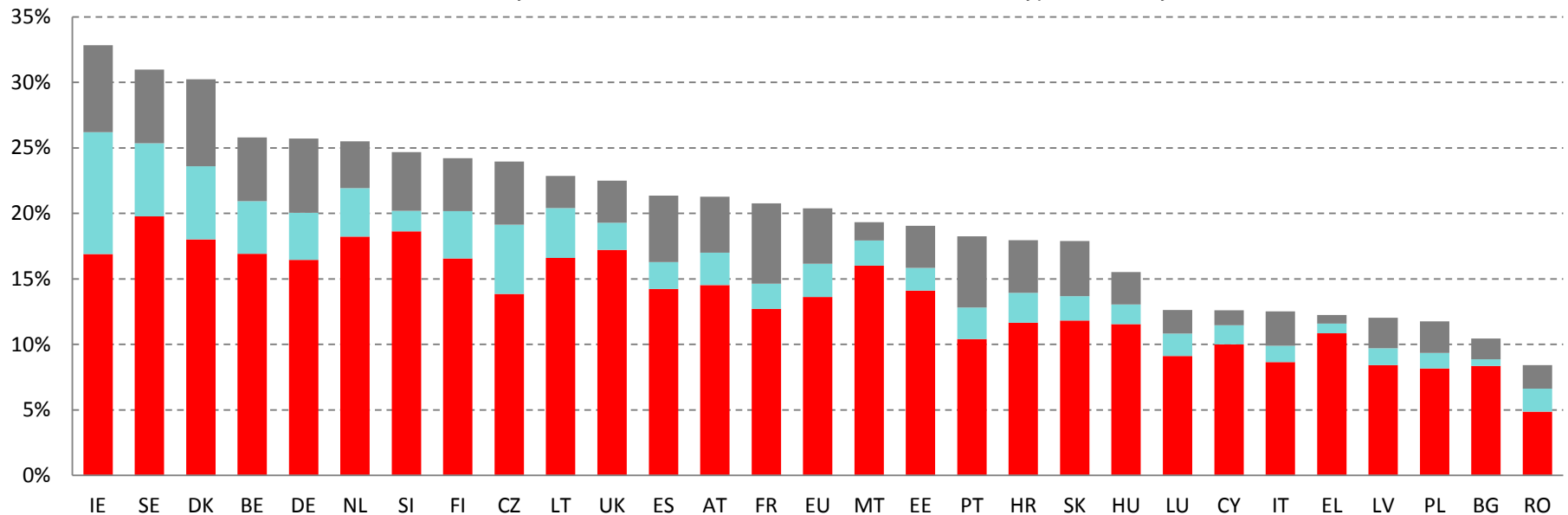
E-commerce can be broadly divided into two types: web sales and EDI-type sales referring to the way customers place orders for the products that they wish to purchase; companies may offer one or both options to their clients. The Electronic Data Interchange (EDI) type is the interchange of data between information systems, through a dedicated channel and in a defined standard so as not to require human intervention except in exceptional cases.

Among the EU-28, the percentage of enterprises making e-sales (web or EDI type) ranged from 8 % in Romania to 33 % in Ireland, closely followed by Sweden (31 %).

Web sales, made through the enterprise own website or through third parties one (including marketplace), is by far the most common option for e-sales. At EU level around 14 % of the enterprises are selling through a website, 2 % are exploiting both channels while slightly more than 4 % is making use of EDI-type sales.

E-sales broken down by web sales and EDI-type sales, 2017 (% enterprises)

■ web sales only ■ both ■ EDI-type sales only



Source: Eurostat

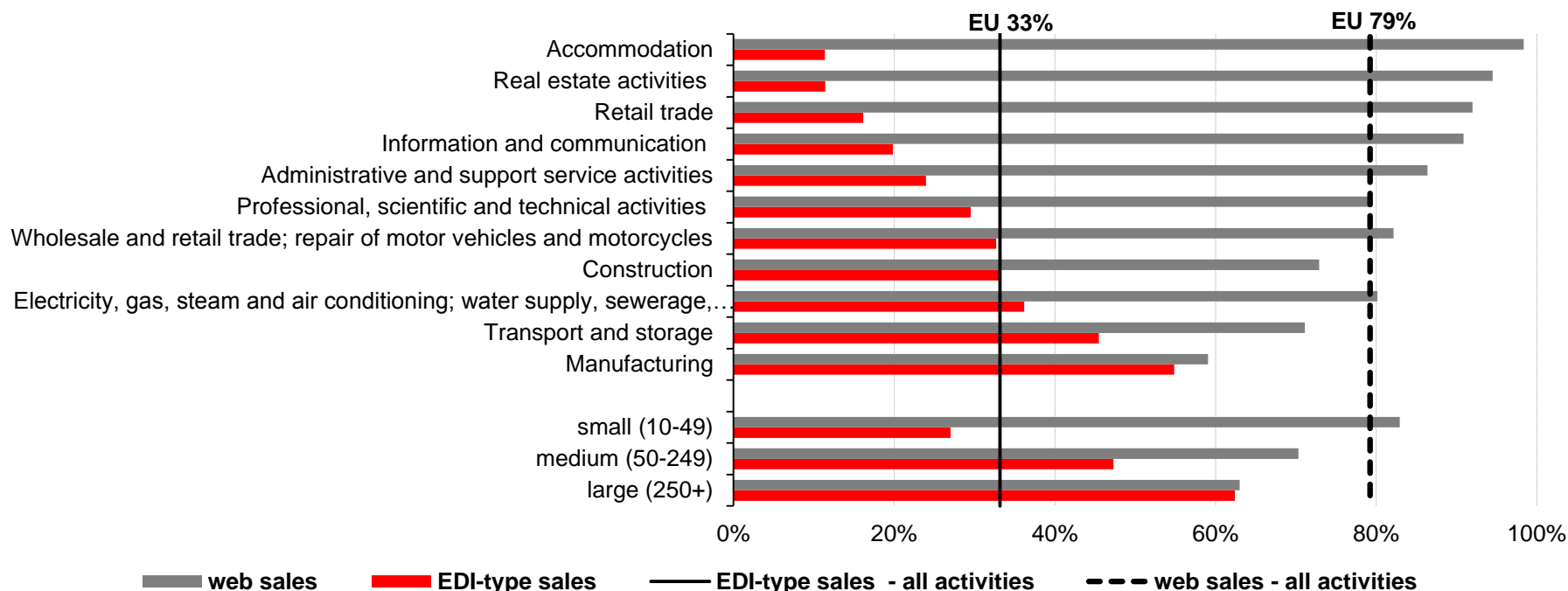
Almost all enterprises making e-sales in the 'accommodation' branch received orders via a website. Large enterprises use web sales and EDI-type sales to the same extent

Companies received their orders in most cases via websites or apps independently of the economic activity (close to 100 % businesses in the 'accommodation' sector).

Orders received via EDI-type messages are reported by more than half of 'manufacturing' companies making e-sales, followed by companies in the 'transport and storage' sector (46 %).

When analysing e-sales by enterprise dimension, it becomes evident that large companies are using web sales and EDI-type sales to the same degree. The small enterprises making e-sales are mainly relying on web sales (83 % of enterprises) while the percentage reduces to 63 % for large enterprises that received orders via websites.

E-sales broken down by web and EDI-type sales, by economic activity and size, EU, 2017, (% enterprises with e-sales)



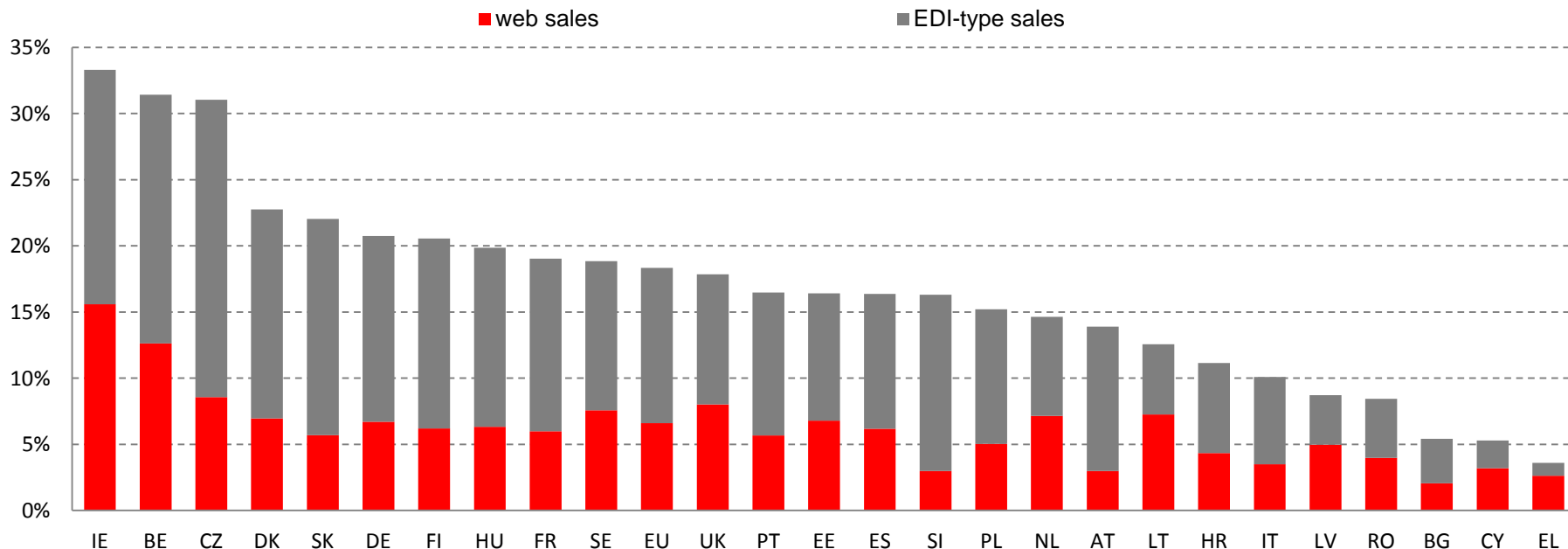
Source: Eurostat

The share of turnover from EDI-type sales is greater than that from web sales.

Among all Member States, the percentage of turnover from e-sales ranged from 4 % in Greece to 33 % in Ireland. In the EU28, the turnover from EDI-type sales was 12 % of total turnover, while the turnover from web sales was only 7 %. 4 % of this turnover from web sales is mainly generated (4% out of this 7%) by e-sales to other businesses and public authorities (B2BG), while 3 % came from e-sales to private consumers (B2C).

The share of the total turnover from EDI-type sales as well as that from web sales is very diverse across countries. The share from EDI-type sales ranged from less than 1 % in Greece to 22 % in the Czech Republic while the share of total turnover from web sales ranged from 2 % in Bulgaria to 16 % in Ireland.

Turnover from e-sales broken down by web and EDI-type sales, 2017 (% total turnover)



Source: Eurostat

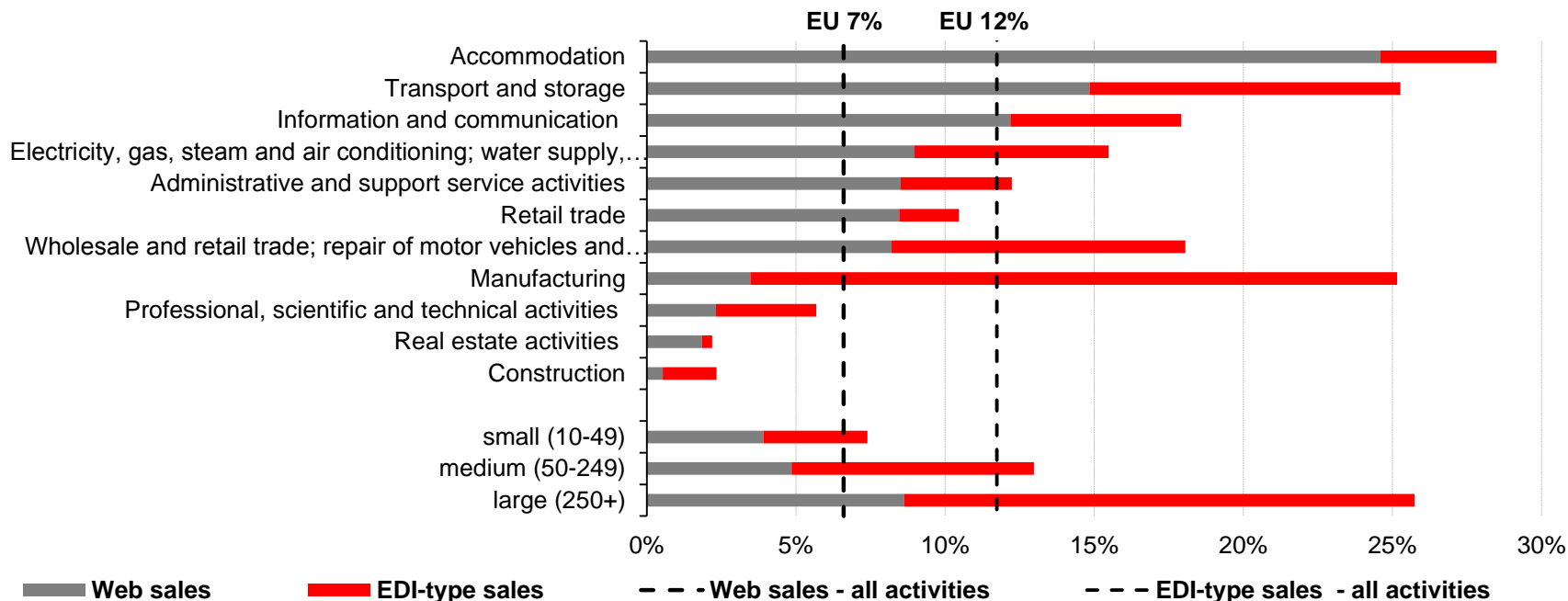
Large enterprises mainly rely on ICT and standards that integrate EDI-type sales within their business processes.

Large enterprises, with 250 persons employed or more, reported the highest share of turnover from e-sales (26 %), most of it from EDI-type sales (17 %).

As already underlined, small enterprises are lagging behind larger companies in terms of share of turnover from e-sales (7.4 %) which is derived in equal parts from EDI-type sales and web sales.

Businesses in the 'accommodation' sector reported the highest share of total turnover from e-sales (29 %), followed by those in the 'transport and storage' and 'manufacturing' (25 % each). However, businesses in 'accommodation' gained most of their turnover from web sales (25 %), while those in 'manufacturing' gained it from EDI-type sales (22 %). Businesses in 'transport and storage' gained more turnover from web sales (15 %) than from EDI-type sales (10 %).

Turnover from e-sales broken down by web and EDI-type sales, by economic activity and size, EU, 2017, (% total turnover)



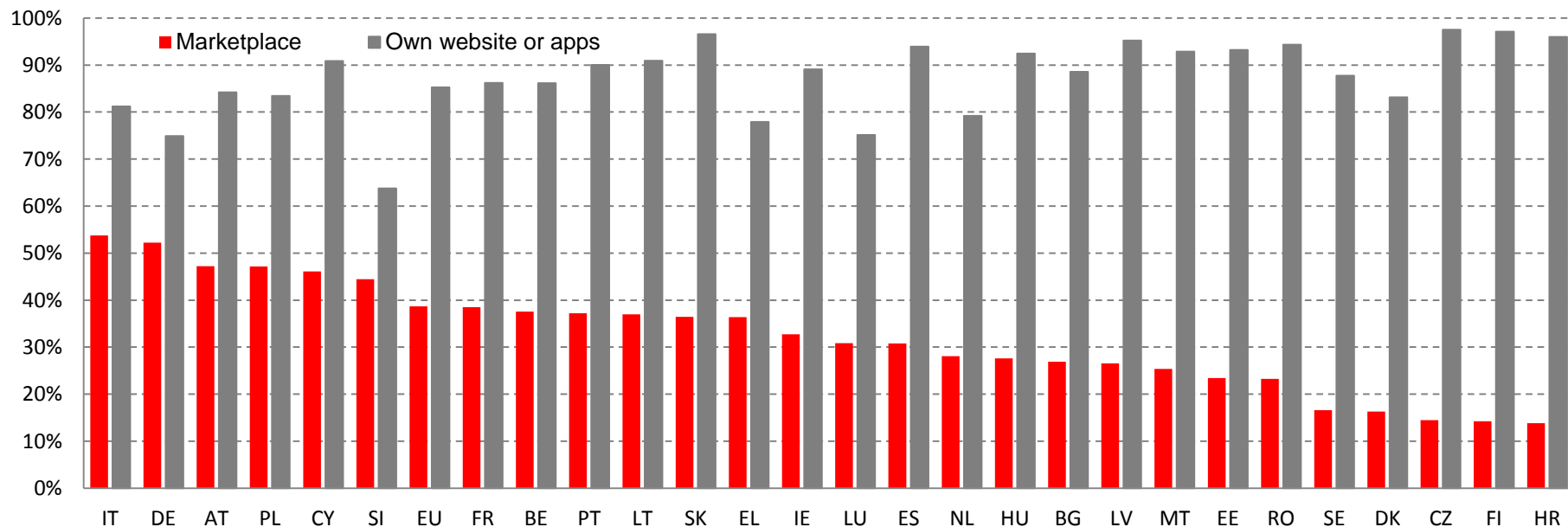
Source: Eurostat

Businesses are starting to be active on marketplaces

Looking further into web sales, it is of some interest to disentangle web sales made through a marketplace, available on external websites, from those done through company's own website. E-commerce marketplaces and general online platforms may facilitate economic growth by enabling sellers to access new markets and reach new customers at lower cost. This option has been exploited by 39 % of EU level enterprises with web sales (against 85 % of EU enterprises using their own website).

The Czech Republic (98 %), Finland and Slovakia (both 97 %) reported the highest percentages of enterprises with web sales via own sites. The lowest was registered in Slovenia (64 %). At the same time, companies in the Czech Republic, Finland and Croatia have the lowest percentages of web sales via marketplaces (14 % each). Selling online via marketplaces was the most common option in Italy (54 %) and Germany (52 %).

Web sales broken down by own website or apps and marketplace, 2017 (% enterprises with web sales)



Source: Eurostat

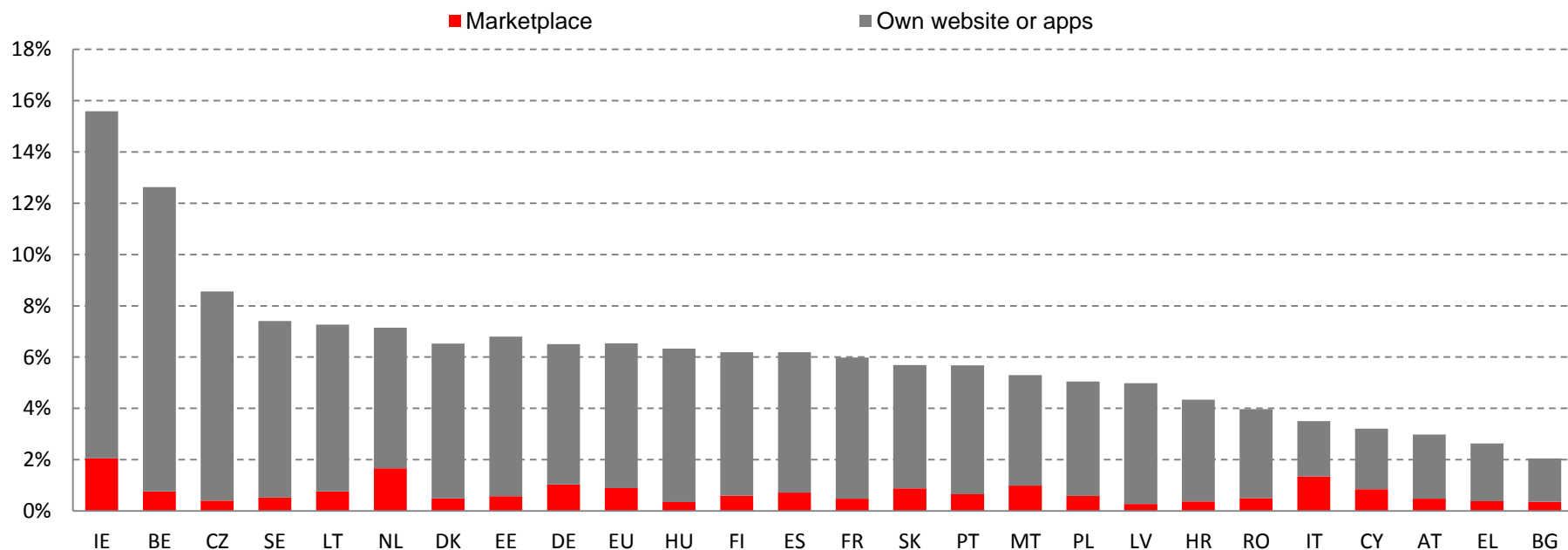
The share of turnover from web sales via companies' **own website** is greater than that from web sales via **marketplaces**

As already underlined, in the EU-28, companies gained 7 % of their total turnover from web sales. 85 % of it (equal to 6 % of total turnover) was gained from web sales via own website or apps and only 15% (equal to 1 %) from sales via online marketplaces.

The highest share of turnover (over the total turnover of the firm) from selling via the marketplace was gained in Ireland and the Netherlands around 2 %).

When looking at the composition of the turnover, Italian companies gained half of their turnover generated through web sales into marketplaces.

Turnover from web sales broken down by own website or apps and marketplace, 2017 (% total turnover)



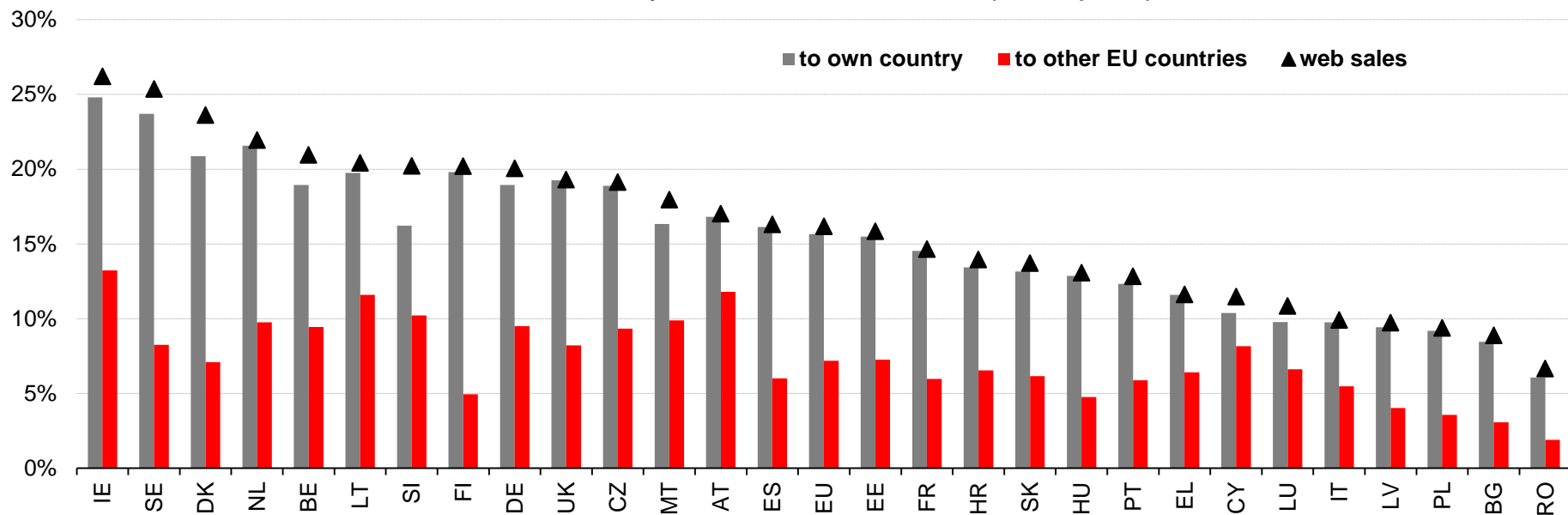
Source: Eurostat

Companies are not fully exploiting **cross-border e-commerce**

Businesses benefit from cross-border e-commerce by exploiting economies of scale which reduce costs, increase efficiency and promote competitiveness, and by improving total factor productivity. In many cases, without these economies of scale an on-line business may not be viable at all. This could be especially significant for SMEs that remain confined to a small home market with high production costs.

In the EU-28, only 7 % of enterprises made web sales to customers in other EU countries, while almost all enterprises with web sales (16 %) reported that they sold in their own country. The largest proportions of EU companies with web sales to other EU countries were recorded in Ireland (13 %), followed by Austria and Lithuania (both 12 %). Romania (2 %) and Bulgaria (3 %) are the two countries with the lowest share of web sales to customers in other EU countries.

Web sales to own country and other EU countries, 2017 (% enterprises)



Source: Eurostat

Obstacles to eCommerce with other EU countries

The majority (59 %) of EU companies that received orders via a website or via apps had no difficulties when selling to customers in other EU Member States. However, almost 4 in 10 (38 %) reported obstacles that were mainly related to economic factors, such as the high costs of delivering or returning products (27 %). Other aspects such as linguistic and judicial reasons were also significant. The lack of knowledge of foreign languages and problems related to resolving complaints and disputes were also highlighted, respectively, by 13% and 12% of the enterprises selling online to other EU countries.

