# MAIN RESULTS OF THE SURVEY ON THE INFORMATION SOCIETY IN ENTERPRISES IN 2018

The results of the 2018 survey showed that 96.7% of the enterprises with 10 or more persons employed used computers[1] and among the big enterprises with 250 and more persons employed, the relative share was 100.0%. High-speed and reliable internet access is a necessity for the enterprises and during the current year, 94.6% of them had permanent connection with the global network, as there was no change compared with the previous year. The enterprises mainly used DSL or other type fixed broadband connection (83.9%). During the last five years, the maximum download speed increased and in 2018, the speed of the fastest fixed internet connection in 59.9% of the enterprises was more than 30 Mbps (Figure 1).

Figure 1. Structure of enterprises using fixed connection to the internet by maximum download speed
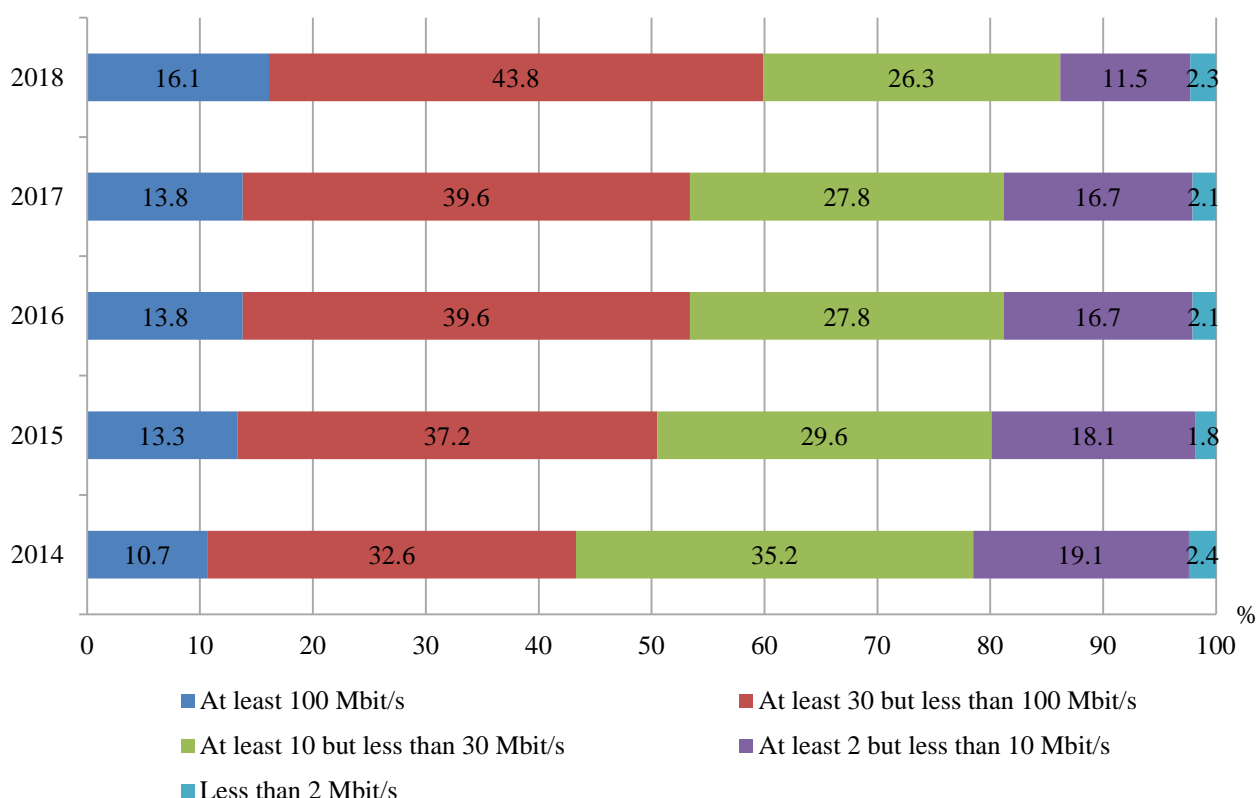
In 2018, almost half of the enterprises with 10 or more persons employed (45.0%) provided their staff with portable devices that allow a mobile connection to the internet using mobile telephone networks, for business purposes. Biggest relative share was observed among the enterprises in

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[1] Computers include personal computers, portable computers, tablets, other portable devices such as smartphones.

sector 'Information and communication' (69.1%), and the smallest in sector 'Accommodation and food service activities' - 29.6% (Figure 2).

Enterprises provided portable devices to the employees mainly with the purpose of assuring permanent mobile access: to the enterprise's e-mail system (39.2%), to enterprise's documents (17.7%) or to dedicated business software applications (14.1%).

Figure 2. Relative share of enterprises providing internet enabled portable devices to the employees by economic activity in 2018
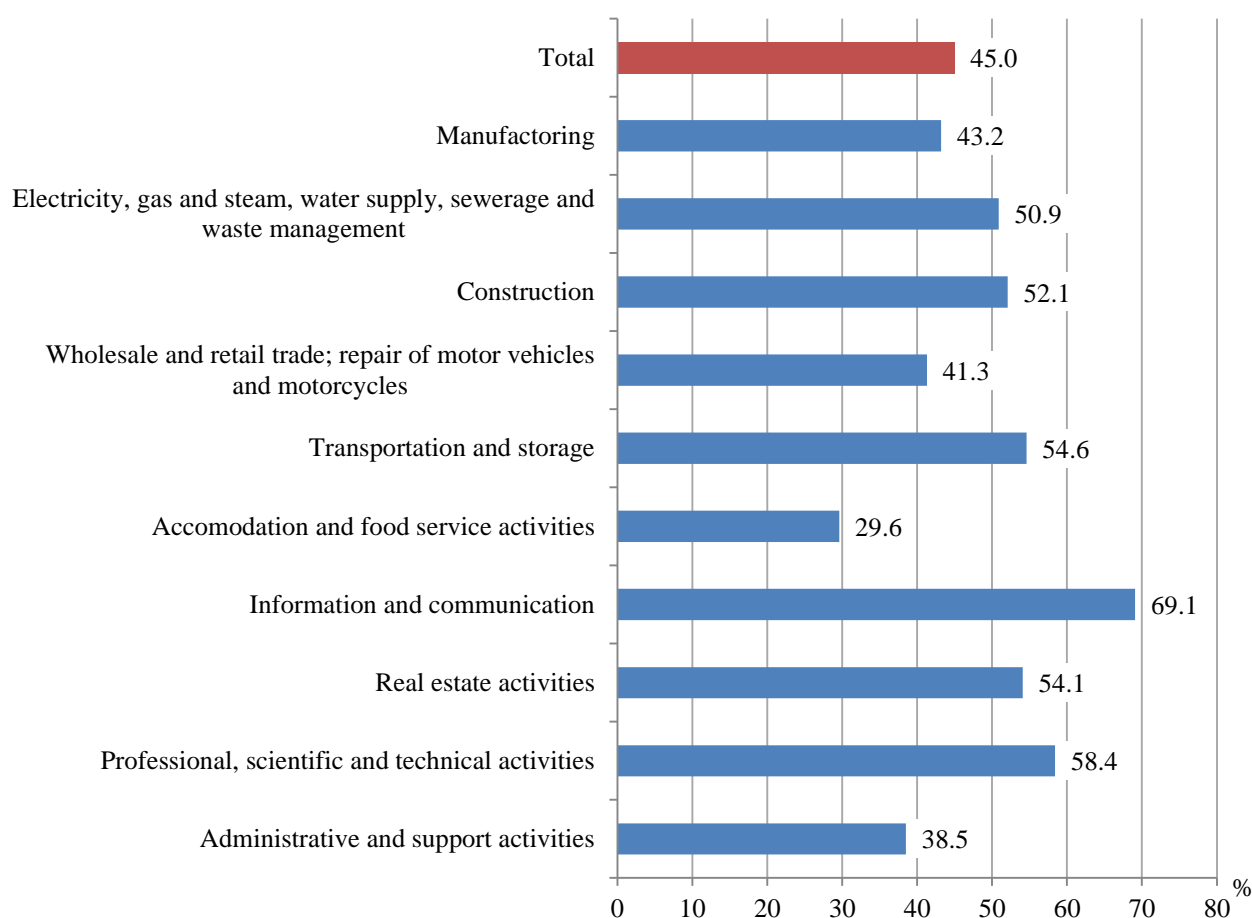
In 2018, almost every third employed (31.5%) used a computer every day for executing their work duties and 28.1% were granted access to the internet. More and more enterprises provided their employed persons with portable devices and during this year, 10.7% of the employed used such devices for business purposes.

More than a half of the enterprises (51.1%) maintained their own website, as the highest proportion was in the group of enterprises with 250 and more persons employed (88.2%). Websites were mainly used for presenting goods or services (80.0%)[1], links or references to the enterprise's social

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[1] The relative shares were calculated on the basis of enterprises having a website.

media profiles (35.0%), as well as offered possibility for online ordering or reservations of goods or services (28.3%).

Advertisement is important for the business and in 2018 21.0% of the enterprises indicated that they paid to advertise on the internet. Main advertising method used was targeted advertisement based on webpages' content or keywords searched by users (77.6%)[1]. Fewer enterprises used advertisement based on the geolocation of internet users (27.8%) or on the tracking of internet users' past activities or profile - 23.3%.

Use of cloud computing

In 2018, 8.3% of the enterprises took advantage of the benefits of cloud technologies to optimize their business processes, as main users of the cloud computing services were large enterprises with 250 and more persons employed (29.7%). Main purposes for which the enterprises used the cloud solutions were e-mail services (73.5%)[2], storage of files (63.7%) and hosting of database(s) (58.4%) (Figure 3).

Figure 3. Relative share of enterprises using cloud computing services by purposes in 2018
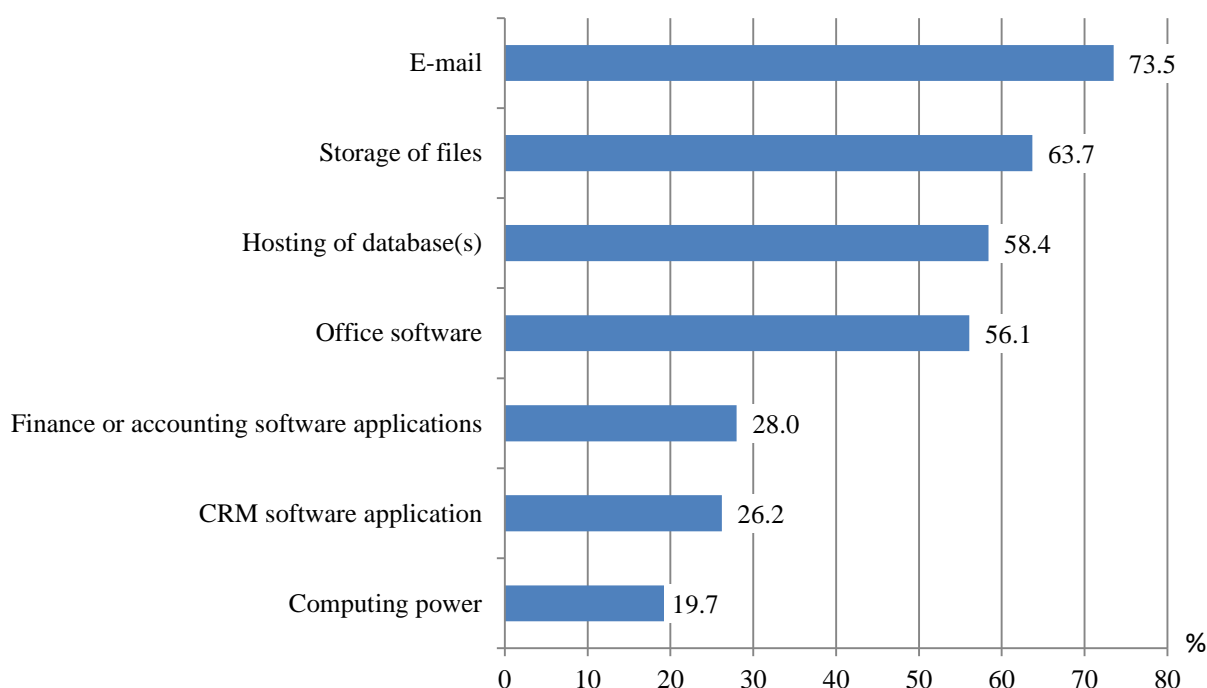
Use of 3D printing and robotics

In 2018, the degree of introduction of new and advanced technologies such as 3D printing and robots by enterprises was observed for the first time in the survey. The results showed that these technologies were still not very popular among Bulgarian companies and in the previous calendar year 1.8% of the enterprises used 3D printing and 4.4% used robots. The large enterprises with 250 and more persons employed were the most active in implementing these technologies - 7.6% of them used 3D printing and 17.6% had robots.

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[1] The relative shares were calculated on the basis of enterprises, which paid for advertise on the internet.
[2] The relative shares were calculated on the basis of enterprises using cloud computing.
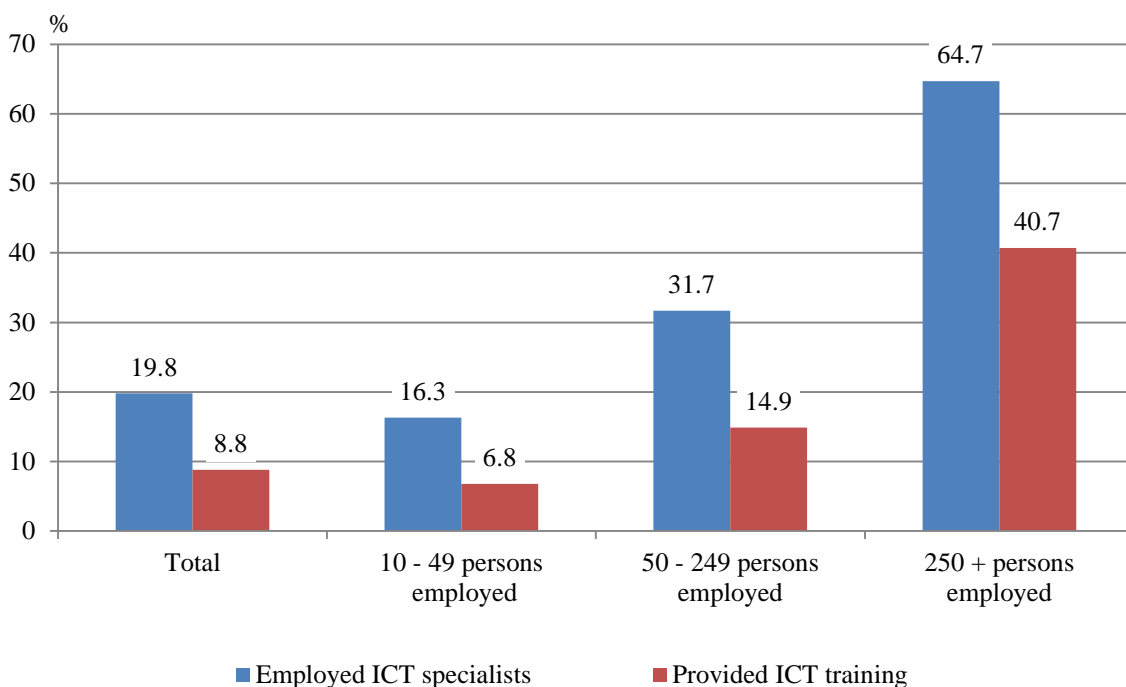
Big data analysis

'Big data' refers to vast amounts of various data generated at high speed from a large number of different sources. In 2018, 6.7% of the enterprises perform 'big data' analysis, as the most active were the big enterprises with 250 or more persons employed (24.8%). Most of the enterprises (65.3%)[1] used geolocation data from the use of portable devices for analysis. Enterprises' data from smart devices or sensors, as well as data generated from social media were used respectively by 29.4% and 24.0% of the enterprises. 'Big data' analysis in 84.0% of the enterprises was performed by own employees.

ICT specialists

In 2018, every fifth enterprise (19.8%) had employees for whom the main job was to develop, operate or maintain ICT systems or applications. Most of the large companies with 250 or more persons employed offered jobs for ICT specialists (64.7%), and among the small enterprises with 10 - 49 persons employed the relative share was 16.3%. In order to improve the qualification of the employees, 8.8% of the employers provided training in the ICT area (Figure 4).

During the previous calendar year, 9.6% of the enterprises recruited or tried to recruit ICT specialists and 42.4% of them had difficulties to fill the vacancies.

Figure 4. Relative share of enterprises employing ICT specialists and providing ICT training by size class in 2018

Electronic commerce (e-Commerce)

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[1] The relative shares were calculated on the basis of enterprises which perform 'big data' analysis.

E-commerce is the sale or purchase of goods or services conducted via the internet and includes sales or purchases made via web-based technologies (e.g. website, internet shop, "apps") or via automated data exchange (EDI type messages).

Data from the 2018 survey showed that in the previous calendar year, 8.1% of the enterprises sold their goods or services online and the turnover of e-commerce was 5.2% of total turnover of the enterprises. The relative share of the enterprises, which performed web sales were 7.3%, and of those which used EDI-type messages - 1.2%.

Most of the enterprises which conducted web sales received orders for goods or services via their own website, internet shop or 'apps' (86.5%) and 35.3% sold via an e-commerce marketplace used by several enterprises for trading products (e.g. eBay, Amazon, Booking.com, eMAG). Online traders most frequently sold to private customers (92.4%) but many enterprises offered their goods or services to other enterprises or to public authorities (62.8%).

An increase was observed in the relative share of enterprises, which performed online purchases. In 2017, 17.0% of the enterprises purchased goods or services over the internet, which was 4.0 percentage points more than the previous 2016 year.

Most active in the use of e-commerce were the large enterprises with 250 or more persons employed, 28.5% of which purchased goods or services online and 15.4% sold over the internet (Figure 5).

Figure 5. Relative share of enterprises conducting online sales or purchases of goods or services by size class in 2017
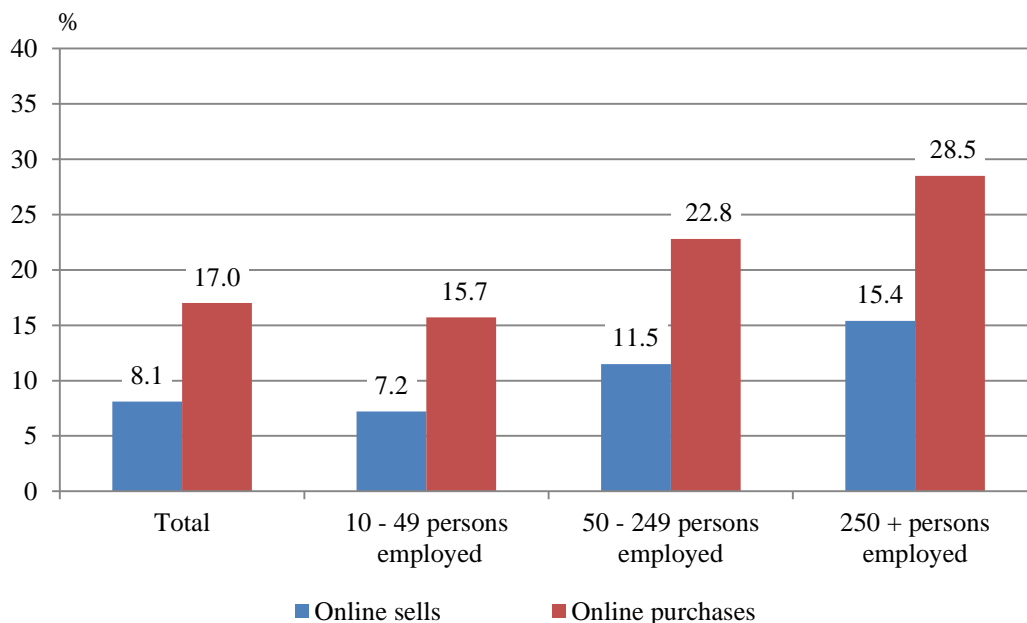
Methodological notes

The survey on Information Communication Technologies (ICT) usage and e-commerce in enterprises is a part of the European statistical programme and has been carried out in Bulgaria since 2004 according to the Regulation (EU) No. 808/2004. The main purpose of the survey was to obtain reliable and comparable data which reflect the dissemination and usage of ICT at national and European level. The survey was representative as a stratified random sample of enterprises from the non-financial sector with 10 or more persons employed was used. The survey was conducted by means of online questionnaire, sent to the respondents by e-mail and by face-to-face interviews, carried out by NSI employees. The questionnaire for 2018 comprised several topics like availability and use of computers and internet by enterprises, use of cloud computing, 3D printing, robotics, big data analysis, e-commerce, etc.

Fixed internet connection includes ADSL, SDSL, VDSL, fibre optics technology (FTTH), cable technology, LAN, high capacity leased lines, fixed wireless access connections (e.g. satellite connection, public Wi-Fi connection, WiMax), etc.

A **mobile internet connection** to the internet means the usage of portable devices (portable computers, tablets or other portable devices such as smartphones) connecting to the internet through mobile telephone networks (3G or 4G).

Cloud computing refers to ICT services that are used over the internet to access software, computing power, storage capacity, etc.

3D printing refers to the use of special printers for the creation of three-dimensional physical objects using digital technology (also known as additive layer manufacturing).

Big data are generated from activities that are carried out electronically and from machine-to-machine communication (e.g. data produces from social media activities, from production processes, etc.)

EDI-type e-commerce are sales or purchases made via **EDI-type messages** in agreed or standard format suitable for automated processing (e.g. EDIFACT, XML, UBL). Usually EDI-type e-commerce is operated between enterprises.

More information and data from surveys on Information and Communications Technologies usage in enterprises can be found at the NSI's web site: http://www.nsi.bg/en/content/6132/ict-usage-enterprises and in Information System 'Infostat': https://infostat.nsi.bg/infostat/pages/module.jsf?x_2=241.