



**STATISTICAL SERVICE  
OF CYPRUS**

**INFORMATION AND COMMUNICATION  
TECHNOLOGIES (ICT) USAGE AND E-COMMERCE  
SURVEY IN ENTERPRISES  
2017**

**SUMMARY RESULTS**

**Nicosia, November 2017**



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## **INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT) USAGE AND E-COMMERCE SURVEY IN ENTERPRISES 2017**

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## **PREFACE**

This report presents the results of the survey on ICT Usage and e-Commerce in Enterprises 2017. The aim of the survey is to collect data about the use of information and communication technologies by the enterprises, the use of computers, the employment of ICT specialists, the access and use of the Internet and Social Media, the use of cloud computing services, the sharing of information electronically within the enterprise, the sharing of Supply Chain Management electronically, Invoicing, the use of Radio Frequency Identification (RFID) technologies and e-commerce. These data are necessary for the implementation of policy programs of both the Government and the Private Sector.

The survey, which is cofunded by the European Community, conforms to the regulation (EC) No. 808/2004 of the European Parliament and of the Council of 21 April 2004 concerning Community statistics on the information society. The objective of this Regulation is to establish a common framework for the systematic production of Community statistics on the information society.

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## **A. SURVEY METHODOLOGY**

The survey covers enterprises with 10 or more employees in the following statistical codes of economic activities under the classification system NACE Rev.2 (Detailed description in annex):

C	Manufacturing
D	Electricity, Gas, Steam and Air Conditioning Supply
E	Water Supply, Sewerage, Waste Management and Remediation Activities
F	Construction
G	Wholesale and Retail Trade. Repair of motor vehicles, motorcycles and personal and household goods
H	Transport and Storage
I	Accommodation and Food Service Activities
J	Information and Communication
L	Real Estate Activities
M	Professional, Scientific and Technical Activities
N	Administrative and Support Service Activities
S	Other Service Activities

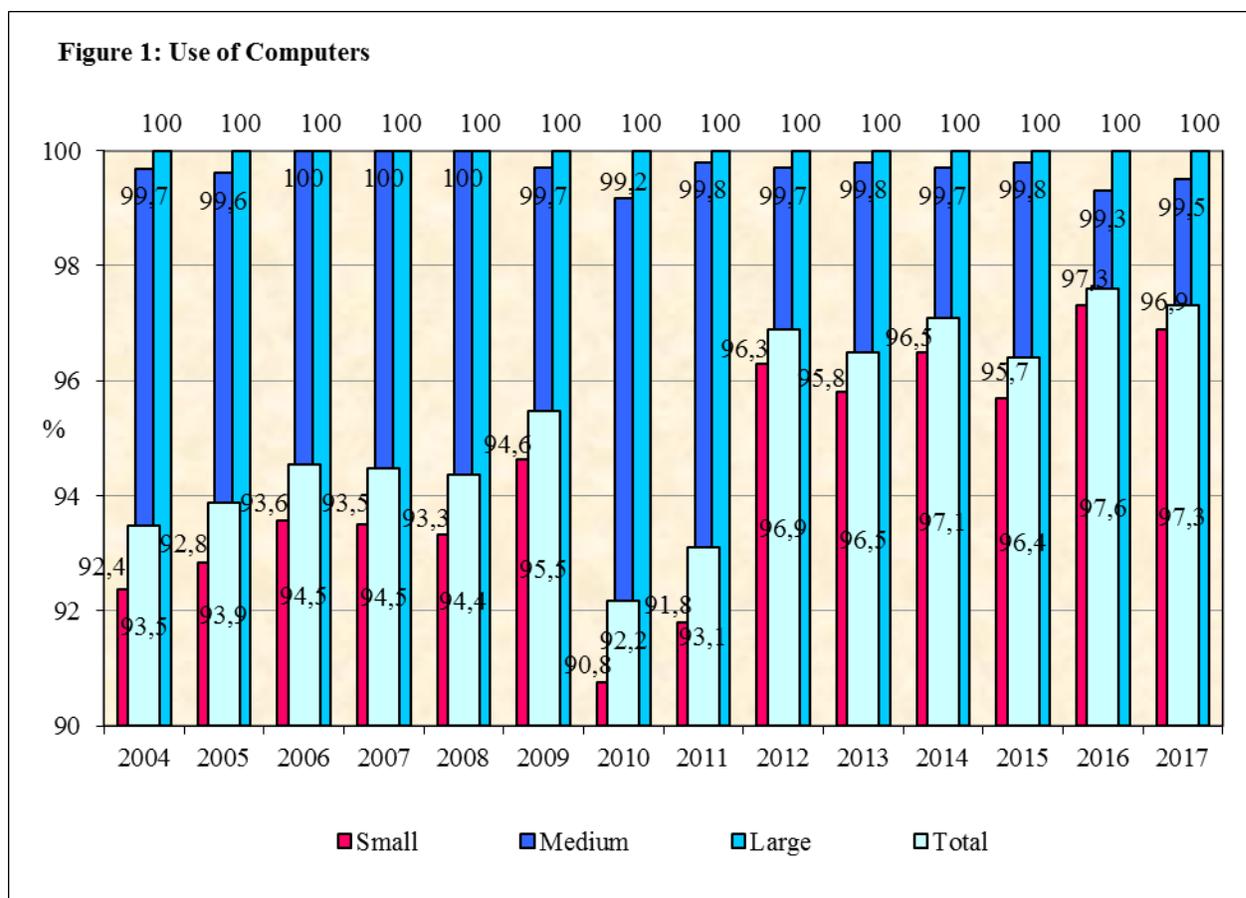
The sampling method used was stratified random sampling. Two variables were used for stratification, NACE group and size of the enterprise. There were 16 NACE groups and 3 size groups.

The 16 NACE groups (of economic activities) were the following: 10-18, 19-23, 24-25, 26-33, 35-39, 41-43, 45-47, 49-53, 55, 56, 58-63, 68, 69-74, 77-82 excluding 79, 79 and 95. The 3 size groups were: Small enterprises (10-49 employees), Medium enterprises (50-249 employees) and Large enterprises (250+ employees).

## **B. MAIN FINDINGS**

### **USE OF COMPUTERS**

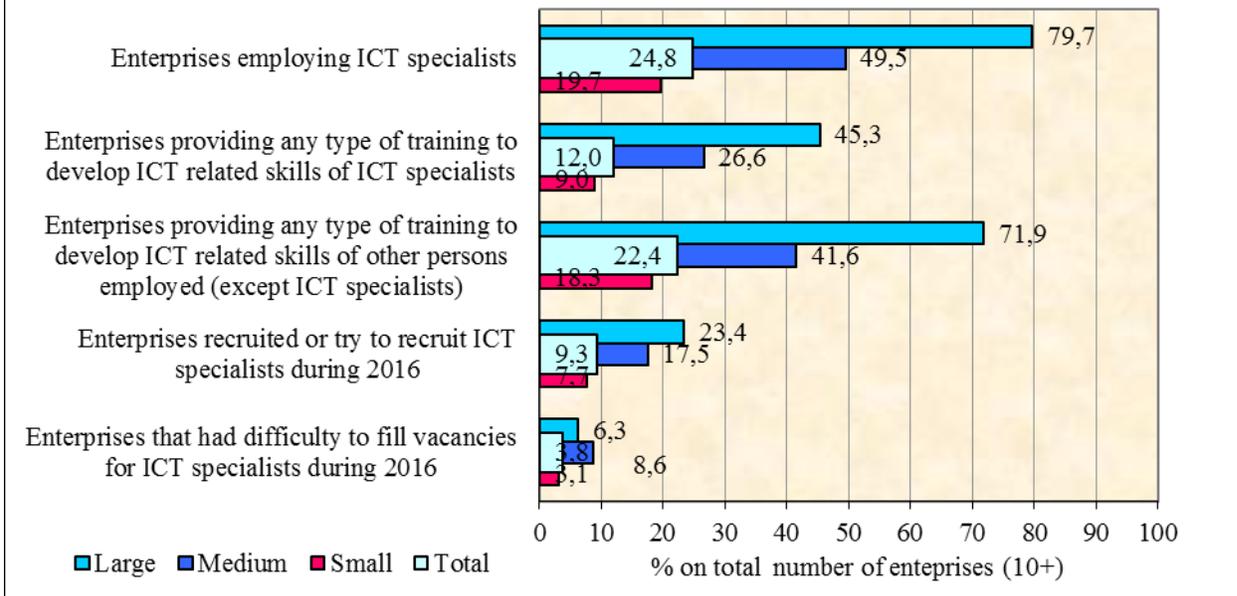
In 2017, computers were used in almost all enterprises in Cyprus with 50 or more employees (i.e. medium and large enterprises). The percentage of small enterprises (10 – 49 employees) using computers remained stable at 96,9%, compared to 97,3% in 2016. In total 97,3% of enterprises with 10 or more employees used computers in 2017 (Figure 1).



### **ICT SPECIALISTS AND SKILLS**

The information and communications technology (ICT) specialist develops, designs, maintains, operates and services systems and applications that are used to store, retrieve, and send data. The vast majority of large enterprises (79,7%) employ ICT specialists compared to just 19,7% of small enterprises. 9,3% of enterprises recruited or tried to recruit ICT specialists in 2016. 3,8% of enterprises faced difficulties to fill the vacancies during 2016. The percentage of enterprises that provide any type of training to develop ICT related skills to either ICT specialists or other persons employed remains low (12,0% and 22,4% respectively). In large enterprises the corresponding percentages are 45,3% (ICT specialists) and 71,9% (other persons employed) (Figure 2).

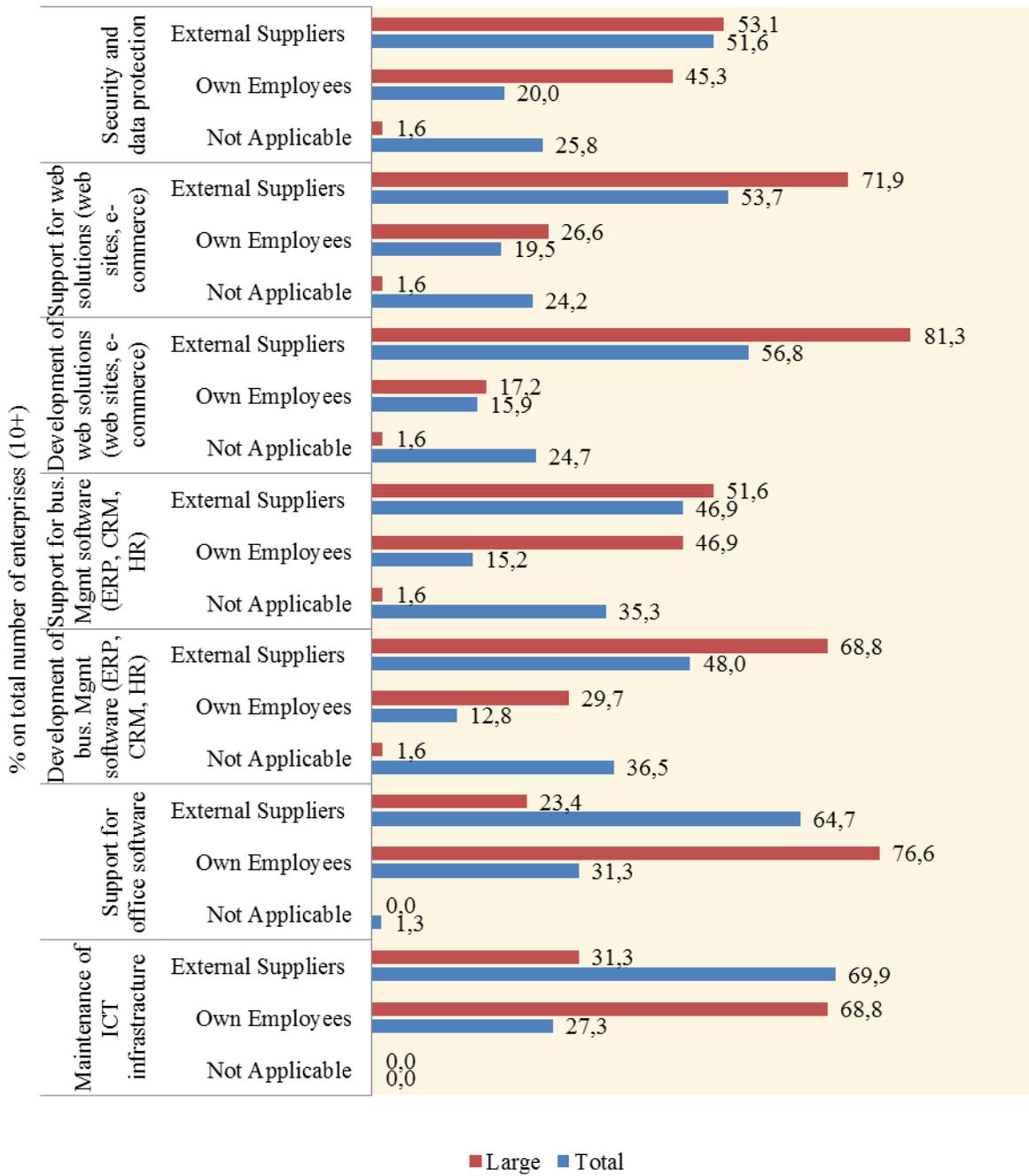
**Figure 2: ICT specialists and skills**



Enterprises preferred to outsource ICT functions rather than using their own resources during 2016. All ICT functions - maintenance of ICT infrastructure, support for office software, development of business management software/systems, support for business management software/systems, development of web solutions, support for web solutions and security and data protection - were mainly outsourced (Figure 3).

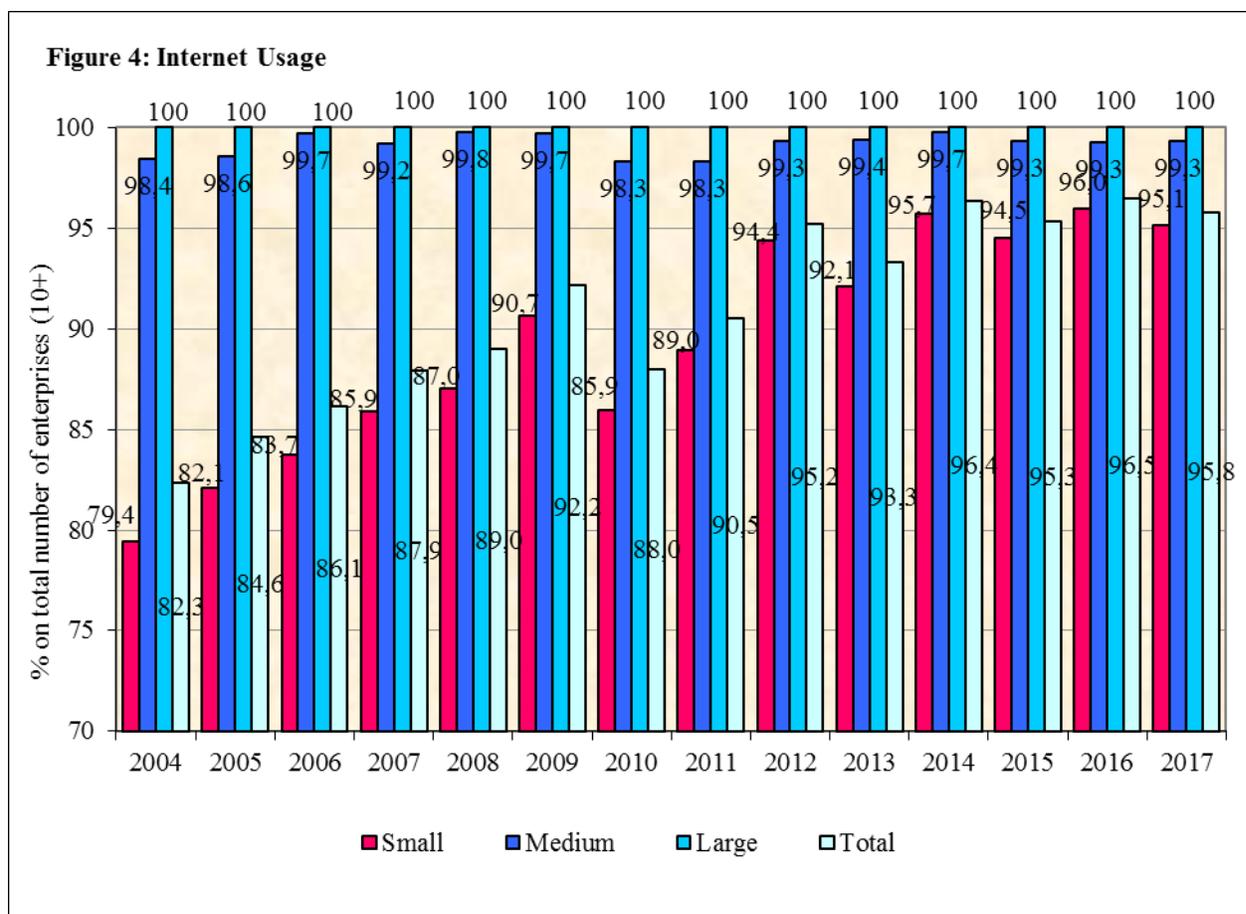
In large enterprises, ICT functions such as maintenance of ICT infrastructure and support for office software, were performed mainly by own employees including those of parent or affiliated enterprises. All other ICT functions such as development of business management software (ERP, CRM, HR), support for business management software (ERP, CRM, HR), development of web solutions (web sites, e-commerce), support for web solutions (web sites, e-commerce) and security and data protection, were performed mainly by external suppliers (Figure 3).

**Figure 3: ICT specialists and functions, 2016**

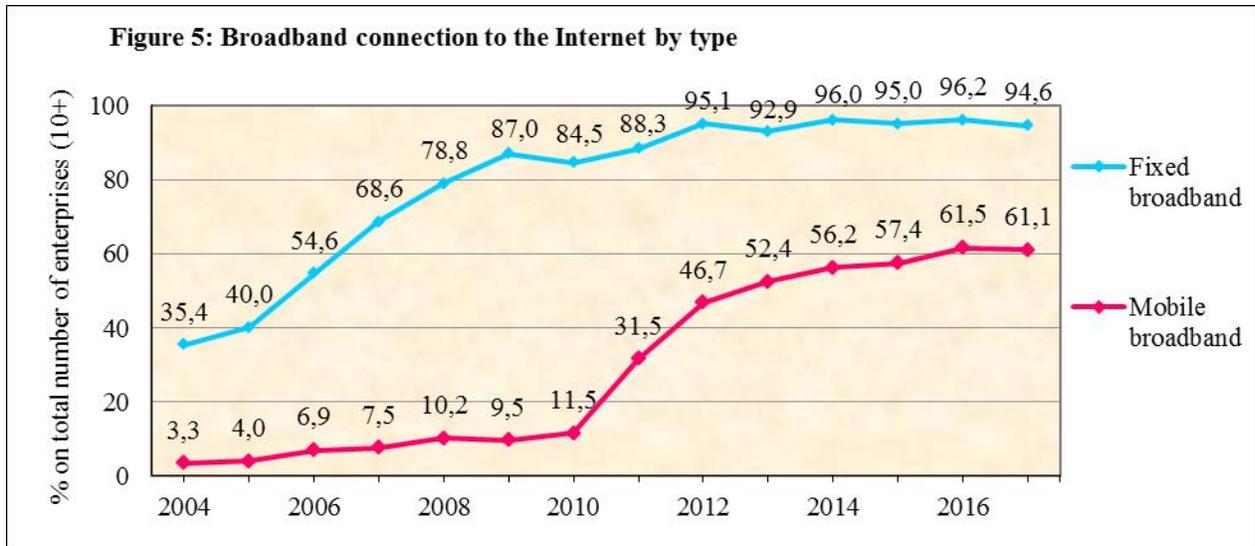


## ACCESS AND USE OF THE INTERNET

Since 2014, Internet usage in enterprises is over 95%. In 2017, 95,8% of the enterprises had access to the Internet. Internet was used in almost all medium and large enterprises (Figure 4).

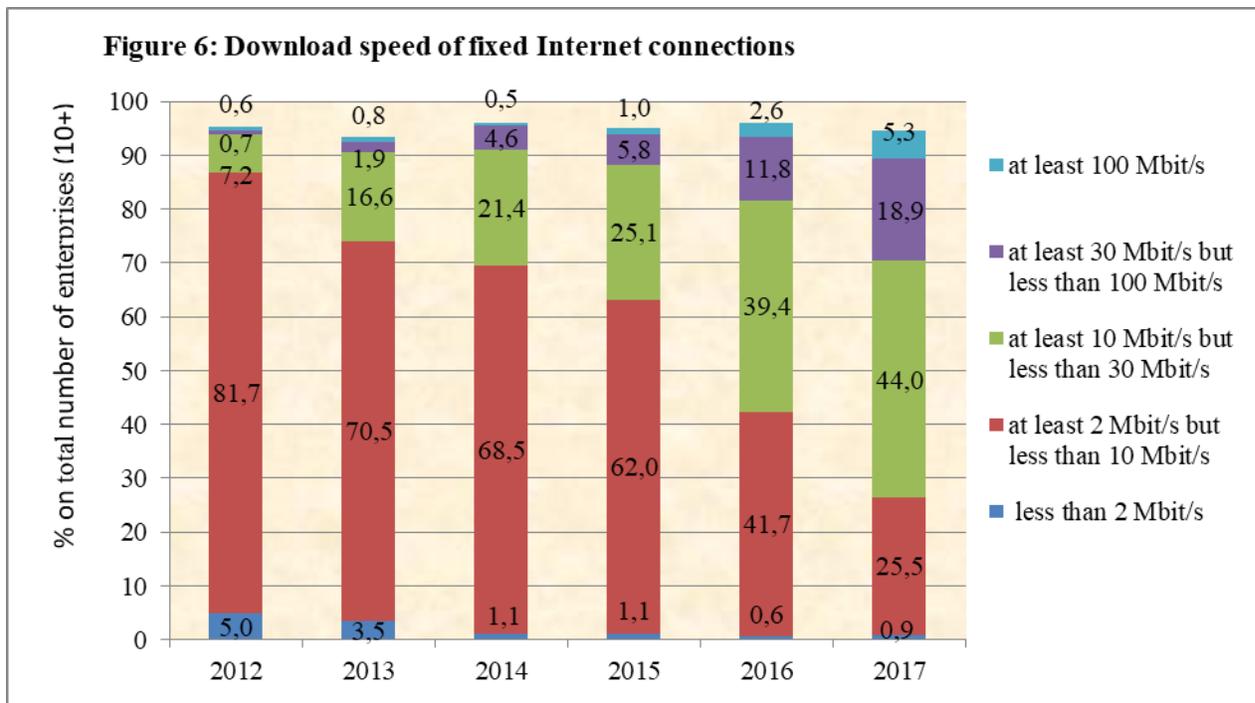


There has been a significant increase in the usage of broadband connections (fixed and mobile) to the Internet over the last years. Broadband connection refers to DSL, ADSL, SDSL, VDSL, fiber optics technology (FTTH), cable technology, satellite etc. In 2017, 94,6% of the enterprises used some type of fixed broadband connection to the Internet and 61,1% used some type of mobile broadband connection to the Internet. Compared to 2016, there is a slight decrease in both fixed and mobile broadband connections (Figure 5).

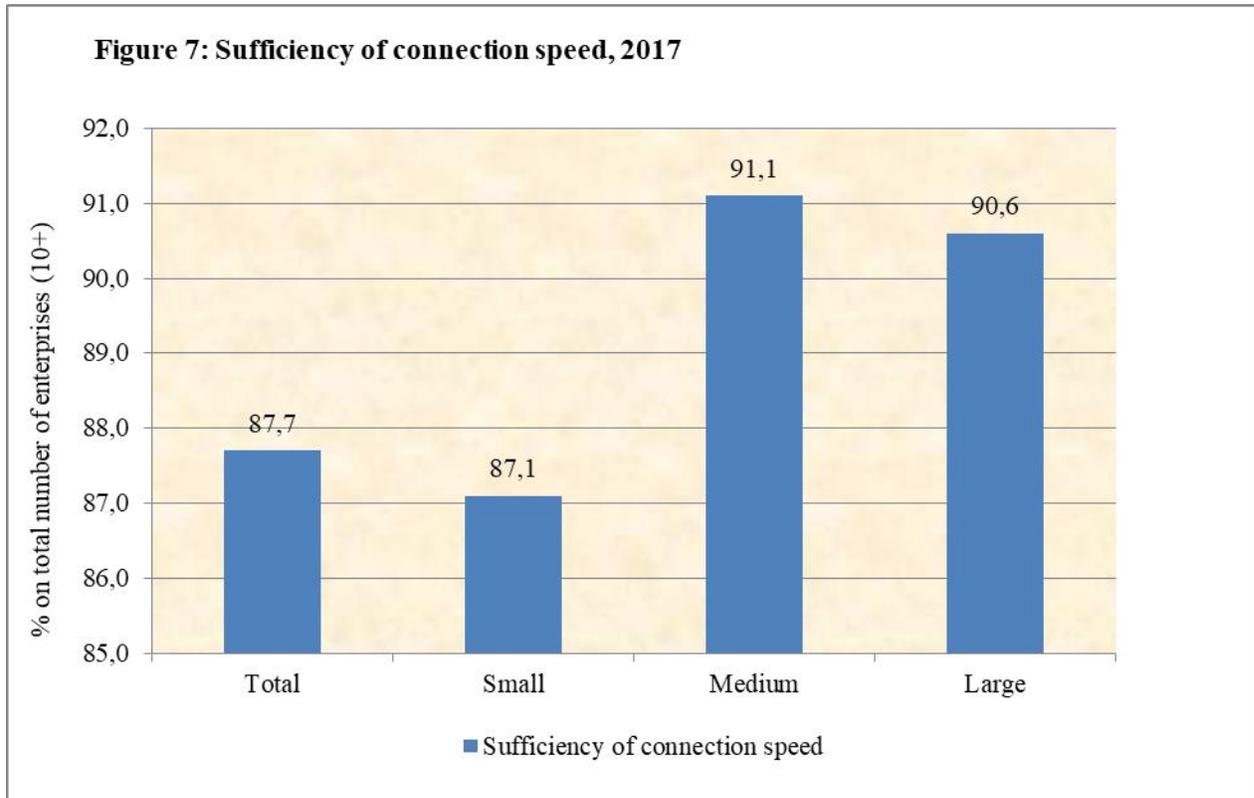


Over the last 6 years there has been a steady increase of demand for high speed internet connections. High speed internet connections (10Mbit/s or more) are increasing constantly over the last years and have risen from 8,5% in 2012 to 68,2% in 2017. Speeds less than 2 Mbit/s dropped from 5,0% in 2012 to 0,9% in 2017 (Figure 6).

The most popular contracted download speed in Cyprus (44,0% of all enterprises) was between 10 and 30 Mbit/s. Enterprises with download speed of more than 2 Mbit/s but less than 10Mbit/s have decreased significantly from 41,7% in 2016 to 25,5% in 2017. Internet connections with speeds exceeding 30Mbit/s have increased from 14,4% in 2016 to 24,2% in 2017. Maximum contracted speed refers to the maximum theoretical speed according to the contractual obligations of the Internet provider at which data can be downloaded (Figures 6).



There seems to be a sufficiency of connection speed among enterprises in Cyprus since 87,7% of all enterprises responded that the speed of their fixed Internet connection is usually sufficient for the actual needs of the enterprise (Figure 7).

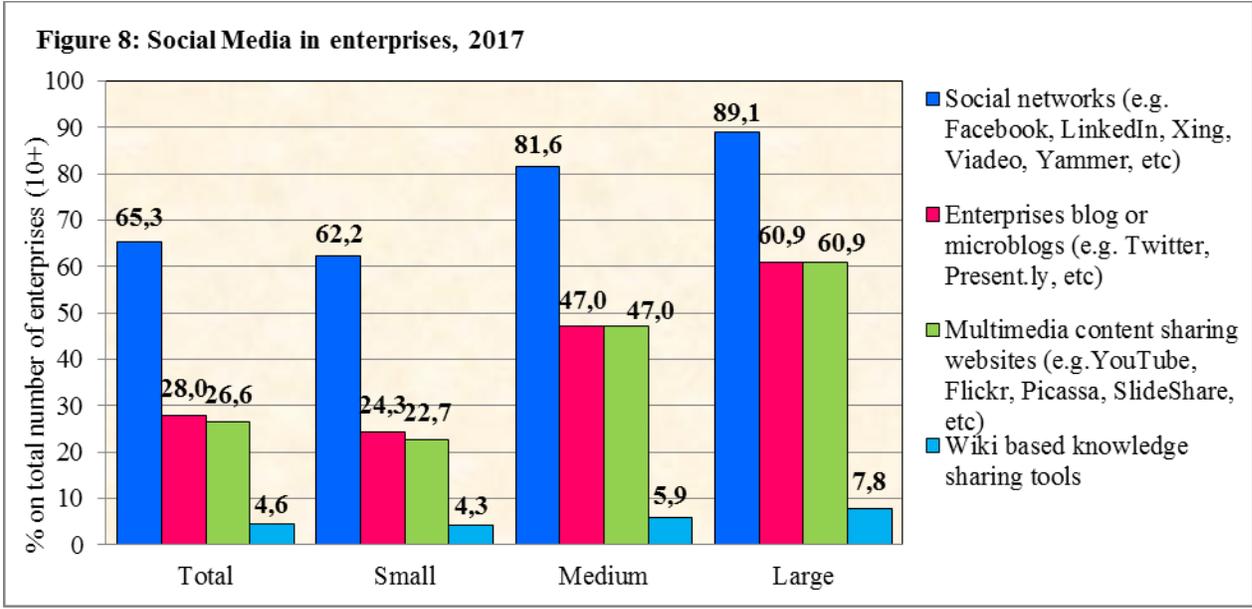


### **USE OF SOCIAL MEDIA**

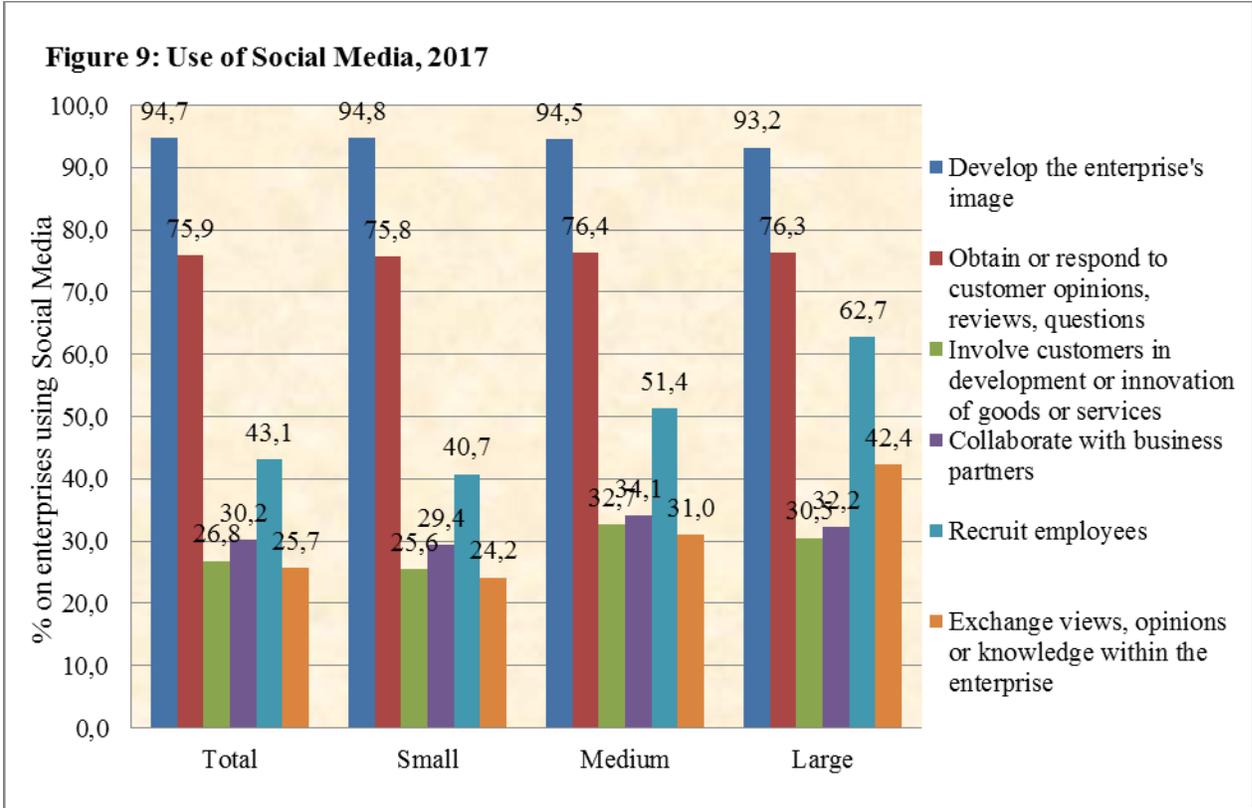
Use of Social Media refers to the usage of applications based on Internet technology or communication platforms for connecting, creating and exchanging content online, with customers, suppliers, partners, or within the enterprise. Enterprises using social media are considered those that have a user profile, an account or a user license depending on the requirements and the type of the social media. 66,8 % of enterprises use Social Media.

Social networks (e.g. Facebook, LinkedIn etc.) are the most popular amongst enterprises (65,3%). Blogs or microblogs like Twitter is the second choice (28,0%) while multimedia content sharing websites such as YouTube, Flickr, etc, follows with 26,6%. Wiki based knowledge sharing tools are not very popular (4,6%) (Figure 8).

In large enterprises social networks is the first option with 89,1% while blogs or microblogs and multimedia content sharing websites is the second (60,9%). Wiki based knowledge sharing tools are used by 7,8% of the large enterprises (Figure 8).

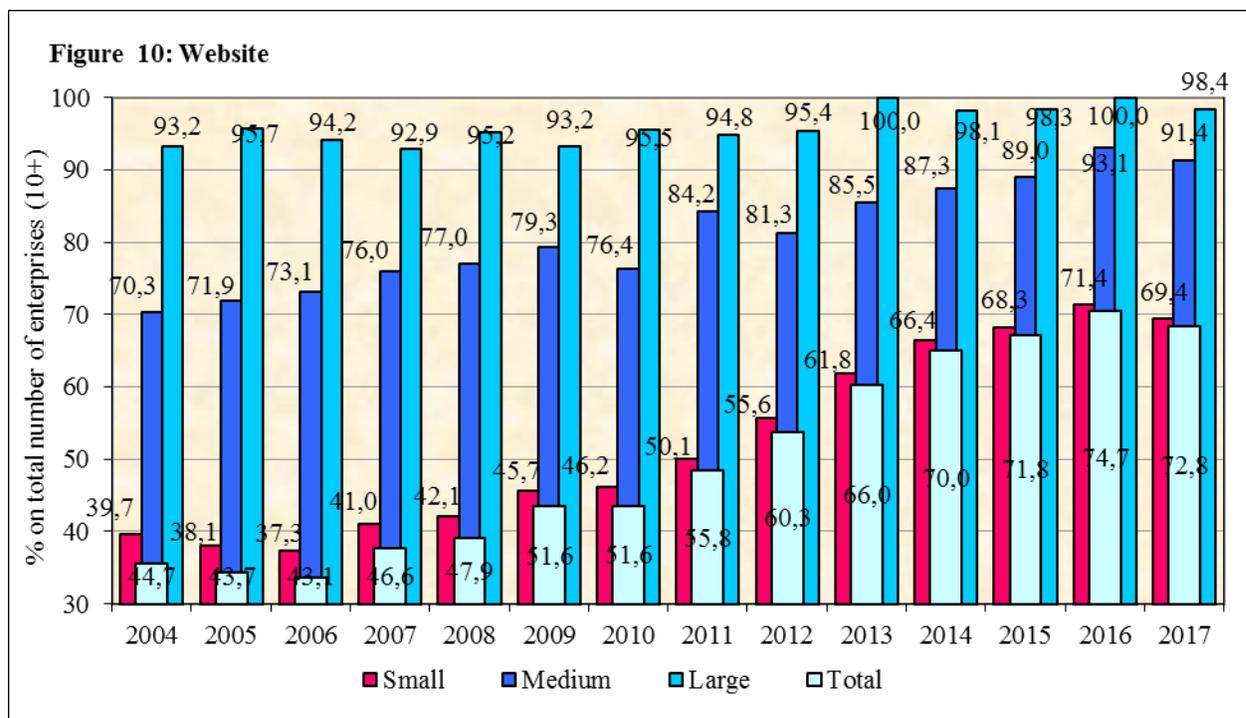


Among the Social Media users, development of the enterprise image is the most popular function (94,7%). Obtaining or responding to customer opinions, questions, reviews through the use of Social Media is the second with 75,9% and recruiting employees is third with 43,1%. It is noted that the three above mentioned functions are the most popular among small, medium and large enterprises (Figure 9).



## USE OF A WEBSITE

In 2017, 72,8% of all enterprises (10+) had a website compared to 74,7% in 2016. In large enterprises that percentage remains stable over 98% since 2013. Over the last decade the number of enterprises having a website has increased from 46,6% in 2007 to 72,8% in 2017 (Figure 10).

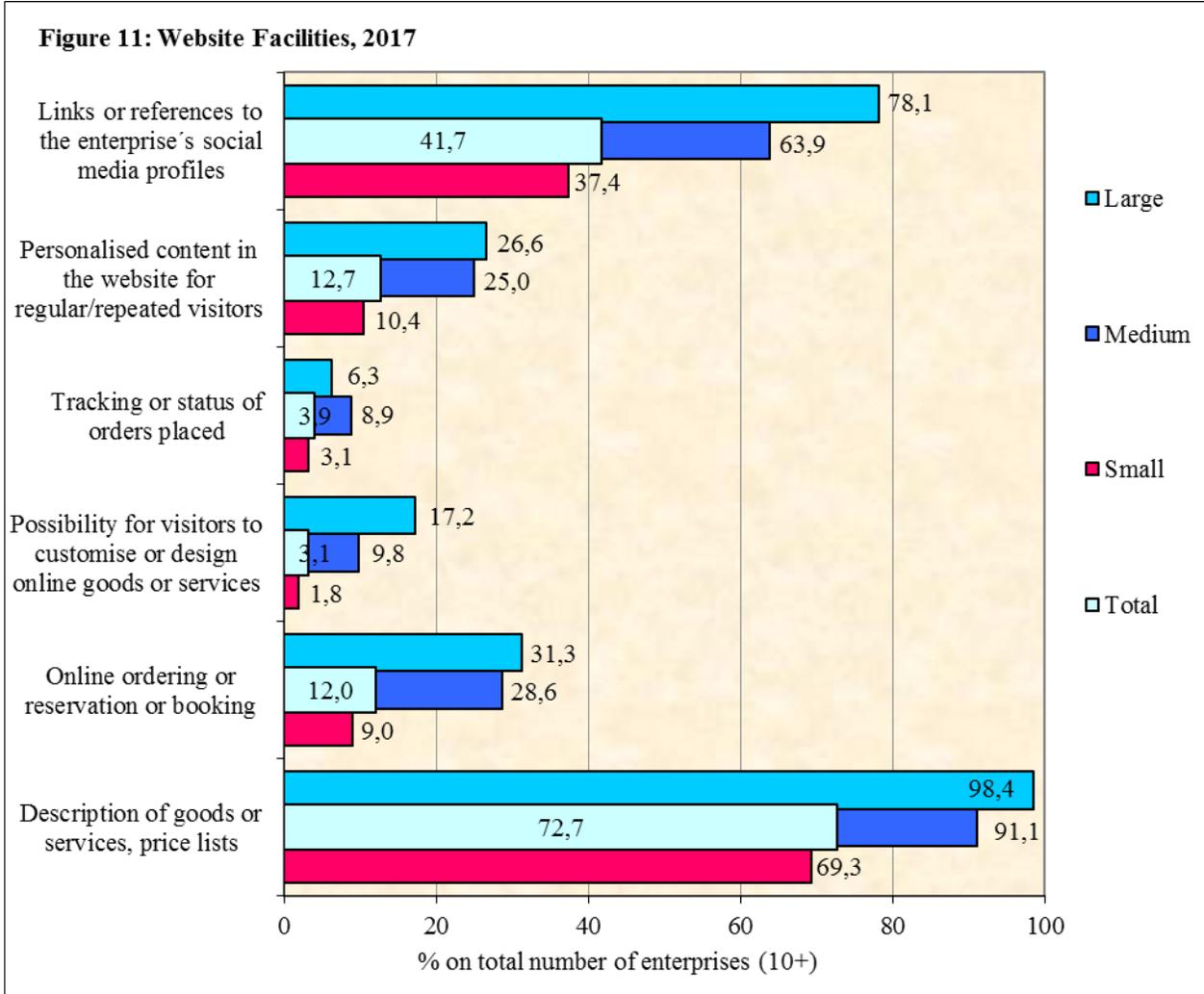


Among the facilities provided by enterprises through their website, the most common is the description of goods and services and price lists (provided by 72,7% of enterprises). In large enterprises that percentage reaches 98,4%, in medium 91,1% and in small 69,3% (Figure 11).

41,7% of enterprises have links or references to the enterprise's social media profiles (i.e. Facebook, Twitter, LinkedIn, YouTube, etc.). In large enterprises that percentage reaches 78,1%, in medium 63,9% and in small 37,4% (Figure 11).

12,0% of enterprises, offer to their customers the option for online ordering or reservation and 12,7% offer the option for personalized content for repeated visitors (Figure 11).

Tracking or status of orders and online customization or design of goods and services are provided by the 3,9% and 3,1% of enterprises respectively (Figure 11).



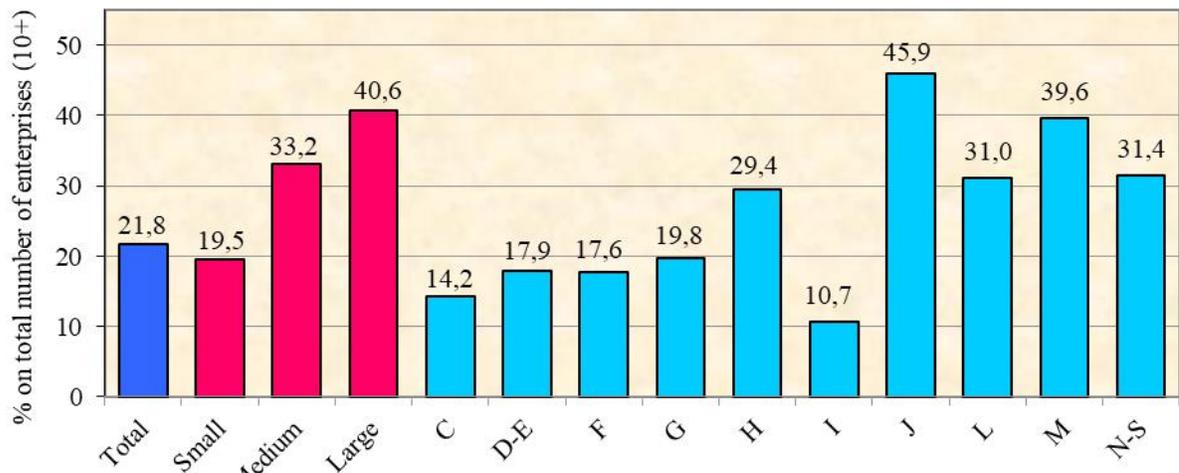
## **USE OF CLOUD COMPUTING SERVICES**

Cloud computing refers to ICT services that are used over the Internet to access software, computing power, storage capacity, etc. The services should have all of the following characteristics:

- be delivered from servers of service providers
- can be easily scaled up or down (e.g. number of users or change of storage capacity)
- can be used on-demand by the user, at least after the initial set up (without human interaction with the service provider)
- be paid for, either per user, by capacity used, or they are pre-paid.

In Cyprus, cloud computing is not very popular among enterprises. In 2017, 21,8% of all enterprises bought any cloud computing services compared to 10,2% in 2014. 40,6% of large enterprises and 45,9% of enterprises belonging in NACE rev.2 Group J: Information and Communication use cloud computing (Figure 12).

**Figure 12: Cloud Computing in enterprises, 2017**



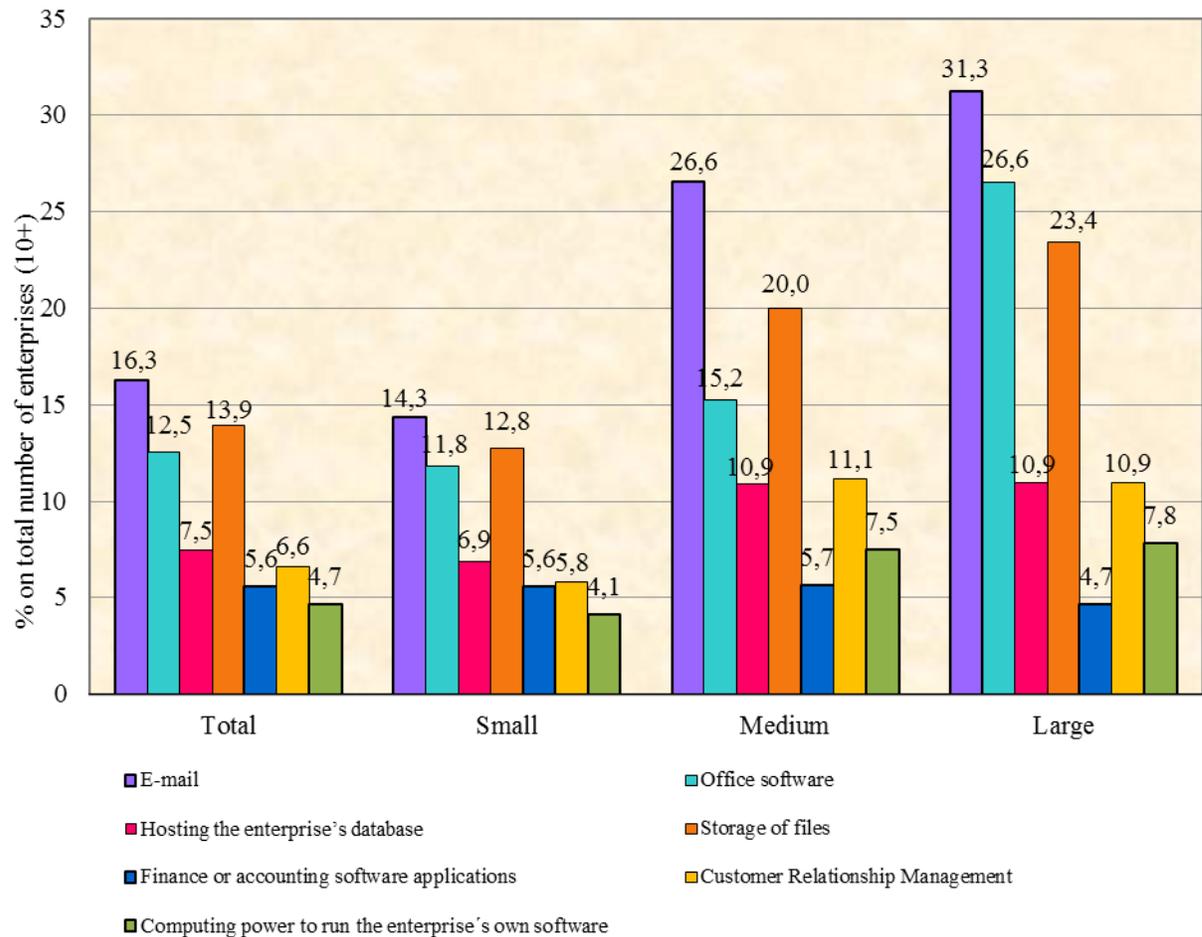
\* Description of NACE codes provided in Annex1

The main use of cloud computing services in enterprises is E-mail (e.g. Email Enterprise, Microsoft Exchange Online / Office 365, etc.) as a cloud computing service (16,3%). Storage of files (e.g. Dropbox, Amazon S3, EMC Mozy, Acronis Online, Diino, etc.) is the second (13,9%) and office software (e.g. word processors, spreadsheets (e.g. Microsoft Office Cloud), etc.) the third (12,5%) (Figure 13).

Compared to 2016 all three above mentioned cloud computing services have increased from 10,9%, 11,0% and 7,9% respectively.

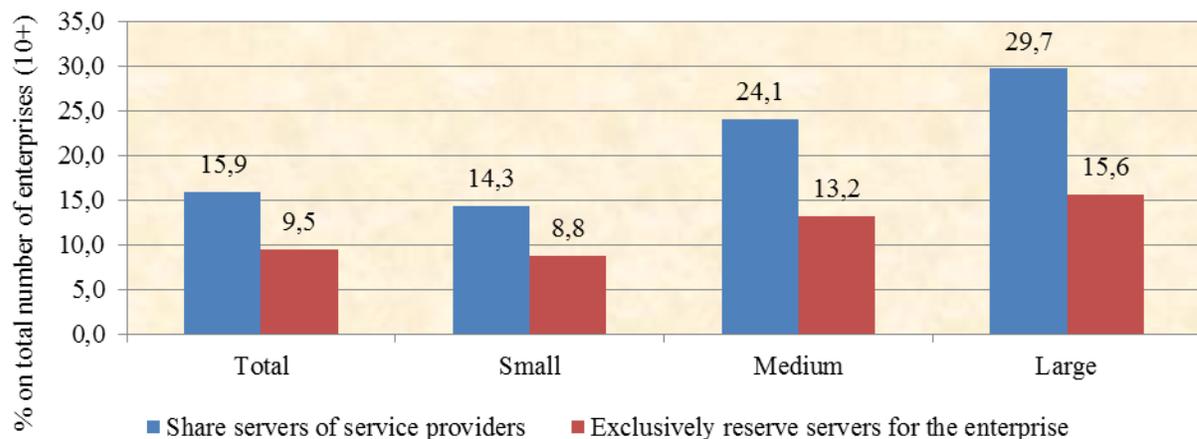
In large enterprises the most popular is the e-mail as a cloud computing service followed by the Office software, the storage of files, hosting databases, customer relationship management, computing power and finance or accounting applications (Figure 13).

**Figure 13: Cloud Computing services, 2017**



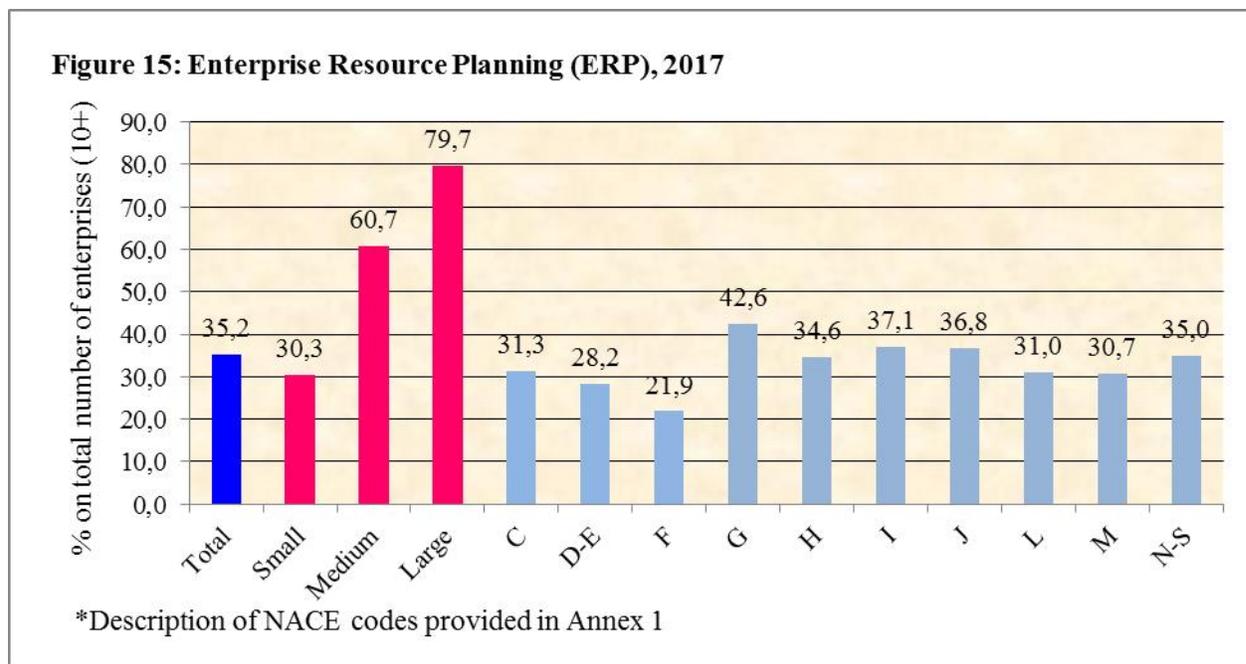
15,9% of enterprises bought cloud computing services delivered from shared servers compared to 9,5% which bought cloud computing services from exclusively reserved servers. In large enterprises that percentage reaches 29,7% and 15,6% respectively (Figure 14).

**Figure 14: Providers of Cloud Computing services, 2017**



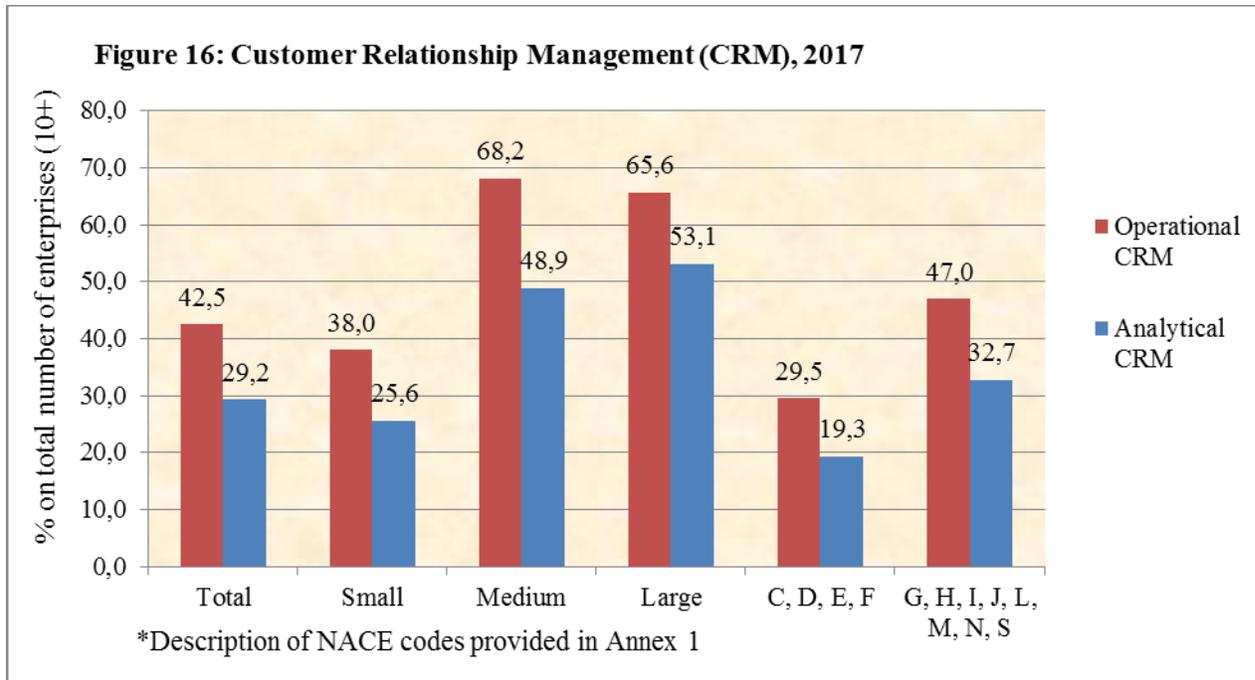
## **SHARING OF INFORMATION ELECTRONICALLY WITHIN THE ENTERPRISE**

An Enterprise Resource Planning (ERP) software package is a set of applications that integrate information and processes across the several business functions of the enterprise. 35,2% of enterprises use ERP software package to share information within the enterprise. ERP software package is most common in large enterprises, with a percentage of 79,7%. 42,6% of enterprises belonging in the Wholesale and Retail Trade sector use ERP, followed by the Accommodation and the Information and Communication sectors (Figure 15).



42,5% of enterprises have Operational CRM (Customer Relationship Management) software application to manage information about clients, to capture, store and make available to other business functions the information about clients, and 29,2% have Analytical CRM to make analysis of the information about clients for marketing purposes. Operational CRM is most common in medium enterprises (68,2%) while Analytical CRM is most common in large enterprises with 53,1% (Figure 16).

The use of both Operational and Analytical CRM is most common in NACE Rev.2 groups G – S with 47,0% and 32,7% of all enterprises respectively (Figure 16).



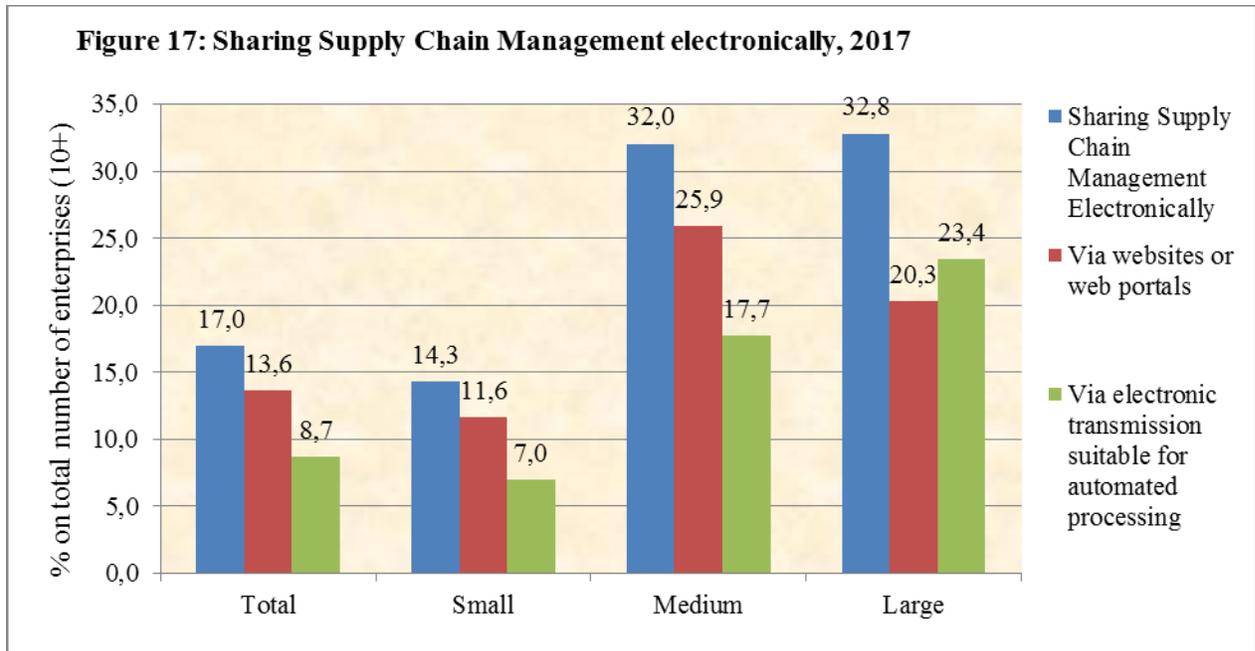
## **SHARING SUPPLY CHAIN MANAGEMENT INFORMATION ELECTRONICALLY**

The sharing of supply chain management information electronically refers to the integration of business processes of an enterprise with those of its suppliers and/or its customers.

17,0% of enterprises share supply chain management information electronically with their suppliers and/or customers. For small enterprises the percentage is 14,3% while for the large is 32,8% (Figure 17).

13,6% of enterprises share supply chain management information electronically via websites or web portals while 8,7% do that via electronic transmission suitable for automated processing (EDI type systems, XML, EDIFACT, etc) (Figure 17).

Small and medium size enterprises use websites or web portals as their primary method of sharing supply chain management information electronically. For large enterprises the primary method of sharing supply chain management information electronically is via electronic transmission suitable for automated processing (EDI type systems, XML, EDIFACT, etc) (Figure 17).

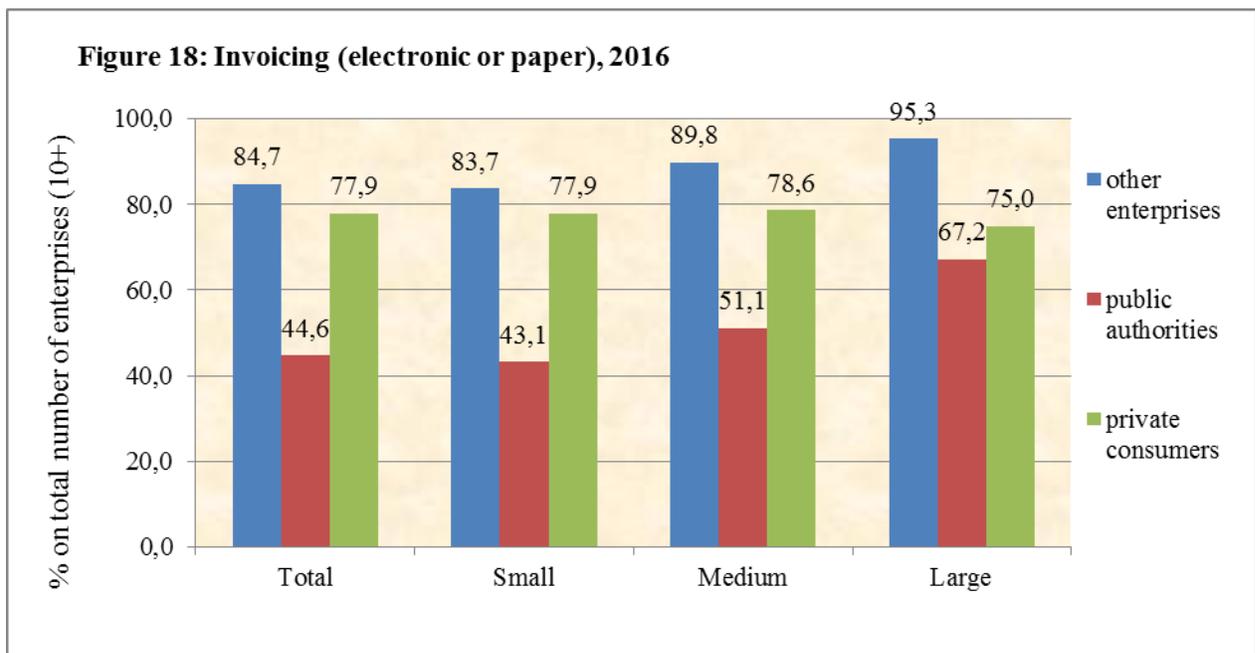


## **INVOICING**

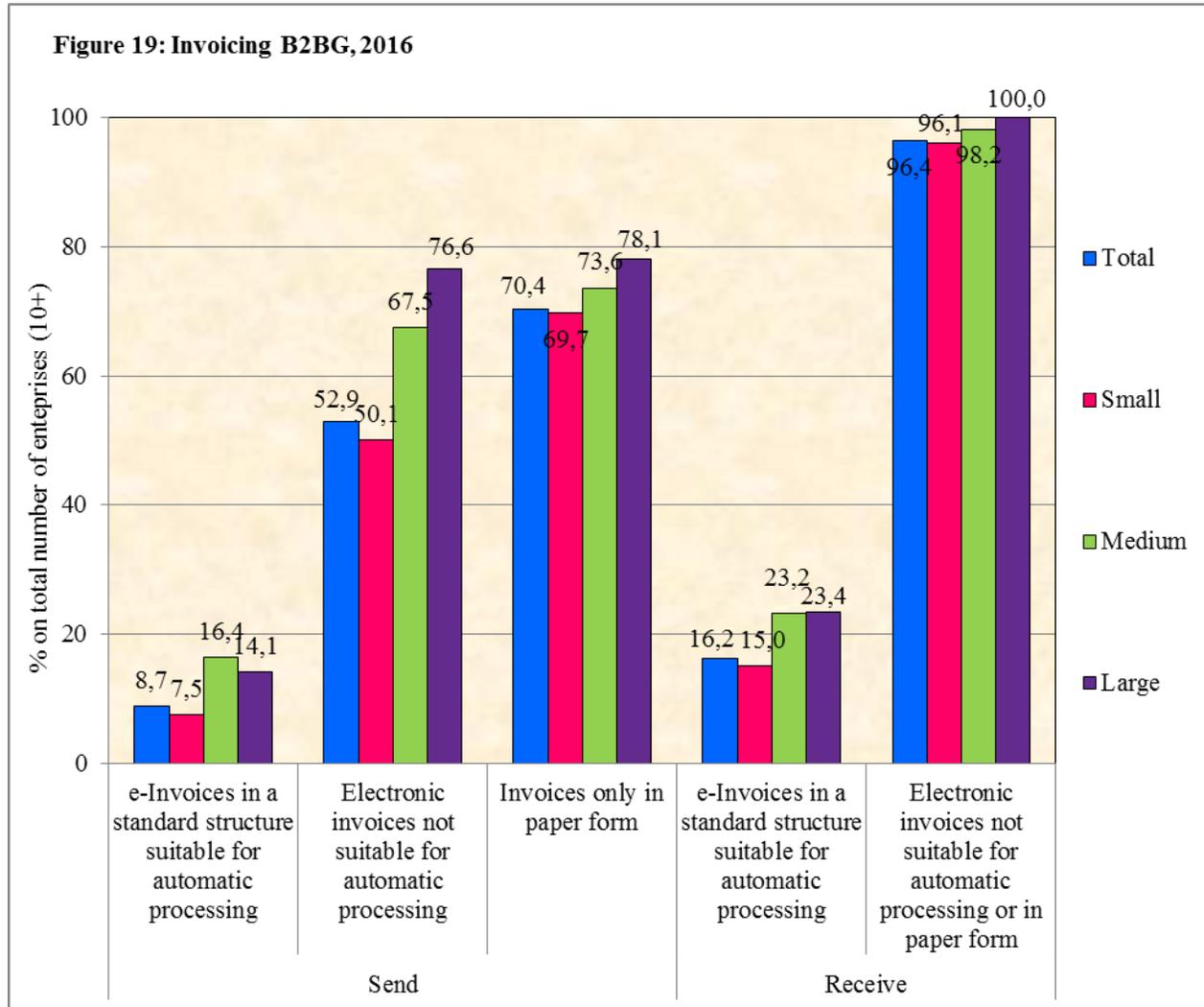
An electronic invoice is an electronic transaction document that contains billing information. There are two different types of electronic invoices:

- (a) e-invoices are electronic invoices in a standard structure (suitable for automatic processing) that may be processed automatically. They may be directly exchanged between suppliers and customers, via service operators or via an electronic banking system.
- (b) Invoices in electronic format **not** suitable for automatic processing.

During 2016, 84,7% of enterprises have issued / sent invoices (electronic or paper invoices) to other enterprises, 77,9% to private consumers and 44,6% to public authorities (Figure 18).



E-invoices in a standard structure suitable for automatic processing (8,7%) is not as commonly used as invoices in electronic format not suitable for automatic processing (e.g. via e-mail as an attachment) (52,9%). But, the invoice in paper form is the most popular with percentage 70,4%. However, 16,4% of medium and 14,1% of large enterprises send e-invoices in a standard structure suitable for automatic processing and 23,2% and 23,4% respectively, received an e-invoice in a standard structure suitable for automatic processing (Figure 19).

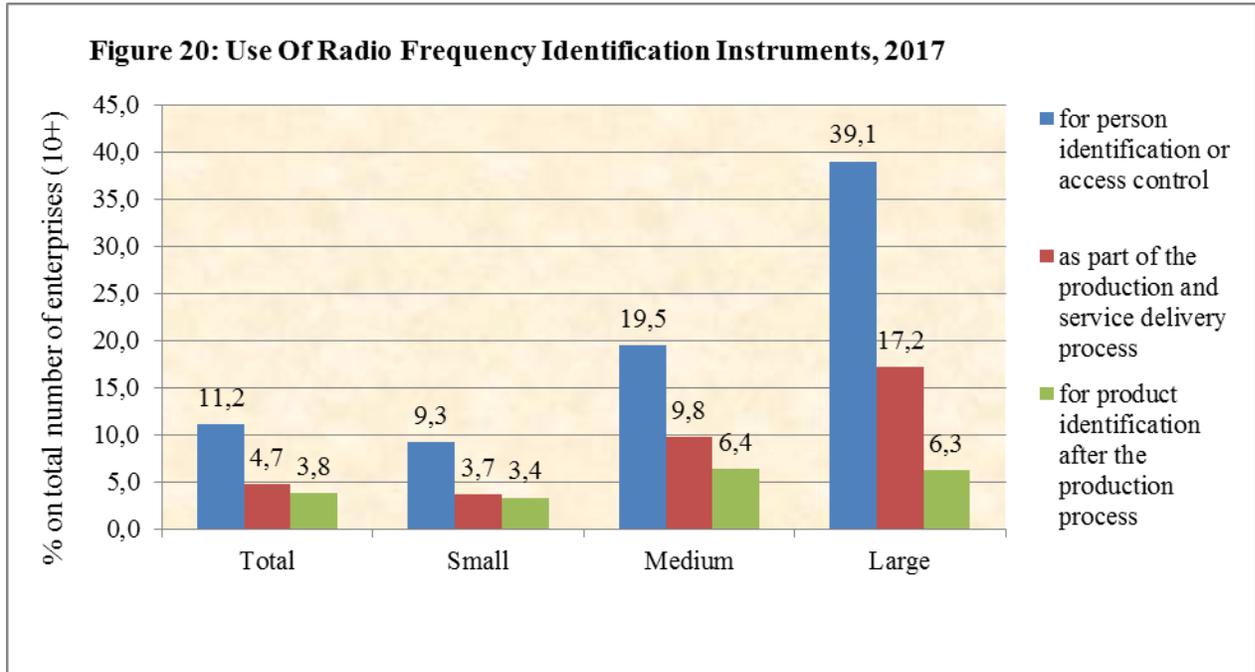


### **USE OF RADIO FREQUENCY IDENTIFICATION (RFID) TECHNOLOGIES**

The use of Radio Frequency identification technologies (RFID) refers to an automated identification method to store and remotely retrieve data using RFID tags or transponders. An RFID tag or transponder is a device that can be applied to or incorporated into a product or an object and transmits data via radio waves.

It includes the use of Near Field Communication (NFC) connectivity standard. NFC enables communication between devices within short distance (approx.10 cm or less).

13,8% of enterprises use Radio Frequency Identification (RFID) technologies. 11,2% of enterprises use RFID technologies for person identification, 4,7% as part of the production and service delivery process (monitoring and control of industrial production, supply chain and inventory tracking service, maintenance or asset management, etc) and 3,8% for product identification after the production process (e.g. theft control, counterfeiting, allergen information, etc.). In large enterprises, the percentages are 39,1%, 17,2% and 6,3% respectively (Figure 20).

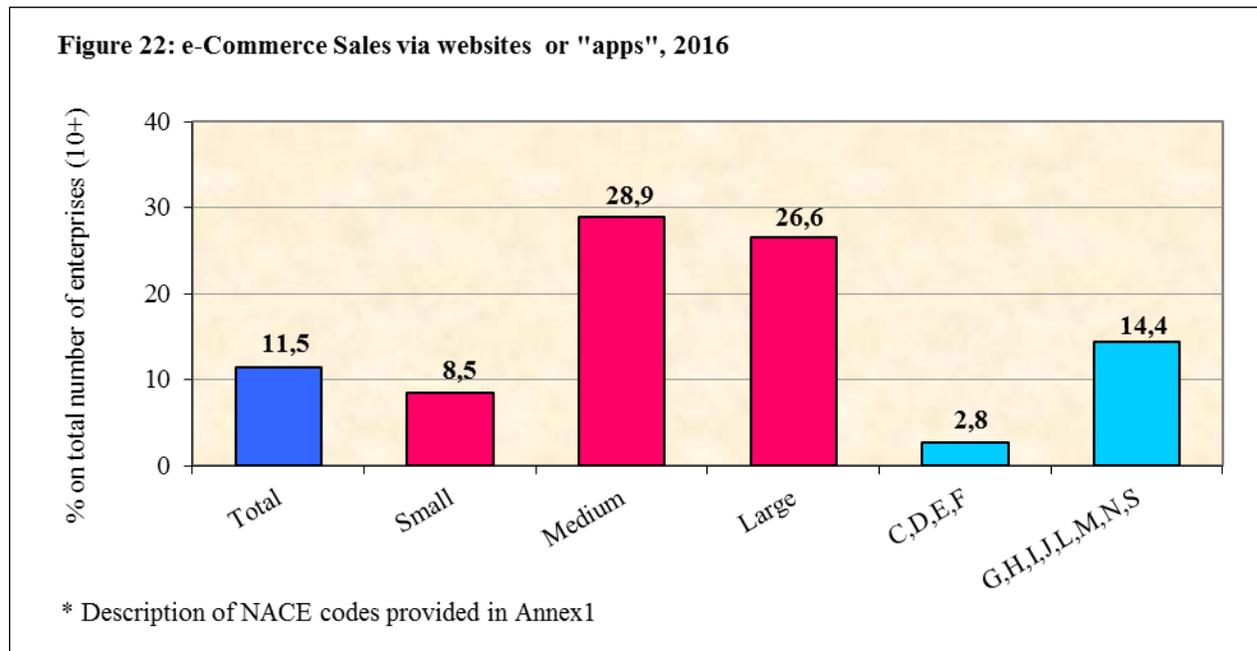


## E-COMMERCE

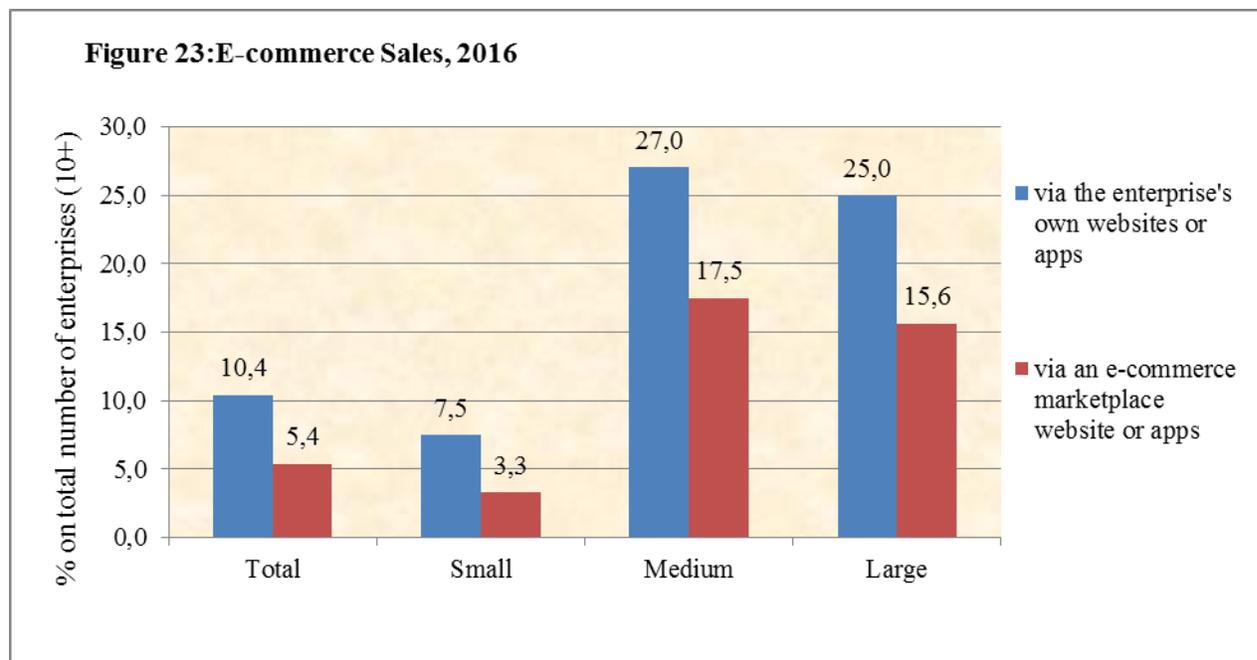
During 2016, 11,5% of enterprises had received orders via website or “apps” (excluding manually typed e-mails) and 2,6% via EDI typed messages while 40,7% have sent orders via website or “apps” and 3,5% via EDI typed messages. E-Commerce via a website is more common compared to e-commerce via EDI-typed messages (Figure 21).



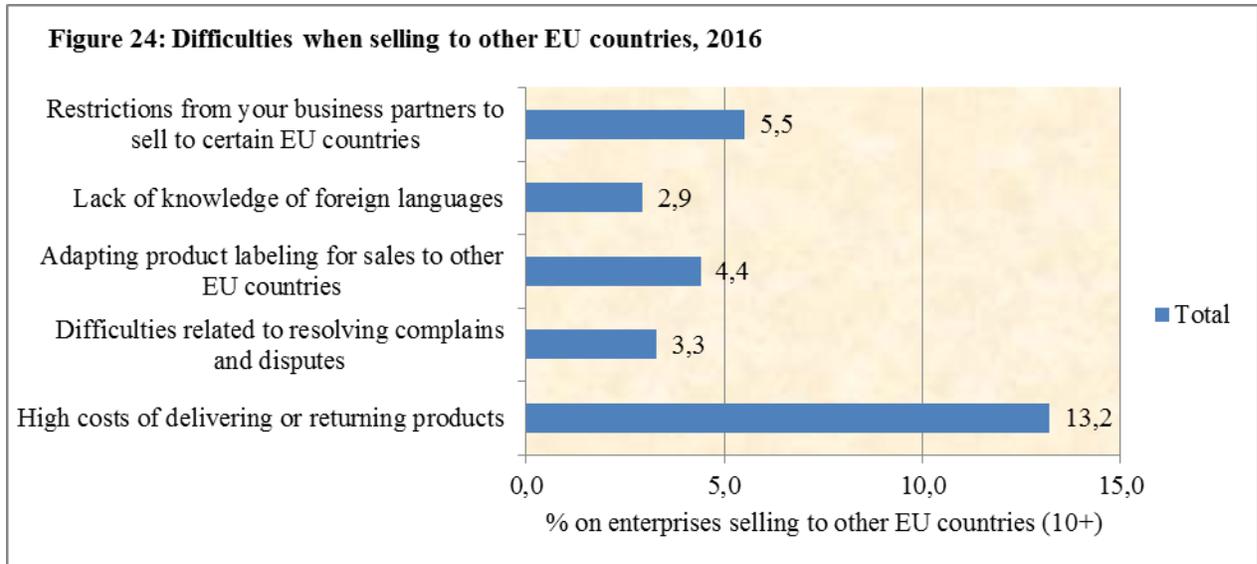
Enterprises receiving online orders are those of the services sector (NACE Rev.2 group G, H, I, J, L, M, N, S) with 14,4% which is much higher than the manufacturing sector (C, D, E, F: 2,8%). In 2016, 11,5% of all enterprises received orders via websites or “apps”. 28,9% and 26,6% of medium and large enterprises received orders via websites or “apps”. Only 8,5% of small enterprises received orders via websites or “apps” (Figure 22).



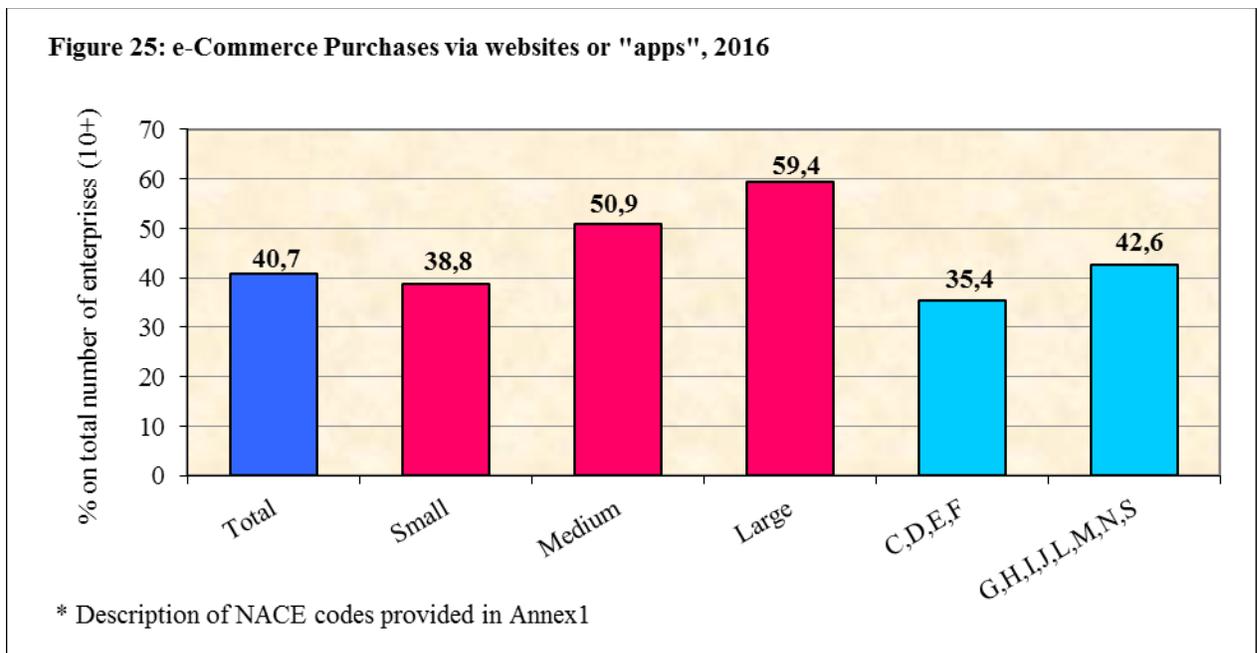
10,4% of enterprises received orders for goods and services via the enterprise’s own websites or “apps” while 5,4% received orders via an e-commerce marketplace website or “apps” used by several enterprises for trading products ( Figure 23).



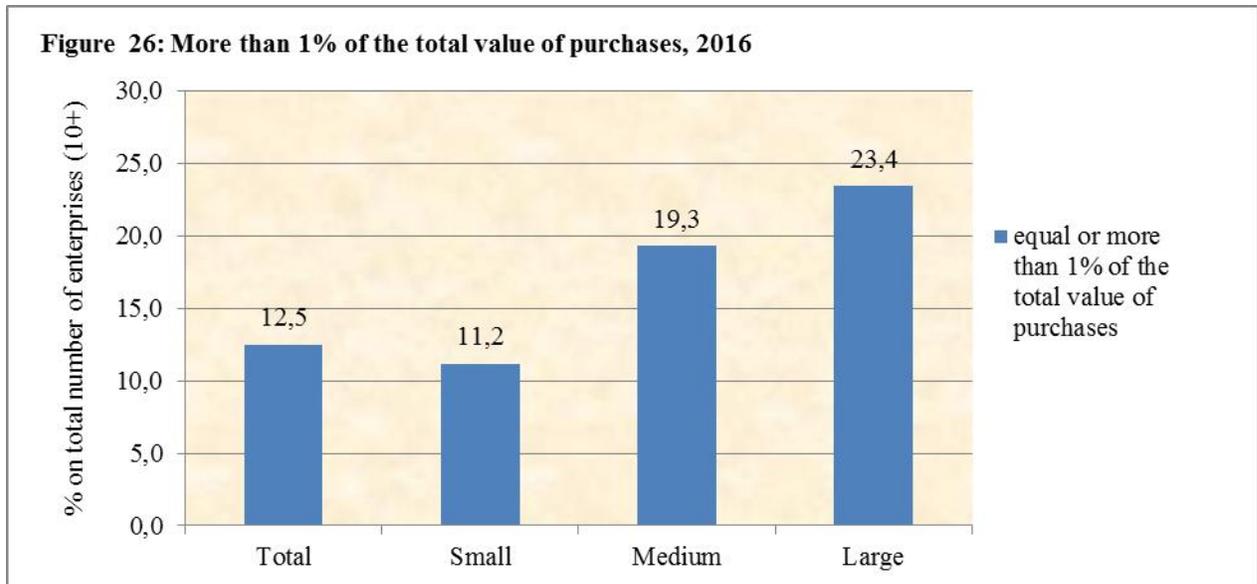
High costs of delivering or returning products was the most rated difficulty experienced when selling to other EU countries. In fact, 13,2% of enterprises selling to other EU countries faced that issue. Restrictions from business partners to sell to certain EU countries was the second rated difficulty (5,5%) and product labeling third (4,4%) (Figure 24).



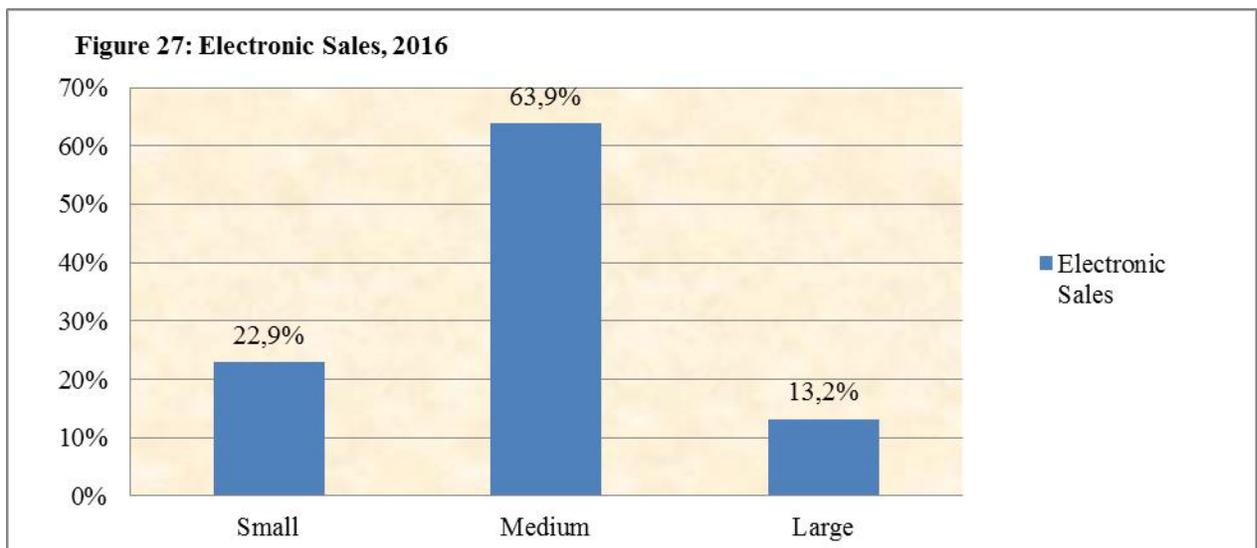
During 2016, 40,7% of enterprises (10+) placed orders for products or services via websites or “apps” (excluding e-mails). In large enterprises the percentage of placing orders via websites or “apps” was 59,4%. Enterprises placing orders seemed to be mostly the ones that belong in the NACE Rev.2 groups G, H, I, J, L, M, N, S, with 42,6% (Figure 25). Orders via EDI type messages were only placed by the 3,5% of all enterprises (Figure 21).



During 2016, 12,5% of all enterprises declared that their orders via websites, “apps” or EDI type messages exceeded 1% of the total value of their purchases. For large enterprises that percentage was 23,4%, for medium 19,3% and for small 11,2% (Figure 26).



Sales via websites, “apps” or EDI type messages amounted to 4,4% of the total turnover. In terms of value 63,9% of sales via websites, “apps” or EDI type messages was performed by medium size enterprises, 22,9% by small and 13,2% by large (Figure 27).



## **Annex**

### **Description of Economic Activity Codes included in the Survey (NACE Rev.2)**

#### **C MANUFACTURING**

- C10 MANUFACTURE OF FOOD PRODUCTS
- C11 MANUFACTURE OF BEVERAGES
- C12 MANUFACTURE OF TOBACCO PRODUCTS
- C13 MANUFACTURE OF TEXTILES
- C14 MANUFACTURE OF WEARING APPAREL
- C15 MANUFACTURE OF LEATHER AND RELATED PRODUCTS
- C16 MANUFACTURE OF WOOD AND OF PRODUCTS OF WOOD AND CORK, EXCEPT FURNITURE; MANUFACTURE OF ARTICLES OF STRAW AND PLAITING MATERIALS
  
- C17 MANUFACTURE OF PAPER AND PAPER PRODUCTS
- C18 PRINTING AND REPRODUCTION OF RECORDED MEDIA
- C19 MANUFACTURE OF COKE AND REFINED PETROLEUM PRODUCTS
- C20 MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS
- C21 MANUFACTURE OF BASIC PHARMACEUTICAL PRODUCTS AND PHARMACEUTICAL PREPARATIONS
- C22 MANUFACTURE OF RUBBER AND PLASTIC PRODUCTS
- C23 MANUFACTURE OF OTHER NON- METALLIC MINERAL PRODUCTS
- C24 MANUFACTURE OF BASIC METALS
- C25 MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND EQUIPMENT
- C26 MANUFACTURE OF COMPUTER, ELECTRONIC AND OPTICAL PRODUCTS
- C27 MANUFACTURE OF ELECTRICAL EQUIPMENT
- C28 MANUFACTURE OF MACHINERY AND EQUIPMENT N.E.C.
- C29 MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS
- C30 MANUFACTURE OF OTHER TRANSPORT EQUIPMENT
- C31 MANUFACTURE OF FURNITURE
- C32 OTHER MANUFACTURING
- C33 REPAIR AND INSTALLATION OF MACHINERY AND EQUIPMENT

#### **D ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY**

#### **E WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES**

- E36 WATER COLLECTION, TREATMENT AND SUPPLY
- E37 SEWERAGE
- E38 WASTE COLLECTION, TREATMENT AND DISPOSAL ACTIVITIES; MATERIALS RECOVERY
- E39 REMEDIATION ACTIVITIES AND OTHER WASTE MANAGEMENT SERVICES

#### **F CONSTRUCTION**

- F41 CONSTRUCTION OF BUILDINGS
- F42 CIVIL ENGINEERING
- F43 SPECIALIZED CONSTRUCTION ACTIVITIES

#### **G WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES**

- G45 WHOLESALE AND RETAIL TRADE AND REPAIR OF MOTOR VEHICLES AND MOTORCYCLES
- G46 WHOLESALE TRADE, EXCEPT OF MOTOR VEHICLES AND MOTORCYCLES
- G47 RETAIL TRADE, EXCEPT OF MOTOR VEHICLES AND MOTORCYCLES

#### **H TRANSPORT, STORAGE AND COMMUNICATION**

H49 LAND TRANSPORT AND TRANSPORT VIA PIPELINES  
H50 WATER TRANSPORT  
H51 AIR TRANSPORT  
H52 WAREHOUSING AND SUPPORT ACTIVITIES FOR TRANSPORTATION  
H53 POSTAL AND COURIER ACTIVITIES

**I ACCOMODATION AND FOOD SERVICE ACTIVITIES**

I55 ACCOMODATION  
I56 FOOD AND BEVERAGE SERVICE ACTIVITIES

**J INFORMATION AND COMMUNICATION**

J58 PUBLISHING ACTIVITIES  
J59 MOTION PICTURE, VIDEO AND TELEVISION PROGRAMME PRODUCTION, SOUND  
RECORDING AND MUSIC PUBLISHING  
J60 PROGRAMMING AND BROADCASTING ACTIVITIES  
J61 TELECOMMUNICATIONS  
J62 COMPUTER PROGRAMMING, CONSULTANCY AND RELATED ACTIVITIES  
J63 INFORMATION SERVICE ACTIVITIES

**L REAL ESTATE ACTIVITIES**

**M PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES**

M69 LEGAL AND ACCOUNTING ACTIVITIES  
M70 ACTIVITIES OF HEAD OFFICES; MANAGEMENT CONSULTANCY ACTIVITIES  
M71 ARCHITECTURAL AND ENGINEERING ACTIVITIES; TECHNICAL TESTING AND ANALYSIS  
M72 SCIENTIFIC RESEARCH AND DEVELOPMENT  
M73 ADVERTISING AND MARKET RESEARCH  
M74 OTHER PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES

**N ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES**

N77 RENTAL AND LEASING ACTIVITIES  
N78 EMPLOYMENT ACTIVITIES  
N79 TRAVEL AGENCY, TOUR OPERATOR RESERVATION SERVICE AND RELATED ACTIVITIES  
N80 SECURITY AND INVESTIGATION ACTIVITIES  
N81 SERVICES TO BUILDINGS AND LANDSCAPE ACTIVITIES  
N82 OFFICE ADMINISTRATIVE, OFFICE SUPPORT AND OTHER BUSINESS SUPPORT  
ACTIVITIES

**S OTHER SERVICE ACTIVITIES**

S951 REPAIR OF COMPUTERS AND PERSONAL AND HOUSEHOLD GOODS