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SURVEY ON ICT USAGE AND E-COMMERCE IN ENTERPRISES 2024

GENERAL INFORMATION:

- 1 The purpose of this survey is to collect data about the use of information and communication technologies (ICT) by the enterprises, the access and use of the internet, e-commerce, ICT specialists and their skills, ICT security and artificial intelligence. These data are necessary for the implementation of policy programmes by both the public and the private sector.
- 2 The requested information must be supplied by the **IT manager of the enterprise**. Background information about the enterprise (Module X) should be provided by the general manager or by the financial controller or by any other responsible person.
- 3 An authorised employee of the Statistical Service will contact the IT manager of the enterprise by phone in order to arrange for filling in the questionnaire.
- 4 Definitions of the terms used in the questionnaire can be found in the glossary attached.
- 5 The reference period for the data is the current period, unless the question refers to another specific period.
- 6 The survey is carried out in accordance with the Official Statistics Law of 2021 (Law No. 25(I)/2021). The Statistical Service is bound by the Law to treat all information obtained as **CONFIDENTIAL**. Your responses will be used solely for statistical purposes.
- 7 The survey is partly financed by the EU and is carried out simultaneously in all Member States.

St. Karagiorgis
Director
Statistical Service

February, 2024

Module A: Access and use of the Internet

(Scope: all enterprises)

- A1. How many persons employed have access to the internet for business purposes?**
(including fixed line and mobile connection)
- If you can't provide this value,
please indicate an estimate of the percentage of the total number of persons employed who have access to the internet for business purposes

(Number)

□ □ □ □ %

If the value=0, go to C1

Use of a fixed connection to the internet for business purposes

- A2. Does your enterprise use any type of fixed connection to the internet?**

(e.g. ADSL, SDSL, VDSL, fiber optics technology (FTTP), cable technology, fixed wireless)

Yes

No

->go to **A5**

- A3. What is the maximum contracted download speed of the fastest fixed internet connection of your enterprise?**

(Tick only one)

a) less than 30 Mbit/s

b) at least 30 but less than 100 Mbit/s

c) at least 100 Mbit/s but less than 500 Mbit/s

d) at least 500 Mbit/s but less than 1 Gbit/s

e) at least 1 Gbit/s

- A4** Is the speed of your fixed connection(s) to the internet usually sufficient for the actual needs of the enterprise?

Yes

No

Module B: e-Commerce sales

(Scope: enterprises with access to the internet, i.e. if A1>0)

In e-commerce sales of goods or services, the order is placed via web sites, apps or EDI-type messages (EDI: Electronic Data interchange) by methods specifically designed for the purpose of receiving orders.

The payment may be done online or offline.

e-Commerce **does not include** orders written in e-mail.

Please report **web and EDI-type sales separately**. They are defined by the method of placing the order:

- WEB sales: the **customer** places the order on a website or through an app;
- EDI type sales: **an EDI-type order message is created from the business system of the customer**.

Web sales of goods or services

Web sales cover orders, bookings and reservations placed by your customers via

- your enterprise's **websites or apps**:
 - online store (webshop);
 - web forms;
 - extranet⁽¹⁴⁾ (webshop or web forms) ;
 - booking/reservation applications for services;
 - apps for mobile devices or computers;
- **e-commerce marketplace websites or apps** (used by several enterprises for trading goods or services).

Orders written in e-mail are **not** counted as web sales.

B1.	During 2023, did your enterprise have web sales of goods or services via:	Yes	No
	a) your enterprise's websites or apps? (including extranets)	<input type="checkbox"/>	<input type="checkbox"/>
	b) e-commerce marketplace⁽¹⁷⁾ websites or apps used by several enterprises for trading goods or services? (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom etc.)	<input type="checkbox"/>	<input type="checkbox"/>

If both B1 a) and B1 b) = "No" then go to B7

B2. **What was the value of your web sales?**
(please refer to the provided definition of web sales)
Please answer to a) OR b)

a) What was the value of your web sales of goods or services, in 2023?	€ _____
OR b) What percentage of total turnover was generated by web sales of goods or services, in 2023? <i>If you cannot provide the exact percentage an approximation will suffice.</i>	□ □ □ , □ %

Question B3 should be answered only if both B1 a) and B1 b) = "Yes"

B3.	What was the percentage breakdown of the value of web sales in 2023 for the following:	
	a) via your enterprise's websites or apps? (including extranets)	□ □ □ %
	b) via e-commerce marketplace websites or apps used by several enterprises for trading goods or services? (e.g. e-Bookers, Booking, hotels.com, eBay, Amazon, Amazon Business, Alibaba, Rakuten, TimoCom etc.)	□ □ □ %
	TOTAL	1 0 0 %

B4.	What was the percentage breakdown of the value of web sales in 2023 by type of customer:	
	a) Sales to private consumers (B2C)	□ □ □ %
	b) Sales to other enterprises (B2B) and Sales to public sector (B2G)	□ □ □ %
	TOTAL	1 0 0 %

B5.	During 2023, did your enterprise have web sales to customers located in the following geographic areas?			
			Yes	No
	a) Own country		□	□
	b) Other EU countries		□	□
	c) Rest of the world		□	□

The following question (B6) should only be answered if at least two of the above possible responses in question B5 a), b) or c) are answered with "Yes", otherwise go to question B7

B6.	What was the percentage breakdown of the value of web sales in 2023 to customers located in the following geographic areas?	
	a) Own country	□ □ □ %
	b) Other EU countries	□ □ □ %
	c) Rest of the world	□ □ □ %
	TOTAL	1 0 0 %

EDI-type sales	
<p>EDI-type sales cover orders placed by customers via EDI-type messages (EDI: Electronic Data interchange) meaning:</p> <ul style="list-style-type: none"> • in an agreed or standard format suitable for automated processing; • EDI-type order message created from the business system of the customer; • including orders transmitted via EDI-service provider; • including automatic system generated demand driven orders; • including orders received directly into your ERP⁽¹³⁾ system. <p>Examples of EDI: EDIFACT, XML⁽³⁵⁾/EDI (e.g. UBL, Rosettanet, <i>[please add national examples]</i>).</p>	

B7. During 2023, did your enterprise have EDI-type sales of goods or services?	Yes <input type="checkbox"/>	No <input type="checkbox"/> -> go to C1
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What was the value of your EDI-type sales?	
B8. (please refer to the provided definition of EDI-type sales) Please answer to a) OR b)	
a) What was the value of your EDI-type sales of goods or services, in 2023?	€ _____
OR	
b) What percentage of total turnover was generated by EDI-type sales of goods or services, in 2023? <i>If you cannot provide the exact percentage an approximation will suffice.</i>	□ □ □ , □ %

Module C: ICT Specialists and Skills		
(Scope: all enterprises)		
C1. Does your enterprise employ ICT specialists? ICT specialists are persons employed for whom ICT is the main job . For example, to develop, operate or maintain ICT systems or applications.	Yes <input type="checkbox"/>	No <input type="checkbox"/>

C2. Did your enterprise provide any type of training to develop ICT related skills of the persons employed, during 2023?	Yes	No
a) Training for ICT specialists <i>Tick "No" if your enterprise didn't employ ICT specialists during 2021.</i>	<input type="checkbox"/>	<input type="checkbox"/>
b) Training for other persons employed	<input type="checkbox"/>	<input type="checkbox"/>

C3. Did your enterprise recruit or try to recruit ICT specialists during 2023?	Yes <input type="checkbox"/>	No <input type="checkbox"/> ->go to C6
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C4.	During 2023, did your enterprise have vacancies for ICT specialists that were difficult to fill?	Yes <input type="checkbox"/>	No <input type="checkbox"/> ->go to C6
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C5.	Did your enterprise have any of the following difficulties to recruit ICT specialists during 2023?	Yes	No
	a) Lack of applications	<input type="checkbox"/>	<input type="checkbox"/>
	b) Applicants' lack of relevant ICT related qualifications from education and/or training;	<input type="checkbox"/>	<input type="checkbox"/>
	c) Applicants' lack of relevant work experience	<input type="checkbox"/>	<input type="checkbox"/>
	d) Applicants' salary expectations too high	<input type="checkbox"/>	<input type="checkbox"/>

C6.	Who performed your enterprise's ICT functions in 2023? (e.g. maintenance of ICT infrastructure; support for office software; development or support of business management software/systems and/or web solutions; security and data protection)	Yes	No
	a) own employees (incl. those employed in parent or affiliate enterprises)	<input type="checkbox"/>	<input type="checkbox"/>
	b) external suppliers	<input type="checkbox"/>	<input type="checkbox"/>

<p>Module D: ICT Security</p> <p>(Scope: enterprises with access to the internet, i.e. if A1>0)</p>
<p>ICT security means measures, controls and procedures applied on enterprise's ICT systems to ensure integrity, authenticity, availability and confidentiality of enterprise's data and systems.</p>

D1.	Does your enterprise apply any of the following ICT security measures on its ICT systems?	Yes	No
	a) authentication via strong password (e.g. minimum length, use of numbers and special characters, changed periodically, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
	b) authentication via biometric methods used to access the enterprise's ICT system (e.g. authentication based on fingerprints, voice, face)	<input type="checkbox"/>	<input type="checkbox"/>
	c) authentication based on a combination of at least two authentication mechanisms (i.e. combination of e.g. user-defined password, one-time password (OTP), code generated via a security token or received via a smartphone, biometric method (e.g. based on fingerprints, voice, face))	<input type="checkbox"/>	<input type="checkbox"/>
	d) Encryption of data, documents or e-mails	<input type="checkbox"/>	<input type="checkbox"/>
	e) Data backup to a separate location (including backup to the cloud)	<input type="checkbox"/>	<input type="checkbox"/>
	f) Network access control (management of user rights in enterprise's network)	<input type="checkbox"/>	<input type="checkbox"/>
	g) VPN (Virtual Private Network extends a private network across a public network to enable secure exchange of data over public network)	<input type="checkbox"/>	<input type="checkbox"/>

h) ICT security monitoring system used to detect suspicious activity (e.g. intrusion detection or prevention systems (IDS), next generation firewall (NGFW)) Exclude antivirus software and default firewall solution included in the operating system of personal computers and routers	<input type="checkbox"/>	<input type="checkbox"/>
i) Maintaining log files that enable analysis after ICT security incidents	<input type="checkbox"/>	<input type="checkbox"/>
j) ICT risk assessment, i.e. periodical assessment of probability and consequences of ICT security incidents	<input type="checkbox"/>	<input type="checkbox"/>
k) ICT security tests (e.g. performing penetration tests, testing security alert system, review of security measures, testing of backup systems)	<input type="checkbox"/>	<input type="checkbox"/>

D2. Does your enterprise make persons employed aware of their obligations in ICT security related issues in the following ways?	Yes	No
a) Voluntary training or internally available information (e.g. information on the intranet)	<input type="checkbox"/>	<input type="checkbox"/>
b) Compulsory training courses or viewing compulsory material	<input type="checkbox"/>	<input type="checkbox"/>
c) By contract (e.g. contract of employment)	<input type="checkbox"/>	<input type="checkbox"/>

D3. Does your enterprise have document(s) on measures, practices or procedures on ICT security? (Filter question) (Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.)	Yes <input type="checkbox"/>	No <input type="checkbox"/> ->go to D5
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D4. When were your enterprise's document(s) on measures, practices or procedures on ICT security, defined or most recently reviewed? (Documents on ICT security and confidentiality of data cover employee training in ICT use, ICT security measures, the evaluation of ICT security measures, plans for updating ICT security documents, etc.)	
a) within the last 12 months	<input type="checkbox"/>
b) more than 12 months and up to 24 months ago	<input type="checkbox"/>
c) more than 24 months ago	<input type="checkbox"/>

D5. During 2023, did your enterprise experience any ICT related security incident leading to the following consequences?	Yes	No
a) Unavailability of ICT services due to hardware or software failures	<input type="checkbox"/>	<input type="checkbox"/>
b) Unavailability of ICT services due to attack from outside, e.g. ransomware attacks, Denial of Service attacks	<input type="checkbox"/>	<input type="checkbox"/>
c) Destruction or corruption of data due to hardware or software failures	<input type="checkbox"/>	<input type="checkbox"/>
d) Destruction or corruption of data due to infection of malicious software or unauthorised intrusion	<input type="checkbox"/>	<input type="checkbox"/>
e) Disclosure of confidential data due to intrusion, pharming, phishing attack, intentional actions by own employees	<input type="checkbox"/>	<input type="checkbox"/>
f) Disclosure of confidential data due to unintentional actions by own employees	<input type="checkbox"/>	<input type="checkbox"/>

Module E: Artificial Intelligence

(Scope: enterprises with access to the internet, i.e. if A1>0)

Artificial intelligence refers to systems that use technologies such as: **text mining, computer vision, speech recognition⁽²⁹⁾, natural language generation⁽²¹⁾, machine learning⁽²⁰⁾**, deep learning to gather and/or use data to predict, recommend or decide, with varying levels of autonomy, the best action to achieve specific goals.

Artificial intelligence systems **can be purely software based**, e.g.:

- chatbots and business virtual assistants based on natural language processing⁽²²⁾;
- face recognition systems based on computer vision or speech recognition systems;
- machine translation software;
- data analysis based on machine learning, etc.;

or **embedded in devices**, e.g.:

- autonomous robots for warehouse automation or production assembly works;
- autonomous drones for production surveillance or parcel handling, etc.

E1. Does your enterprise use any of the following Artificial Intelligence (AI) technologies?	Yes	No
a) AI technologies performing analysis of written language (e.g. text mining)	<input type="checkbox"/>	<input type="checkbox"/>
b) AI Technologies converting spoken language into machine-readable format (speech recognition)	<input type="checkbox"/>	<input type="checkbox"/>
c) AI Technologies generating written or spoken language (natural language generation, speech synthesis)	<input type="checkbox"/>	<input type="checkbox"/>
d) AI Technologies identifying objects or persons based on images or videos (image recognition, image processing)	<input type="checkbox"/>	<input type="checkbox"/>
e) Machine learning (e.g. deep learning) for data analysis	<input type="checkbox"/>	<input type="checkbox"/>
f) AI Technologies automating different workflows or assisting in decision making (e.g. AI based software robotic process automation ⁽²⁷⁾)	<input type="checkbox"/>	<input type="checkbox"/>
g) AI Technologies enabling physical movement of machines via autonomous decisions based on observation of surroundings (autonomous robots, self-driving vehicles, autonomous drones)	<input type="checkbox"/>	<input type="checkbox"/>

If E1 a) to g) = "No" then go to E6.

E2.	Does your enterprise use Artificial Intelligence software or systems for any of the following purposes?	Yes	No
	<p>a) Use of AI for marketing or sales some of the examples may be:</p> <ul style="list-style-type: none"> • customer profiling, price optimisation, personalised marketing offers, market analysis based on machine learning • chatbots based on natural language processing for customer support • autonomous robots for orders processing 	<input type="checkbox"/>	<input type="checkbox"/>
	<p>b) Use of AI for production or service processes some of the examples may be:</p> <ul style="list-style-type: none"> • predictive maintenance or process optimization based on machine learning • tools to classify products or find defects in products based on computer vision • autonomous drones for production surveillance, security or inspection tasks • assembly works performed by autonomous robots 	<input type="checkbox"/>	<input type="checkbox"/>

<p>c) Use of AI for organisation of business administration processes or management</p> <p>some of the examples may be:</p> <ul style="list-style-type: none"> • business virtual assistants based on machine learning and/or natural language processing, e.g. for document drafting • data analysis data or strategic decision making, e.g. risk assessment, based on machine learning • planning or business forecasting based on machine learning • human resources management based on machine learning or natural language processing, e.g. candidates pre-selection screening, employee profiling or performance analysis 	<input type="checkbox"/>	<input type="checkbox"/>
<p>d) Use of AI for logistics</p> <p>some of the examples may be:</p> <ul style="list-style-type: none"> • autonomous robots for pick-and-pack solutions in warehouses for parcel shipping, tracing, distribution or sorting • route optimization based on machine learning 	<input type="checkbox"/>	<input type="checkbox"/>
<p>e) Use of AI for ICT security</p> <p>some of the examples may be:</p> <ul style="list-style-type: none"> • face recognition based on computer vision for authentication of ICT users • detection and prevention of cyber-attacks based on machine learning 	<input type="checkbox"/>	<input type="checkbox"/>
<p>f) Use of AI for accounting, controlling or finance management</p> <p>some of the examples may be:</p> <ul style="list-style-type: none"> • machine learning to analyse data that helps to make financial decisions • invoice processing based on machine learning • machine learning or natural language processing for bookkeeping documents 	<input type="checkbox"/>	<input type="checkbox"/>
<p>g) Use of AI for research and development (R&D) or innovation activity (excluding research on AI)</p> <p>some of the examples may be:</p> <ul style="list-style-type: none"> • analysis of data for conducting research, solving research problems developing a new or significantly improved product/service based on machine learning 	<input type="checkbox"/>	<input type="checkbox"/>

E3.	<p>How did you enterprise acquire the Artificial Intelligence software or systems that it uses?</p>	Yes	No
	<p>a) They were developed by own employees (including those employed in parent or affiliate enterprise)</p>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>b) Commercial software or systems were modified by own employees (including those employed in parent or affiliate enterprise)</p>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>c) Open-source software or systems were modified by own employees (including those employed in parent or affiliate enterprise)</p>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>d) Commercial software or systems ready to use were purchased (including examples where it was already incorporated in a purchased item or system)</p>	<input type="checkbox"/>	<input type="checkbox"/>
	<p>e) External providers were contracted to develop or modify them</p>	<input type="checkbox"/>	<input type="checkbox"/>

E4.	<p>Does your enterprise process data on individuals using AI technologies? (Data on individuals (e.g. employees, job applicants or customers) are: sex, age, racial or ethnic origin, disability, religion or belief, sexual orientation, facial images, record of purchases, occupation or address.</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/> -> go to E6
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E5.	<p>Does your enterprise have any measures to check the results generated by AI technologies for possible biases towards individuals based on sex, age, racial or ethnic origin, disability, religion or belief, sexual orientation?</p> <p>Some of examples of measures to check for possible bias:</p> <ul style="list-style-type: none"> • analysing the results of various machine learning models • examining the dataset that was used to train the machine learning model • data augmentation (which involves techniques to artificially generate additional data points from existing data, i.e. synthetic data) 	<p>Yes</p> <input type="checkbox"/>	<p>No</p> <input type="checkbox"/>
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Question E6 is presented only to respondents who answered 'No' to E1a)-g) i.e. enterprises that did not use any of the Artificial Intelligence technologies listed in question E1.

E6.	<p>Has your enterprise ever considered using any of the Artificial Intelligence technologies listed in question E1?</p>	<p>Yes</p> <input type="checkbox"/>	<p>No</p> <input type="checkbox"/> -> go to X1
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E7.	<p>What are the reasons for your enterprise not to use any of the Artificial Intelligence technologies listed in question E1?</p>	Yes	No
	a) The costs seem too high	<input type="checkbox"/>	<input type="checkbox"/>
	b) There is a lack of relevant expertise in the enterprise	<input type="checkbox"/>	<input type="checkbox"/>
	c) Incompatibility with existing equipment, software or systems	<input type="checkbox"/>	<input type="checkbox"/>
	d) Difficulties with availability or quality of the necessary data	<input type="checkbox"/>	<input type="checkbox"/>
	e) Concerns regarding violation of data protection and privacy	<input type="checkbox"/>	<input type="checkbox"/>
	f) Lack of clarity about the legal consequences (e.g. liability in case of damage caused by the use of Artificial Intelligence)	<input type="checkbox"/>	<input type="checkbox"/>
	g) Ethical considerations	<input type="checkbox"/>	<input type="checkbox"/>
	h) Artificial Intelligence technologies are not useful for the enterprise	<input type="checkbox"/>	<input type="checkbox"/>

Module X: Background information		
X1.	Main economic activity of the enterprise, during 2023	
X2.	Average number of employees and self-employed persons (persons employed), during 2023	
X3.	Total turnover (excluding VAT), for 2023	€ _____

Glossary

- 1. App(s)**

A mobile app, short for mobile application or just app, is application software designed for a specific purpose (e.g. entertainment, shopping, etc.), downloaded and used on computers depending on their operating system (e.g. portable devices such as tablets, smartphones, etc.)

Further information: http://en.wikipedia.org/wiki/Mobile_app;
<http://www.techopedia.com/definition/2953/mobile-application-mobile-app>
- 2. Authentication methods**

Authentication is a way to ascertain that a user is who they claim to be. This is usually performed by presenting one or more challenges to the user. There are three broad categories of challenges:

 - 1) Something the user knows. The user is asked for a secret, known only to her. Typical examples are passwords and PINs, but can also take the form of security questions.
 - 2) Something the user has. The user is in possession of a unique token, like a key. In the case of computer tokens, this can take the form of an NFC tag, or a device.
 - 3) Something the user is. Aka biometrics. The user is asked to present a part of her body that forms unique and repeatable patterns, like fingerprints, voice, or face recognition.

Source: <https://www.enisa.europa.eu/topics/csirts-in-europe/glossary/authentication-methods>
- 3. Biometric authentication**

Biometric authentication is a security process that relies on the unique biological characteristics of an individual to verify that he is who is says he is. Biometric authentication systems compare a biometric data capture to stored, confirmed authentic data in a database. If both samples of the biometric data match, authentication is confirmed. Typically, biometric authentication is used to manage access to physical and digital resources such as buildings, rooms and computing devices.

Types of biometric authentication technologies:

Retina scans produce an image of the blood vessel pattern in the light-sensitive surface lining the individual's inner eye.

Iris recognition is used to identify individuals based on unique patterns within the ring-shaped region surrounding the pupil of the eye.

Fingerscanning, the digital version of the ink-and-paper fingerprinting process, works with details in the pattern of raised areas and branches in a human finger image.

Finger vein ID is based on the unique vascular pattern in an individual's finger.

Facial recognition systems work with numeric codes called faceprints, which identify 80 nodal points on a human face.

Voice identification systems rely on characteristics created by the shape of the speaker's mouth and throat, rather than more variable conditions.

Source: <https://searchsecurity.techtarget.com/definition/biometric-authentication>
- 4. Business process**

A business process or business method is a collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers. Business processes can be of three types: *Management processes* (e.g. corporate governance, strategic management), *Operational processes* (e.g. purchasing, manufacturing, marketing and sales etc) and *Supporting processes* (e.g. accounting, recruitment, technical support etc).

Source: http://en.wikipedia.org/wiki/Business_process

- 5. Chatbots or Virtual agent** A chatbot or virtual agent is a computer generated, animated, artificial intelligence virtual character that serves as an online customer service representative.
- 6. CRM** Customer Relationship Management (CRM) is a management methodology which places the customer at the centre of the business activity, based in an intensive use of information technologies to collect, integrate, process and analyse information related to the customers.
- One can distinguish between:
1. Operational CRM – Integration of the front office business processes that are in contact with the customer.
 2. Analytical CRM – Analysis, through data mining, of the information available in the enterprise on its customers. This aims to gather in depth knowledge of the customer and how to answer to its needs.
- 7. Denial of Service attack** A denial-of-service attack (DoS attack) or distributed denial-of-service attack (DDoS attack) is an attempt to make a computer resource unavailable to its intended users. Although the means to carry out, motives for, and targets of a DoS attack may vary, it generally consists of the concerted efforts of a person or persons to prevent an internet site or service from functioning efficiently or at all, temporarily or indefinitely. Perpetrators of DoS attacks typically target sites or services hosted on high-profile web servers such as banks, credit card payment gateways, and even root name servers.
- One common method of attack involves saturating the target (victim) machine with external communications requests, such that it cannot respond to legitimate traffic, or responds so slowly as to be rendered effectively unavailable. In general terms, DoS attacks are implemented by either forcing the targeted computer(s) to reset, or consuming its resources so that it can no longer provide its intended service or obstructing the communication media between the intended users and the victim so that they can no longer communicate adequately.
- 8. DSL** Digital Subscriber Line (DSL) is a family of technologies that provides digital data transmission over the wires of a local telephone network. DSL is widely understood to mean Asymmetric Digital Subscriber Line (ADSL), the most commonly installed technical varieties of DSL. DSL service is delivered simultaneously with regular telephone on the same telephone line as it uses a higher frequency band that is separated by filtering.
- Source: <http://en.wikipedia.org/wiki/DSL>
- 9. EDI, EDI-type** Electronic Data Interchange (EDI) refers to the structured transmission of data or documents between organizations or enterprises by electronic means. It also refers specifically to a family of standards (EDI-type) and EDI-type messages suitable for automated processing.
- Source: http://en.wikipedia.org/wiki/Electronic_Data_Interchange
- 10. EDI e-commerce** Orders initiated with EDI-type messages. EDI (electronic data interchange) is an e-business tool for exchanging different kinds of business messages. EDI is here used as a generic term for sending or receiving business information in an agreed format suitable for automated processing (e.g. EDIFACT, XML, etc.) and without the individual message being manually typed. "EDI e-commerce" is limited to EDI messages placing an order.
- Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL

11. Electronic commerce (e-Commerce)

An e-commerce transaction is the sale or purchase of goods or services, conducted over computer networks by methods specifically designed for the purpose of receiving or placing of orders. The goods or services are ordered by those methods, but the payment and the ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations. e-Commerce comprises orders made in Web pages or apps, extranet or EDI and excludes orders made by telephone calls, facsimile, or manually typed e-mail. The type is defined by the method of making the order.

Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL

12. E-mail

Electronic transmission of messages, including text and attachments, from one computer to another located within or outside of the organisation. This includes electronic mail by internet or other computer networks.

13. ERP

Enterprise Resource Planning (ERP) consists of one or of a set of software applications that integrate information and processes across the several business functions of the enterprise. Typically ERP integrates planning, procurement, sales, marketing, customer relationship, finance and human resources.

ERP software can be customised or package software. These latter are single-vendor, enterprise wide, software packages, but they are built in a modular way allowing enterprises to customise the system to their specific activity implementing only some of those modules.

ERP systems typically have the following characteristics:

1. are designed for client server environment (traditional or web-based);
2. integrate the majority of a business's processes;
3. process a large majority of an organization's transactions;
4. use enterprise-wide database that stores each piece of data only once;
5. allow access to the data in real time.

14. Extranet

A closed network that uses internet protocols to securely share enterprise's information with suppliers, vendors, customers or other businesses partners. It can take the form of a secure extension of an Intranet that allows external users to access some parts of the enterprise's Intranet. It can also be a private part of the enterprise's website, where business partners can navigate after being authenticated in a login page.

15. GPS

The Global Positioning System (GPS) is a satellite-based radionavigation system. Is one of the global network of satellites that enable satellite navigation through GPS signals. GPS receiver anywhere on or near the Earth where there is an unobstructed line of sight to four or more GPS satellites can determine location, time, and velocity using this information.

Source: https://en.wikipedia.org/wiki/Global_Positioning_System,
https://en.wikipedia.org/wiki/GPS_signals

16. Internet

The internet is a global system of interconnected computer networks that use the standard internet Protocol Suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks of local to global scope that are linked by a broad array of electronic and optical networking technologies. The internet carries a vast array of information resources and services, most notably the inter-linked hypertext documents of the World Wide Web (WWW) and the infrastructure to support electronic mail.

Source: <http://en.wikipedia.org/wiki/internet>

- Relates to internet Protocol based networks: www, Extranet over the internet, EDI over the internet, internet-enabled mobile phones.
- 17. Intrusion** An intrusion is an attempt to bypass security controls on a information system. Means of intrusion can be eavesdropping, viruses, worms, trojan horses, logic or time bombs, brute force attacks, etc.
- Intrusion detection is a process with the purpose of detecting intrusions or attempts of intrusions into a computer or network to compromise the confidentiality, integrity or availability by observation of system, application and user activity as well as network traffic. Intrusion detection systems take preventive actions against intrusions without direct human intervention.
- 18. Malicious software** Malicious software, also known as "malware" is any piece of software that performs undesirable operations such as data theft or some other type of computer compromise.
- Source: <https://www.enisa.europa.eu/topics/csirts-in-europe/glossary/malware>
- 19. Marketplace(s) (e-Commerce marketplaces)** The term "e-commerce marketplaces" refers to websites or apps used by several enterprises for trading products e.g. Booking, eBay, Amazon, Amazon Business, Alibaba, Rakuten, etc.). e-Commerce marketplaces are different from e-commerce platforms. The latter provide scalable, self-made online solutions for business that would like to set up their own e-commerce website.
- 20. Machine learning (incl. deep learning)** Machine learning (e.g. deep learning) involves 'training' a computer model to better perform an automated task, e.g. pattern recognition.
- 21. Natural language generation (NLG)** Natural language generation is the ability for a computer program to convert data into natural language representation.
- 22. Natural language processing (NLP)** Natural language processing is the ability for a computer program to understand human language as it is spoken.
- 23. Online payment** An online payment is an integrated ordering-payment transaction.
- 24. Pharming** The term "pharming" connotes an attack to redirect the traffic of a website to another, bogus website in order to acquire sensitive information.
- 25. Phishing** Phishing is a criminally fraudulent attempt to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication.
- 26. Ransomware** Ransomware is a type of malware (like Viruses, Trojans, etc.) that infect the computer systems of users and manipulates the infected system in a way, that the victim can not (partially or fully) use it and the data stored on it. The victim usually shortly after receives a blackmail note by pop-up, pressing the victim to pay a ransom (hence the name) to regain full access to system and files.
- Source: <https://www.enisa.europa.eu/topics/csirts-in-europe/glossary/ransomware>
- 27. Robotic process automation (Artificial Intelligence based)** Artificial Intelligence based robotic process automation refers to software that automates business processes (e.g. workflows automation) based on Artificial Intelligence technologies.

- 28. Sales via website (web sales)** Web sales are sales made via an online store (web shop), via web forms on a website or extranet, or apps. Web sales are distinguished from EDI sales. In particular, the type of e-commerce transaction is defined by the method of making the order. This approach should mitigate the interpretation problems where both types, EDI and Web, are used in the process. An example is a situation where an order is made by the customer through a web application but the information is transmitted to the seller as an EDI-type message. Here the type of selling application is however web; EDI is only a business application to transmit information about the sale. Web sales can be done by mobile phones using an internet browser.
Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL
- 29. Speech Recognition** Speech recognition is the ability of a machine or program to identify words and phrases in spoken language and convert them to a machine-readable format
- 30. VPN** A virtual private network (VPN) extends a private network across a public network, and enables users to send and receive data across shared or public networks as if their computing devices were directly connected to the private network. Applications running on a computing device, e.g., a laptop, desktop, smartphone, across a VPN may therefore benefit from the functionality, security, and management of the private network. Encryption is a common, though not an inherent, part of a VPN connection.
Source: https://en.wikipedia.org/wiki/Virtual_private_network
- 31. Web e-commerce** Web (e-commerce) sales are sales made via an online store (web shop), via web forms on a website or extranet, or apps regardless of how the web is accessed (computer, laptop, mobile phone etc.)
Source: OECD, DSTI/ICCP/IIS(2009)5/FINAL
- 32. Website** Location on the World Wide Web identified by a Web address (e.g.: http://www.). Collection of Web pages on a particular subject that includes a home page which normally allows the access to the other web pages. Information is encoded with specific languages (e.g. Hypertext mark-up language (HTML), XML, Java) readable with a Web browser, like e.g. Microsoft Edge, Internet Explorer, Google Chrome, Mozilla Firefox, Safari.
All publicly accessible websites collectively constitute the World Wide Web. There are also private websites that can only be accessed on a private network, such as a company's internal website for its employees.
An own website, created by the enterprise, allows this enterprise to customize the content, design and features of the website. It is irrelevant whether this website is made available via the enterprise's own or a third party's IT infrastructure.
- 33. Wi-Fi** Wi-Fi (or Wi-fi, WiFi, Wifi, wifi), short for 'Wireless Fidelity', is a set of ethernet standards for wireless local area networks (WLAN) currently based on the IEEE 802.11 specifications. New standards beyond the 802.11 specifications, such as 802.16 have been developed. Wi-Fi was intended to be used for wireless devices and LANs, but is now often used for internet access (one of the main international standards for wireless broadband internet access and networking, with widespread use in business, homes and public spaces). It is based on radio signals with a frequency of 2.4 GHz and theoretically capable of speeds of over 54 Mbit/s. It enables a person with a wireless-enabled computer or personal digital assistant to connect to the internet when close to an access point called a hotspot.
- 34. xDSL** Digital Subscriber Line. DSL technologies are designed to increase bandwidth available over standard copper telephone wires. Includes IDSL, HDSL, SDSL, ADSL, RADSL, VDSL, DSL-Lite.

35. XML

The Extensible Markup Language is a markup language for documents containing structured information. Structured information contains both content (words, pictures, etc.) and some indication of what role that content plays (for example, content in a section heading has a different meaning from content in a footnote, which means something different than content in a figure caption or content in a database table, etc.). Almost all documents have some structure. A markup language is a mechanism to identify structures in a document. The XML specification defines a standard way to add markup to documents.

Source: <http://www.xml.com/>