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Business Organization and Strategy Curriculum

DIGITAL TRANSFORMATION IN SMEs:

Introduction of the e-invoicing

Relatore: Chiar.mo
Prof. Stefano Staffolani

Tesi di Laurea di:
Nicolò Copparoni

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CONTENTS

INTRODUCTION

We are living in the age of digitization, the highest rate of innovation in all of human history, the advent of the Internet and new technological discoveries are profoundly changing daily habits and relationships throughout society. At the company level, technological changes are affecting all areas, marketing and communication, institutional, management, commercial and economic-financial. For companies, the Internet has become an essential tool, necessary to promote their products and services, to make themselves known to the public and spread their brands and to manage internal processes more easily. New consumers have access to more information and are always on the lookout, thanks to the countless possibilities offered by the market, for the best product, the one that comes closest to meeting their needs in the shortest possible time. In this perspective of continuous evolution, it becomes fundamental for companies to resist and adapt as quickly as possible to the changes imposed by market trends.

Some changes are imposed by the introduction of new regulations to improve the country's competitiveness or to solve some internal problems such as tax evasion. In this treatise on the digital transformation of SMEs, it was decided to focus attention on e-invoicing, since this is a very topical issue that is taking on great importance in the European panorama, on which Italy has set the standard thanks to the forced digitalization imposed by the tax authorities. This work is divided into

three chapters. The first chapter deals with the topic of digitization. First of all, the characteristics that "digital enterprises" need to possess in order to be able to adequately face the challenge of change and grow with and through it are presented. Then we briefly address the topic of Industry 4.0 and the concept of Smart Factory.
In the second chapter, after a mention of the advantages that can be obtained with the dematerialization of paper documents and a brief introduction on the invoice document, we address the topic of Electronic Invoicing, as a practical case and a virtuous example of transformation of an analog process into a digital process. Then it is explained what the electronic invoice is and what its characteristics are, the functioning of the system is illustrated, the evolution of the legislation that, year after year, led to its introduction and then the obligation for the various parties involved, the objectives for which it was introduced are also illustrated. The final part of the chapter is dedicated to a general analysis of Electronic Invoicing at European and global level.
In the third and final chapter, the impacts of e-invoicing are analyzed, the changes that SMEs and the various VAT operators had to face in the invoicing process are described. A balance sheet of the results obtained is drawn up and an analysis of the data published by the Revenue Agency and the Ministry of Economy and Finance one year after the introduction of the electronic invoicing obligation is presented.

INTRODUZIONE

Stiamo vivendo l'era della digitalizzazione, il periodo a più alto tasso di innovazione di tutta la storia dell'umanità, l'avvento di Internet e le nuove scoperte tecnologiche stanno cambiando profondamente le abitudini ed i rapporti quotidiani nell'intera società. A livello aziendale, i cambiamenti tecnologici stanno coinvolgendo tutte le aree, quella del marketing e della comunicazione, quella istituzionale, quella gestionale, quella commerciale ed economico-finanziaria. Per le imprese, Internet è diventato uno strumento imprescindibile, necessario per promuovere i propri prodotti e servizi, per farsi conoscere al pubblico e diffondere i proprio brand e per gestire in maniera più agile i processi interni. I nuovi consumatori hanno accesso a maggiori informazioni e sono sempre alla ricerca, grazie alle innumerevoli possibilità che offre il mercato, del miglior prodotto, quello che più si avvicina al soddisfare le proprie esigenze nel minor tempo possibile. In quest'ottica di continua evoluzione diventa fondamentale per le aziende resistere ed adattarsi il più velocemente possibile ai cambiamenti imposti dall'andamento del mercato.

Alcuni cambiamenti sono imposti dall'introduzione di nuove normative volte a migliorare la competitività del Paese oppure per risolvere alcuni problemi interni al sistema come ad esempio quello dell'evasione fiscale. In questo trattato sulla trasformazione digitale delle PMI si è deciso di focalizzare l'attenzione sulla

fatturazione elettronica, poiché si tratta di un tema molto attuale che sta assumendo grande rilevanza nel panorama europeo, sul quale l'Italia ha fatto scuola grazie alla digitalizzazione forzata imposta dall'Amministrazione Finanziaria.

Questo lavoro è articolato in tre capitoli. Nel primo capitolo si tratta il tema della digitalizzazione. In primis, sono presentate le caratteristiche che le "imprese digitali" devono possedere per poter affrontare in maniera adeguata la sfida del cambiamento e crescere con e grazie ad esso. Poi si affronta brevemente il tema dell'Industria 4.0 ed il concetto di Smart Factory.

Nel secondo capitolo dopo un cenno ai vantaggi che si ottengono con la dematerializzazione dei documenti cartacei e una breve introduzione sul documento fattura, affrontiamo il tema della Fatturazione Elettronica, come caso pratico ed esempio virtuoso di trasformazione di un processo analogico in processo digitale. Successivamente viene spiegato che cos'è la fattura elettronica e quali sono le sue caratteristiche, viene illustrato il funzionamento del sistema, l'evoluzione della normativa che, anno dopo anno, ha portato alla sua introduzione e poi all'obbligo per i vari soggetti coinvolti, vengono illustrati inoltre gli obiettivi per cui è stata introdotta. La parte finale del capitolo è dedicata a un'analisi generale della Fatturazione Elettronica a livello europeo e mondiale.

Nel terzo ed ultimo capitolo, vengono analizzati gli impatti della fatturazione elettronica, sono descritti i cambiamenti che le PMI e i vari operatori IVA hanno dovuto affrontare nel processo di fatturazione. Viene tracciato un bilancio dei

risultati ottenuti e viene presentata un'analisi dei dati che l'Agenzia delle Entrate ed il Ministero dell'Economia e delle Finanze hanno pubblicato a un anno dall'introduzione dell'obbligo di fatturazione elettronica.

CHAPTER 1: THE DIGITAL TRANSFORMATION

1.1 THE DIGITAL COMPANY

In a very short time, new technologies have become part of our daily life, significantly changing every kind of habit; we are continuously connected with the entire system and thanks to the various electronic devices (smartphones, tablets, etc.) we are able to access information, perform operations and share documents at any time and place. On the organizational side, this real revolution that involves the adoption of emerging technologies and the exploitation of them to achieve efficiency in business processes and flows, is called digital transformation and is even better defined by an article of the Sole 24[1] ore which reports:

"Digital transformation is an evolutionary-innovative phenomenon that impacts on the cultural, social and behavioral sphere of market subjects and is aimed at generating a new system of relationships and experiences between people, companies, governments and supranational organizations"

This phenomenon is affecting all sectors, where "traditional" companies, especially SMEs[2], are facing or are about to face this evolution. It should also be pointed out that this change does not take place by choice on the part of organizations but is a real necessity to be able to realign with the new habits and expectations of

[1] Gianni Rusconi, *Tra le aziende e la digital transformationl'ostacolo spesso è il tom management,* il Sole 24 Ore, 2019

[2] Indicates small and medium- sized enterprises

consumers and therefore to survive and to cope with new regulatory requirements imposed by the legislator such as e-invoicing.

According to the experts, in order to make this transformation process truly effective, the company will have to present 5 characteristics[3] deemed essential and which, for this reason, must absolutely be taken into consideration when designing a digital strategy:

1) Centered on "data" (Data Centric)

2) The customer at the center (Customer centric)

3) Innovative

4) Agile

5) Attentive to the security of systems and data (Cyber Security)

[3] https://www.ilsole24ore.com/art/le-quattro-caratteristiche-chiave-un-azienda-digitale--AEEacpk

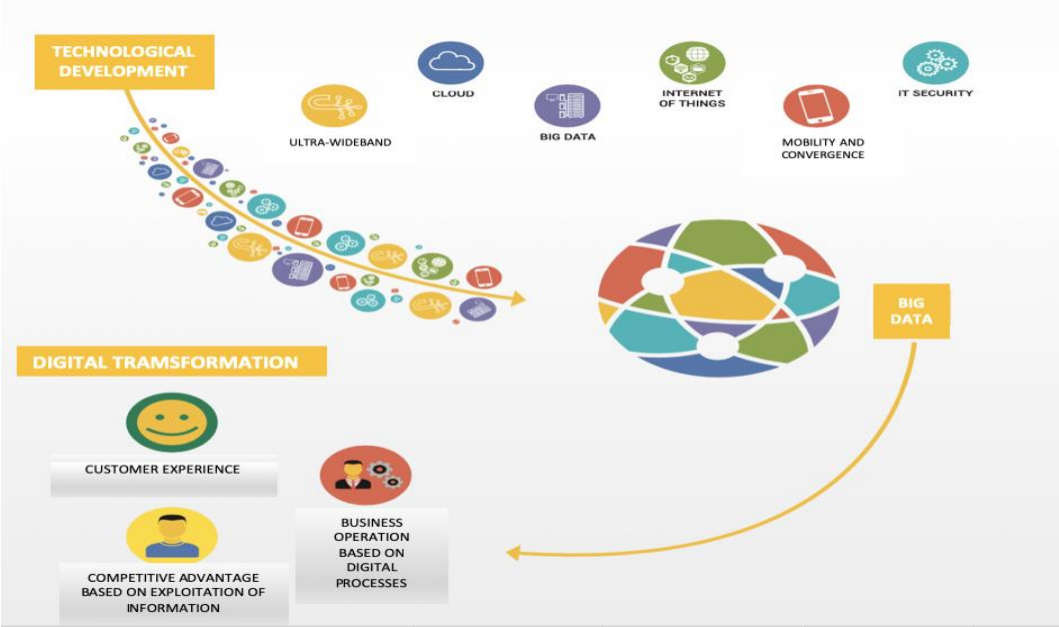

Figure 1.1: Digital transformation process

1.1.1 Centered on "data" (Data Centric)

Operating in a digital world means producing and consuming a huge amount of data, Big Data. According to the Sole 24ore Business School, defining Big Data[4] simply as a large amount of data, today seems very simplistic and therefore we can talk rather about:

"*a constellation of disordered and unstructured data and information whose size does not allow processing them according to standard analysis tools. They can also*

[4] https://elearning.24orebs.com/learn/course/280/play/1542/i-big-data-nelle-organizzazioni-aziendali;lp=79

be considered a shortcut to accelerate some technological trends and thus open the door to a new way of understanding the world and making decisions " (Francesca Maria Montemagno).

Therefore the ability to use these data to improve, rethink and innovate its own business model becomes fundamental and in this regard speed and truthfulness are the main points on which companies must base themselves. To get an idea of the relevance of these data will be shown below an image regarding the influx of data of different nature that takes place on the net in a minute.

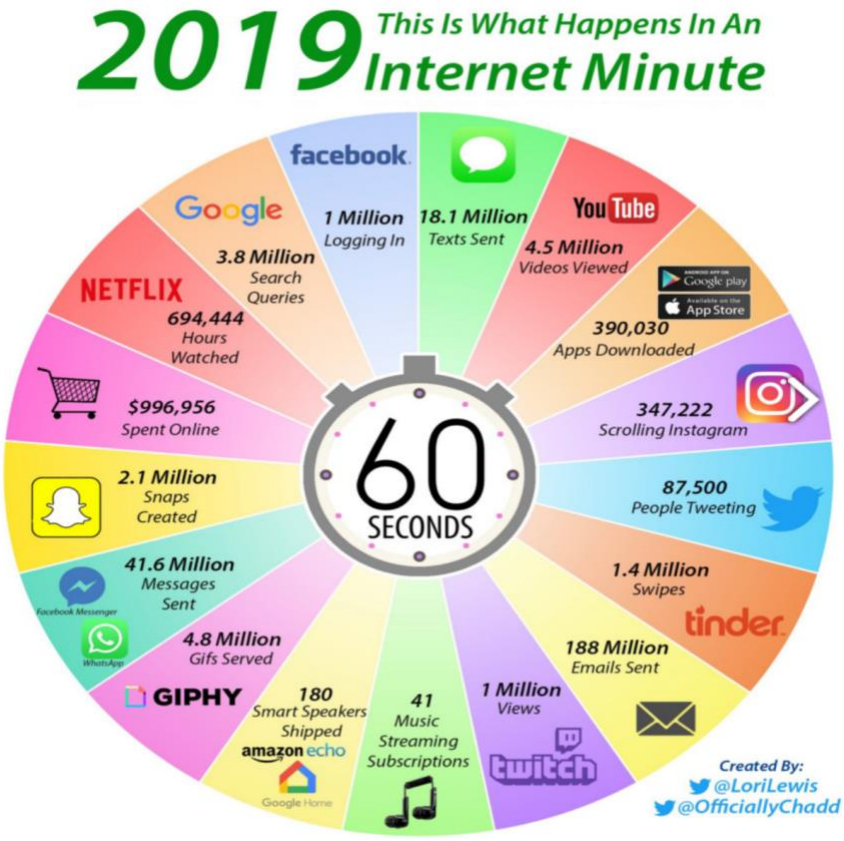

Figure 1.2: Internet in a minute

As you can see, this is a rather large quantity of information , furthermore recent studies have estimated that every three years the volume of these data, transmitted through various devices and sensors, doubles thanks to the spread of digital platforms, wireless sensors throughout the territory , applications of augmented reality and through smartphones present in the entire population. Today we talk about Data as the new currency of the millennium, just think that in 2016 the Big Data market reached a value of 183 million euros, recording an increase of 44% compared to 2015. The goal of the companies becomes to understand how, once collected, to manage these data in order to obtain benefits from them. An example from this point of view is Amazon. The company has gone from being a pure online retailer to one of the biggest Big Data companies in the world. For the company this was made possible by following some steps:

- Offer an online catalog 10 times larger than the largest physical distributor, 10% less.
- Create a community of bloggers and buyers to evaluate the products offered;
- Use the data generated by the platform to offer the best level of customer care in the world: in whatever way a customer requires assistance (phone, chat, email ...) Amazon operators always have immediately available all relevant information about the customer and access to the huge corporate

knowledge base, to give precise and punctual answers despite the heterogeneity of its offer.

- Open their services and big data algorithms to companies, through:

  AWS, the world's largest online cloud computing and storage service; The opening of the e-commerce platform to small distributors, offering not only logistics services but also the analysis of customer needs and behavior.

1.1.2 The customer at the center (Customer Centric)

In the digital world, the customer has become accustomed to a new level of service. The new customer is able to find every type of product, in an immediate time at the best price and in an increasingly independent manner. Always and everywhere. And what's more, custom designed.

In order to compete on this growing segment of customers, it is necessary not only to revolutionize the corporate structure but in particular its mindset, the customer must become the main target and the customer experience becomes the key element to aim for. The customer experience[5] is defined as:

"The set of rational and emotional emotions and sensations that individually and together generate value from the interaction between the brand / product / service and the consumer"

[5] https://elearning.24orebs.com/learn/course/283/play/1574/la-digital-customer-experience;lp=79

It becomes of primary importance to focus on customers' needs, on building a relationship with the company that can allow him to live and improve his costumer journey every time. The product and price logic is no longer sufficient, it is taken for granted. And this is true for all sectors and markets. The big companies of the 21st century therefore focus on the customer in a manic way. Also in this case we take Amazon as an example, excellent on the customer care side. To be effective, a user experience must present some key elements:

- ◊ Speed: the digital customer does not want to waste time.
- ◊ Information: the digital customer does not want surprises.
- ◊ Practicality: payments by account, without needing to remember to withdraw the cash required for the race or hope to be able to use the credit card; the digital customer hates paying the old way.

In many sectors the logic of "product" is still dominant. The customer is a distant entity and often little known. To enable the transition to a centric customer model, data and analysis models are certainly needed, but above all an extraordinary cultural shift by the entire company, starting from the top management to the last employee.

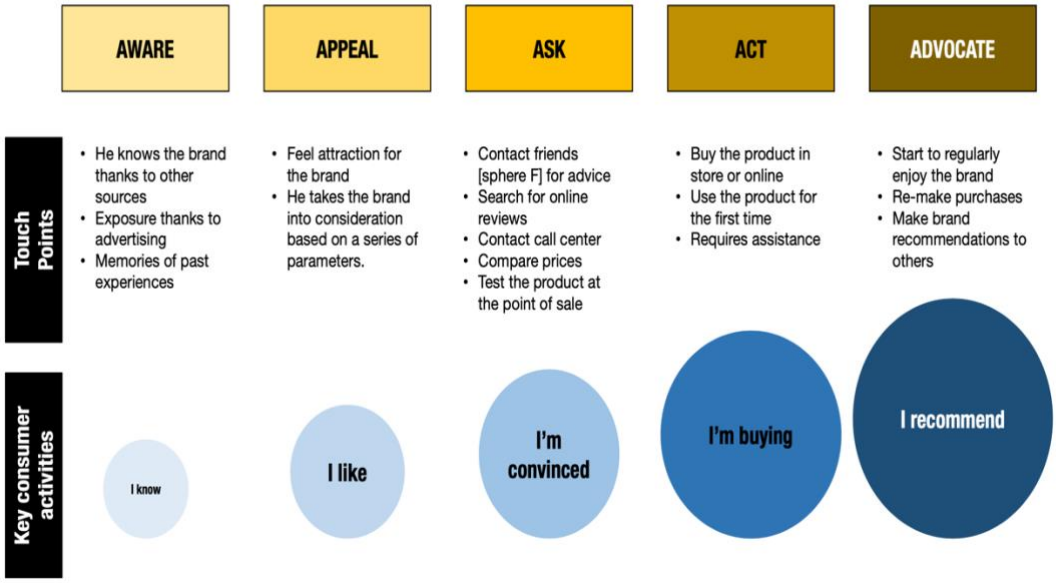

Figure 1.3: The customer journey **Source: Sole 24 Ore Business Scholl**

1.1.3 Innovative

The level of innovation nowadays is experiencing an acceleration never seen before, driven by digital technologies. Speed, together with the breadth and heterogeneity of the areas and skills in which this innovation takes place, make the old business approach insufficient. It is therefore necessary to abandon the traditional model of innovation, also called "closed innovation", which looked at innovation as one of the main factors of competitive advantage vis-à-vis other companies and for this reason barriers with the outside were kept high and invested

mainly on activities aimed at protecting the intellectual property of innovations. This concept and approach to innovation has undergone a revision and updates due precisely to the new dynamics determined by the change in the market and the business model. We then move on to the "open innovation" model, diversity is considered as the main source of wealth, the new trend is to focus on business models capable of exploiting and enhance the best innovations that the external market offers, transferring them within your own organization. Furthermore, the use of external resources allows a reduction in the process from the conception of a product to its actual marketing. For the transition from a traditional model to the one of open innovation, the substantial increase in the number of external resources that companies can draw on and the subjects useful for cooperation and collaboration has been of fundamental importance.

Although it is important to emphasize that collaborating with other companies has disadvantages:

- Less ability to appropriate innovation, as there is no longer the right to patent if innovation is disclosed;
- The division of the ex-ante profit margins is very difficult to identify;
- Less incentive to innovate, since collaborating requires long development times (an alternative solution could be to buy an already tested and functioning innovation on the market, but only if you have absorption capacity);

- Increased coordination costs, costs related to the contract with partners and management of various resources.

1.1.4 Agile

To compete in a digital world, you need to be fast and agile. This certainly presupposes the excellence of the operating machine, but it also requires the ability to change one's mind, adapt and revise business models, without being afraid of making mistakes and correcting them in the running and questioning oneself. In this sense, the organizational structures of companies change, they can no longer be based on roles assigned on paper but must adapt to real relational dynamics. The hierarchical model becomes obsolete in this perspective, not rewarding. The need for flexibility, adaptation requires organizations that are able to make decisions quickly to speed up execution speed. The new company will have to share some key values to acquire more and more resilience, the values necessary for this purpose are listed below:

- ability to work in diversity
- Trust, recognition of mutual professionalism
- Inclusion, creating a common workspace
- culture of failure and error as a growth process
- decision-making delegation for the activities pertaining to one's professional sphere

- taking responsibility for decisions and results

With a view to speed and agility, the work also takes on new ways of organizing and in this regard the "Smart Working" is born, which has the objective of increasing productivity and the quality of work. The Polytechnic of Milan define it as:

"*A new management philosophy based on the return to people of flexibility and autonomy in the choice of spaces, time and tools to be used in the face of greater responsibility for results".*[6]

In this idea of work the office becomes the place where you can connect your laptop to a wi-fi in order to work, you pass from the control of the presence to the control of the output. In this way you are no longer tied to a physical location or time constraints, the "smart worker" is able to organize his time and manage the balance between private and professional life more efficiently. To allow all this, sharing platforms are created where teams have the opportunity to work from different places. Below is shown the process related on the new value creation system.

[6] Paola Capoferro, *Smart working: cos'è , a cosa serve, perché è importante per il business,* Digital4, 2019

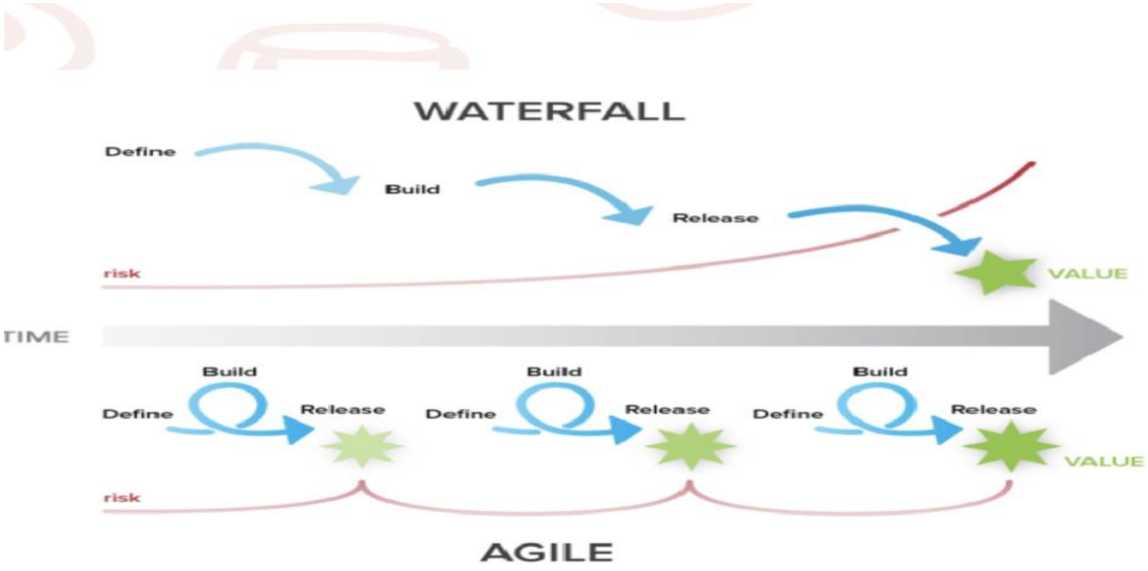

Figure 1.4: new value creation **Source: Sole 24 Ore Business Scholl**

1.1.5 Attentive to the security of system on data (Cyber Security)

Cyber Security represents a field related to information security: tools and technologies whose function is to protect IT systems from external attacks. This field is based on the protection of the confidentiality, integrity and availability of a computer system. Features added to the authenticity of the information. In Cyber Security there are legal, human, technical and organizational elements capable of analyzing the vulnerable points of a system, the threats and the associated risks. In a “hyper-connected” industrial and production scenario, computer security is now playing a leading role in terms of improving company results and reducing risk. Organizations that do not prioritize security run a higher risk and greater chance of

failure. The role of security in companies must be recognized because we must not only protect the technical foundations such as servers, storage, networks and software, as happened in the past decades, but also data, identities, intellectual property and business processes.

Given the enormous amount of data managed by each company and given the delicacy and the strategic value of them, just think of the innumerable information regarding the various customers that allow us to be effective in relations with them, we need to be prepared for business continuity and to avoid any kind of threat that may harm the security of the business. It is not enough for companies to use the latest technologies to secure their systems, it is necessary to pay attention to several variables related to corporate security. Here are 10 guidelines[7] to follow in order to ensure the security of your own business.

1) Encrypt the data:

Cryptography is essential to protect sensitive data and to help prevent data loss due to theft or damage to the system. All archived data and system files, each sensitive element must be encrypted.

[7] https://elearning.24orebs.com/learn/course/286/play/1604/cyber-security-risk-management;lp=79

2) Double check the compliance requirements

Check the privacy requirements required by your type of business and make sure you are in compliance with current regulations regarding data protection and user privacy.

3) Perform auditing and penetration tests

Whether you rely on an external provider or your internal staff, it is crucial to carry out a penetration test to identify any security vulnerabilities in IT systems. Furthermore, it is advisable to regularly perform file auditing to verify the level of security present, to monitor, identify and block possible data streams entering / leaving the network.

4) Implement a removable media policy

Reduce the use of USB sticks, external hard drives, external DVDs or rewritable media. These devices facilitate security breaches by entering or exiting the network.

5) Secure websites from malware

To protect sites from possible malware you can use the SSL certificate, scan the site daily to identify any viruses and set the security flag in all cookie sessions.

6) Use a spam filter on the mail server

It is also very useful to install a filter to block spam on mail servers, in order to remove unwanted communications from users' mailboxes. Furthermore, you can teach users to identify unwanted mail, even if they come from sources believed to be reliable.

7) Restrict access to sensitive data

It develops a company policy that allows access to sensitive data only to authorized personnel. According to studies in fact, 53% of the most serious security threats derive from unauthorized access. One way to ensure access control, for example, is the use of multi-factor authentication.

8) Use hardware and software dedicated to network security

Several tools can be used to ensure network security, such as firewalls, anti-virus gateways, intrusion detection tools, monitoring against DDs attacks, port scanning, in order to identify possible security breach attempts.

9) Keep security patches

Some antivirus programs seem to update on a daily basis. Make sure, however, that your security system remains up to date with the latest patches released. If you prefer to disable automatic updating, remember to set up regular monitoring for the system.

10) Educate users

User awareness is essential. A user who is well informed and aware of security risks behaves in a more responsible way, running lower risks with company data, including emails.

In the event of a loss of data, the repercussions for the company would be significant:

1) In the first place, the reputation of the company would be heavily affected: the data lost, or worse, hacked, could be sold to competing companies, thus favoring an advantage for a possible competitor. Furthermore, this loss would make the company unsafe in the eyes of the market, undermining the effectiveness of future commercial initiatives.
2) On the client's side, a request for compensation for damages may be incurred, especially if we talk about "sensitive data" which are also protected by certain regulations such as the GDPR, the general regulation on the protection of personal data (European regulation n.2016 / 679)[8], which provides for very heavy fines for companies that do not implement adequate organizational measures for the processing of personal data, sanctions that can even reach 4% of annual turnover of the company itself. According to the Decree Law 196/2003[9] the personal data suitable to reveal the racial and ethnic origin, the religious, philosophical or other convictions, the political opinions, the adhesion to parties, unions, associations or organizations of character are considered sensitive. religious, philosophical, political or trade union, as well as personal data that reveal health status and sexual life.

[8] https://eur-lex.europa.eu/legal-content/it/TXT/?uri=CELEX:32016R0679
[9] https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:decreto.legislativo:2003-06-30;196!vig=

The data, especially the sensitive ones, therefore, constitute a set of extremely strategic information that a company cannot afford to lose. The situation, however, according to an article[10] by Sole 24 Ore, is far from encouraging:

- 64% of organizations in Italy are lacking at the time of a global plan to react to the impact of the GDPR
- Only 52% of organizations in Italy are able to effectively remove all sensitive data if the "right of oblivion" is exercised by the customer
- 58% of organizations put their customers' privacy at risk by not masking data during testing

Below is a table of the ENISA[11] (European Network and Information Security Agency) that every year draws up a list of the main threats, the table in question concerns a study dating back to 2016.

[10] Biagio Simonetta, *Nuovo regolamento UE sulla privacy: più di due terzi delle aziende in Europa non lo Rispettano,* Sole 24 Ore , 2016

[11] Is an European Agency , in operation since 2005, aimed at network and information security

ETL 2016

Fonte:
ENISA Threat Landscape 2016 - https://www.enisa.europa.eu/publications/

enisa
European Network and Information Security Agency

Top Threats 2015	Assessed Trends 2015	Top Threats 2016	Assessed Trends 2016	Change in ranking
1. Malware	↑	1. Malware	↑	→
2. Web based attacks	↑	2. Web based attacks	↑	→
3. Web application attacks	↑	3. Web application attacks	↑	→
4. Botnets	↓	4. Denial of service	↑	↑
5. Denial of service	↑	5. Botnets	↑	↓
6. Physical damage/theft/loss	→	6. Phishing	→	↑
7. Insider threat (malicious, accidental)	↑	7. Spam	↓	↑
8. Phishing	→	8. Ransomware	→	↑
9. Spam	↓	9. Insider threat (malicious, accidental)	→	↓
10. Exploit kits	↑	10. Physical manipulation/damage/ theft/loss	↑	↓
11. Data breaches	→	11. Exploit kits	↑	↓
12. Identity theft	→	12. Data breaches	↑	↓
13. Information leakage	↑	13. Identity theft	↓	↓
14. Ransomware	↑	14. Information leakage	↑	↓
15. Cyber espionage	↑	15. Cyber espionage	↓	→

Legend: Trends: ↓ Declining, → Stable, ↑ Increasing
Ranking: ↑ Going up, → Same, ↓ Going down

Figure 1.5: Main network threats Source: ENISA

From the table it is possible to notice that malware, web-based attacks and web application attacks are those that most alarm the integrity of our data. Thanks to the table and given the delicacy of the topic it was understood that the risk is too high to be underestimated so that the GDPR provides for the introduction into the company of the figure of the DPO (Data Protection Officer) or "data protection officer". this figure does not necessarily have to be part of the company itself but allows the responsibility of the management of sensitive data to be attributed with certainty and accuracy.

1.2 INDUSTRY 4.0

It is always thanks to the digital transformation that for some years now there has also been talk of a fourth industrial revolution or industry 4.0[12], a term that indicates precisely a strong tendency to industrial automation with the aim of improving working conditions and increasing productivity and quality of the installations. Industry 4.0, including a technological mix of robotics, sensors, connection and programming, represents a new revolution with respect to the way products are manufactured and work is organized. Thanks to new models of production that are increasingly automated and interconnected, intelligent and communicating assets and products, traceability and traceability of processes that lead to collective information management, shared and collaborative at the supply chain level, new service logics at the teaches about cloud and mobility. All focused on a last generation Internet (Industrial Internet), capable of bringing inside and outside factories more information, more integration, more interaction and more efficiency, renewing processes and systems but also bringing new rules of communication and service. New generation software on the one hand and Big Data Management on the other, this is how production manages to reach mass customization. The continuous evolution of technologies is diversifying the declination of 4.0 on

[12] https://www.digital4.biz/executive/industria-40-storia-significato-ed-evoluzioni-tecnologiche-a-vantaggio-del-business/

multiple levels and operational fields associated with the use of Artificial Intelligence and all digital drifts, including Blockchain.

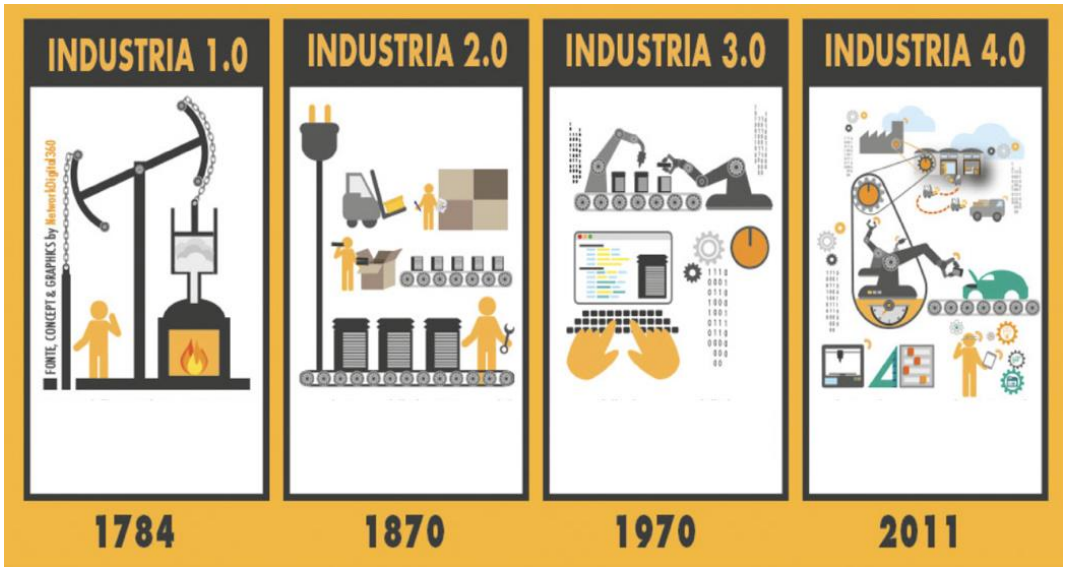

Figure 1.6: Industry evolution Source: Digital4

All this based on the concept of smart factory, a company that is based on three principles:

- Smart production: new production technologies create interaction between all production-related assets, favoring collaboration between men, machines and systems
- Smart service: a new-generation governance of information and technical infrastructures helps to manage and monitor the systems, exploiting logics of maximum integration among all the players in the supply chain, including customers.

- Smart energy: new power systems and attention to monitoring energy consumption, make the infrastructures more efficient, cheaper and more ecological.

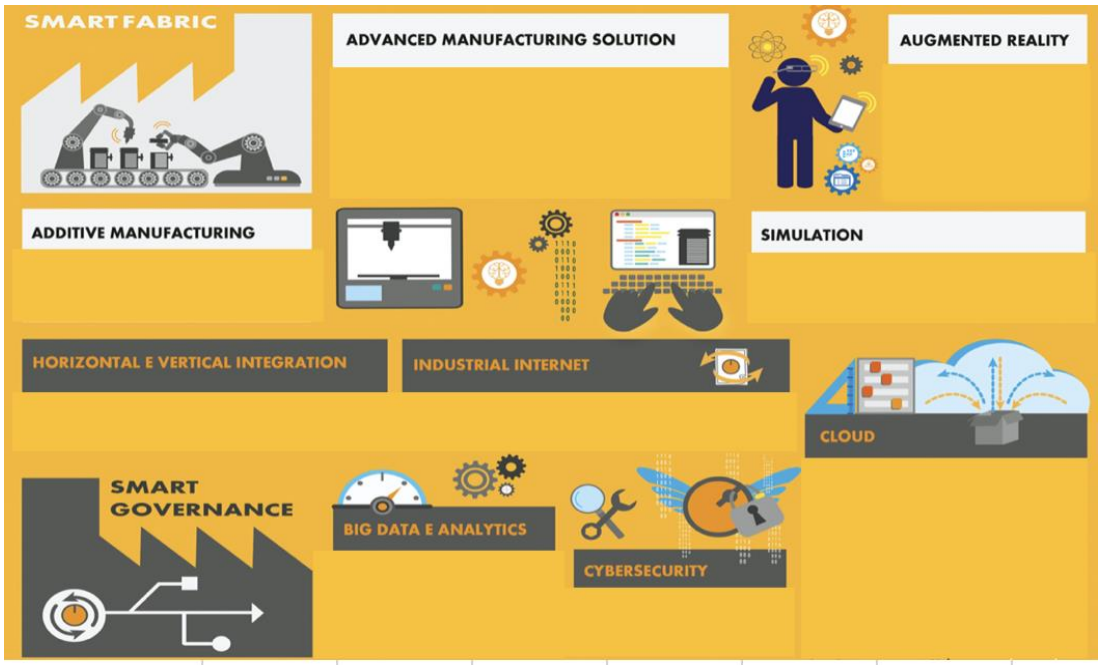

Figure 1.7: Smart fabric concept **Source: Digital4**

CHAPTER2: ELECTRONIC INVOICING INTRODUCTION

2.1 THE INVOICE DOCUMENT

Let's start from the beginning trying to understand what an invoice is. The invoice is a compulsory administrative document that is drawn up by the seller, holder of a VAT[13] (Value-added tax) number, to certify the transfer of goods or services and the right to collect the price.

The invoice is better defined in art. 21 of Presidential Decree 633/1972[14], which provides for the payment of the invoice:

"For each taxable transaction, the person supplying the goods or services shall issue an invoice, including a note, account, bill or the like, or, without prejudice to his liability, ensure that it is issued, on his behalf, by the recipient or by the customer or by a third party [...].

It is therefore important to stress the importance of the regulatory obligation of its production, which is essential in order to formalize in a legal and accounting manner the supply of a good or a service, and, thanks to the elements contained therein, also to that of creating a title which legitimizes, on the one hand, the charging of the relevant tax and, on the other, the corresponding deduction. In fact, in addition to the identification data of the buyer and the seller, it also reports the

[13] Sequence of digits that uniquely identifies an entity engaged in an activity relevant for indirect tax purpose

[14] Article 21 of the decree law of the President of the Republic 633, year 1972

qualitative and quantitative characteristics of the object of the service, the ancillary costs, the taxes on the sale and the methods of payment. Other important aspects of the document's regulations concern the time of its issue, which, depending on the subject of the sale contract, has different deadlines:

• in the case of supplies of movable property, the invoice must be issued upon delivery or shipment of the goods;

• in the case of transfers of immovable property, the issue must take place at the time of conclusion of the contract;

• finally, in the case of services, the due date is provided at the time of payment.

2.2 THE DEMATERIALIZATION OF DOCUMENTS AND ITS ADVANTAGES

Before dealing with the subject of e-invoicing, it is necessary to introduce a fundamental part of the digital transformation that has not yet been mentioned, and that has put an end to the concept of invoice just explained, it is the dematerialization of documents. Dematerialization is the process of technological innovation useful to convert a document from paper to digital format by making available on any computer medium everything that is useful for the performance of normal office work. This new approach has brought a number of benefits to various aspects of corporate life. Thanks to dematerialization it is possible to have an idea

of the impact and benefits that these changes have brought. If we think about office life and bureaucracy, these involve a huge expenditure of money for the production of paper documents that may no longer be used and ,on the other hand, an equally waste of energy in search of a long-standing document that for any reason is part of the current needs of the company. In this regard, numerous studies have been carried out, in particular that of the Observatory of electronic invoicing and dematerialization of the Milan Polytechnic[15] , which shows that every year at least 100 billion pages are printed in Italy, of which a good percentage remains unused (almost 20%). The total cost of this operation is approximately €300 million per year. Each document is reproduced several times and the cost per document is very high, reaching up to 18 euros per sheet of paper. This also applies to archiving, which costs time to order paper documents, storage space and the cost of storage for as long as it takes until destruction. There are also sheets and documents that are stored incorrectly and the recovery of this generates high costs, estimated at least in the amount of 120 euros. What has emerged is precisely the waste of time, money and resources. Most documents are no longer reused, others are copied many times and others are lost. The workforce that a company dedicates to archiving, printing, shipping and transportation also has an important business cost: in fact, 40% of the time spent in the company is dedicated to these tasks. Thanks to

[15] Observatory of e-invoicing and dematerialization, *"Electronic invoicing: benefits not only on paper",*2007

dematerialization, it is therefore possible to reduce the overhead costs for paper documents in the first place, but also to have a strong impact on environmental protection, since producing less paper not only reduces the related costs, but also reduces waste. If we analyze in more detail the type of costs that are going to decrease, we can distinguish them in "not accounted for" and we refer to the whole series of costs related to human resources used in the treatment of documents, and "accounting costs"[16] divided into:

- printouts, paper for photocopies, printed documents

-toner and cartridges

-Bags and wrappings for shipping documents

-collectors and folders for archiving

- costs incurred in destroying them

Dematerialization in Italy has been a reality for some time and has assumed, as can be seen from the above numbers, more and more thickness. There is therefore no other solution but to adapt it with the increasingly important innovations. In 2013, the VAT Directive 2010/45/EU[17] on electronic invoicing was transposed. This is considered to be the same as a normal paper invoice. It has a guarantee of authenticity in origin, is easy to read over time and remains intact. In 2015, the

[16] https://www.teamsystem.com/store/blog/digitalizzazione/i-cambiamenti-che-stanno-portando-alla-dematerializzazione/

[17] https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:189:0001:0008:IT:PDF

obligation to issue electronic invoicing was established for the Italian Public Administration and also for their suppliers. This ensures both the control of public expenditure and the traceability of payments made. In 2019, thanks to the 2018 Budget Law, Italy was the first country to implement the obligation of electronic invoicing following the sale of goods and services in both B2B (Business to Business) and B2C (Business to Consumer)[18]. Let us now analyze in more detail the functioning of electronic invoicing.

[18] Trade relation between different actors

2.3 THE ELECTRONIC INVOICING

2.3.1 What is e-invoicing?

Electronic invoicing is defined in Article 21, paragraph 1, of Presidential Decree 633/1972[19], which states:

"Electronic invoice means an invoice which has been issued and received in any electronic format; recourse to an electronic invoice is subject to acceptance by the addressee, [...].

The invoice, whether in paper or electronic form, shall be issued at the time of its delivery, dispatch, transmission or making available to the assignee or customer".

Figure 2.1: E-invoice

[19] https://emiliaromagna.agenziaentrate.it/sites/emiliaromagna/files/private/documenti/2018/Fatturazione_elettronica.pdf, pag 4

It was introduced with the 2008 Finance Act[20], in which the European Union (EU) calls on the Member States to provide for a regulatory and technological framework suitable for managing the entire system of invoicing and tax control in an electronic manner. In addition, there is an obligation to keep documents in digital format for ten years. In particular, it is a digital system for issuing, transmitting and storing invoices that allows you to abandon forever the paper and all the related costs of printing, shipping and storage. This process focuses in particular on two fundamental principles: dematerialization, which means, as we have seen before, the exclusion of all types of paper form, and the standardization of the process emission- transmission-receipt-management that is based on the "Sistema di Interscambio" of the "Agenzia delle Entrate"(SDI). The SDI[21] is a sort of "postman" who carries out the following tasks:

- verifies whether the invoice contains at least the mandatory data for tax purposes (art. 21 or 21-bis of Presidential Decree no. 633 of 26 October 1972) and the telematic address (so-called "recipient code" or PEC address) to which the customer wishes the invoice to be delivered.
- checks that the supplier's VAT number (i.e. transferor/provider) and the customer's VAT number or tax code (i.e. transferee/purchaser) exist.

[20] https://www.normattiva.it/uri-res/N2Ls?urn:nir:stato:legge:2007;244
[21] https://www.agenziaentrate.gov.it/portale/web/guest/aree-tematiche/fatturazione-elettronica/guida fatturazione-elettronica/la-fattura-elettronica/cosa-e-fattura-elettronica-e-differenze

If the previous checks are successful, the Interexchange System securely delivers the invoice to the recipient, communicating the date and time of delivery of the document with a "delivery receipt" to the person who sent the invoice. On the other hand, in the event of failure to pass the checks, within 5 days, a "discard receipt" of the file is delivered to the transmitting party on the same channel with which the file was sent to the SDI. The electronic invoice or the invoices of the lot of which the file discarded by the SDI is considered not issued. If the invoice file is signed electronically, the SDI checks the validity of the signature certificate. If the check is unsuccessful, the file is rejected and the waste receipt is sent. This new system also requires a new format in which electronic invoices must be produced, transmitted, stored and stored, namely the XML format (eXtensible Markup Language), a computer language that allows you to define and control the meaning of the elements contained in a document, thus verifying the information for the purposes of the controls required by law. More in detail, these files must contain all the information relevant for tax purposes (taxable, VAT number of the recipient, tax code, etc.), all the information required for proper transmission to the recipient, IPA code if the recipient is a Public Administration or, if not, the address PEC[22] or the recipient code of 7 characters.

[22] Certified electronic mail

To go into more detail, it should also be noted that these computer documents of a tax nature, of which the invoices are a subset, must present in addition to the relevant information mentioned above, some essential features[23]: unchangeability, integrity, authenticity and legibility.

- *immobility* is a fairly intuitive concept: once the computer document, and therefore the file, is generated, it must be unmodifiable, so it must not be possible, either with human intervention or with executable or macro codes, to modify its content during the entire management cycle;
- *integrity:* the document must be intact, therefore it must first of all be non-modifiable, but also complete, i.e. it must contain all the information necessary to carry out its function;
- *authenticity:* authenticity means that, for computer documents, the authorship of the person who issued the document must be clear, or easily identifiable. In order to guarantee the authenticity of a computer document there can be different ways, in the case of electronic invoices model PA (public administration), however, it was decided to confer this character of authenticity through the digital signature, in fact when you issue an invoice to the PA the XML file must be digitally signed by the issuer;

[23] Art.21 , comma 3, fourth period, od D.P.R. 633/1972

- *readability:* a feature of fundamental importance since computer documents can be of different types, this is because while reading a PDF file is generally easy to read, reading an XML file is much more complex, this is in fact a set of information in the form of lines not particularly significant. This limit cannot therefore be allowed in a computer document, even if there is the style sheet, printable and therefore easily readable paper format of the invoices in electronic format. This style sheet, however, although it makes it a little easier to read the document, has no legal value. In fact, in the case of verification by the financial administration, rather than by the Guardia di Finanza, it will not be required the style sheet, but the invoice in electronic format that must be kept in accordance with the digital preservation, or, if granted, a document that summarizes all the movements generated directly by the Exchange System.

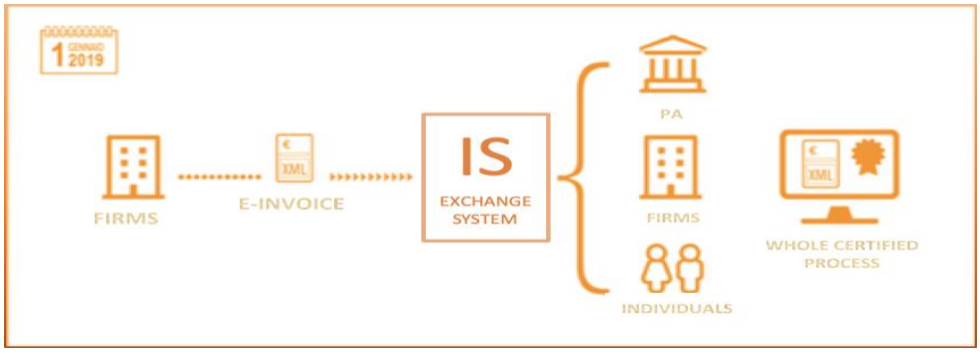

Figure 2.2: E-invoicing trasmission process

2.4 E-INVOICING STORAGE

Electronic invoices must be stored electronically and the biller and the recipient must retain this obligation. If an electronic invoice is issued by choice of the seller/service provider (e.g. a minimum taxpayer), the issuer is obliged to keep the invoice electronically. In this regard, it should be noted that, as part of the platform "Invoices and Fees", the “Agenzia delle Entrate”[24] has provided a free service that ensures the electronic storage of invoices, in accordance with the Ministerial Decree 17.6.2014, subject to the signing of a service agreement by the taxable person VAT. In this regard, the Agency specifies that Article 23-bis of Legislative Decree no. 82 of 2005, paragraph 2[25], states that "copies and extracts of the computer document, if produced in accordance with the technical regulations in force under Article 71, have the same evidentiary effect as the original from which they were taken if their conformity with the original, in all its components, is certified by a public official authorized to do so or if compliance is not expressly denied. The obligation to keep the original computerized document remains unaffected, where applicable". It follows that each operator, in accordance with its own company organization, may also store computer copies of electronic invoices in one of the formats (e.g. "pdf", "jpg" or "txt") provided for by the Presidential Decree of the Council of Ministers

[24] Is an Italian Agency aimed at tax audits and controls and tax management

[25] https://www.gazzettaufficiale.it/atto/serie_generale/caricaDettaglioAtto/originario?atto.dataPubblicazioneGazzetta=2005-05-16&atto.codiceRedazionale=005G0104

of 3 December 2013 and considered suitable for preservation purposes. The Agency recalls in this sense that whoever issues/receives electronic invoices, has the right to keep them, as well as the other accounting records, both at home and abroad, in countries with which there is a legal instrument governing mutual assistance (Ministerial Decree no. 81/E of 2015).

2.4.1 Storage time of the electronic invoice

The process of substitute preservation of computer documents presupposes their storage on optical or other supports that guarantee legibility over time, respecting the chronological order by tax period and without interruption, with research functions and their logical associations. This process, which ends with the affixing of a temporal reference "opposable to third parties" on the filing package (art. 3, par. 2 of the Ministerial Decree of 17.6.2014[26]), must be concluded within three months of the deadline for the submission of the relative annual tax return. Therefore, for persons with a tax period that coincides with the calendar year, the deadline for electronically storing documents is 30 December of the year following the reference year. E.g. Since the deadline for filing the 2017 tax returns is 31 October 2018, the invoices for the 2017 tax period must be retained by 31 January

[26] https://www.gazzettaufficiale.it/eli/id/2014/06/26/14A04778/sg

2019. Please note that, as with paper invoices, electronic invoices must also be stored digitally for at least 10 years in accordance with the Civil Code.

2.4.2 Place of electronic storage

As mentioned before, with the C.M. n. 13/E of 2018, the "Agenzia delle Entrate" recalled that those who issue/receive electronic invoices have the right to keep them, as well as other accounting records, both nationally and abroad, in countries with which there is a legal instrument that regulates mutual assistance (R.M. n. 81/E of 2015). Electronic storage can be carried out:

- directly from the taxpayer;
- by the person who is the custodian of the accounts;
- by a third party (e.g. the "Agenzia delle Entrate" itself) or a registrar used by the depositary.

Please note that the place where books, registers, writings and other documents are kept and kept must be indicated in the declaration of commencement of activity, which must be updated in the event of any change in the same. In this regard, with Ministerial Decree no. 81/E of 2015, the "Agenzia delle Entrate" specified that in the event that the registrar of computer documents is a party other than the taxpayer and the custodian of accounting records, there is no obligation to communicate the

identity of the registrar to the tax authorities using form AA7/10 or AA9/12.[27] Finally, it should be noted that at the time of control, all IT documents must, upon request, be made legible and available on paper or in electronic form, at the company's head office or at the place of storage of the records declared by the subject (Ministerial Decree no. 81/E of 2015).

2.5 THE CONSERVATION PROCESS

The proper preservation of electronic invoices requires the respect of a particular procedural process. From an operational point of view, the subjects involved in the conservation (who issues the invoice and who receives it) must essentially make a choice between :

- digitally preserve their own
- entrust the conservation to tax documents;
-third party.

By order of 30 April 2018, the "Agenzia delle Entrate" has provided for the possibility that the Agency itself, on request, "keeps" electronic documents on behalf of economic operators. According to art. 44 of the Digital Administration

[27] https://www.agenziaentrate.gov.it/portale/documents/20143/274681/nuovo+mod+AA7+10_AA7_10+modello+27.05.2015.pdf/11976ec0-73b0-6f2b-acec-9ad680a5e386
https://www.agenziaentrate.gov.it/portale/documents/20143/344273/Provvedimento+del+3+giugno+modello+aa9_AA9_12+mod.pdf/2cf59e6f-da74-66ae-28be-7e862683cb53

Code (Legislative Decree no. 82 of 2005), the system for the preservation of computer documents must ensure:

• a certain identification:

-of the person who formed the document;

-of the administration or of the homogeneous organizational area of reference;

• the integrity of the document;

• the legibility and easy availability of documents and identification information.

The preservation system operates according to explicitly defined organizational models; in particular, preservation may be:

- take place within the organizational structure of the party producing the IT documents (in house);
- be entrusted, in a total or partial way, to other subjects (public or private) that offer suitable organizational and technological guarantees (outsourcing).

The preservation process begins with the electronic invoice being taken over by the producer - the natural or legal person who produces the deposit package and is responsible for transferring its contents to the preservation system - who forms the deposit package. The deposit package is a container that contains one or more objects to be stored (computer documents, computer files, computer document

aggregations), sent by the manufacturer to the storage system through a predefined and agreed format. The payment package is then acquired by the conservation system, which will verify its consistency with the methods provided by the conservation manual and with the formats provided for in Annex 2 to the D.P.C.M. December 3, 2013. In case of anomalies highlighted during the verification process, the payment package will be rejected; otherwise, once passed the above checks will be generated, even automatically, the payment report, relating to one or more conservation packages. The deposit report must be uniquely identified by the preservation system, and must contain:

-a time reference, specified by reference to Coordinated Universal Time (UTC); Coordinated Universal Time (UTC) is the international reference time, and by convention corresponds to the time of the Greenwich meridian;

-one or more fingerprints, calculated on the entire contents of the payment package, in accordance with the procedures described in the storage manual.

A payment report is an electronic document that certifies that the storage system has taken over the payment packages sent by the producer. The electronic invoice preservation process ends with the preparation and signature (digital signature / qualified electronic signature) by the person responsible for the preservation of the archiving package, which will then be managed according to:

- the specifications of the data structure as set out in Annex 4 to the D.P.C.M. of 3 December 2013;

- the methods described in the storage manual. The conservation manual is a computer document that describes the conservation system, illustrating in detail: the organization,
- the subjects involved and the roles played by them and the model of operation.

Finally, it should be borne in mind that another person involved in electronic preservation is the person responsible for preservation who, within the process of digital preservation, implements all necessary measures to ensure the authenticity, integrity, reliability, legibility and availability of documents having fiscal relevance through the use of specific procedural rules technology.

2.6 EVOLUTION OF THE E-INVOICE LEGISLATION YEAR AFTER YEAR

Having read the concepts and definitions concerning e-Invoicing, we now move on to an analysis of the evolution of the legislation which, year after year, has led to the introduction of the obligation of e-Invoicing. The following are therefore the various phases encountered to date[28].

[28] Barbara Maria Barreca, Stefano Garelli, *La fattura elettronica 2001-2018, le tappe cronologiche per gli obblighi,* 2018

Year 2001

On 20 December 2001, Directive 2001/115/EC was issued with the aim of

"... simplifying, modernizing and harmonizing the invoicing procedures laid down in respect of value added tax".

The Directive (implemented by the various EU countries with effect from 1 January 2004), provided for:

the possibility of issuing, transmitting and storing invoices exclusively in computerized form;

electronic or paper invoicing "on behalf" of the customer or third parties;

• the possibility of electronic storage of invoices, even outside the national territory of taxable persons.

Year 2004

With Legislative Decree no. 52 of 20 February 2004, the Italian legislator transposes Directive 2001/115/EC, implementing the principles contained therein, replacing Article 21 of Presidential Decree no. 633/1972 and amending Articles 39 and 52 of the same decree. Under this legislation, it is possible to manage the flow of invoicing, including the storage of invoices, in a fully electronic manner.

Previously, the Italian tax authorities had already admitted the transmission of the invoice in computerized form:

- Resolution no. 360879 of 30 April 1986 considered the sending of invoices by e-mail to be valid;
- Resolution No 107/E of 4 July 2001 allowed the issue of an invoice by means of the joint use of a fax machine and computer support.

However, in both cases, both the issuer and the receiver had to "materialize" the invoice, for example, by printing it on paper.

Year 2007

The Legislator, with Article 1, specifically in paragraphs 209 to 214[29], of Law no. 244/2007 establishes the obligation of electronic invoicing for transactions with the Public Administration and, in relation to such transactions, abandons the principle of freedom of conduct in respect of electronic invoicing.

"The transmission, storage and archiving of invoices issued in relations with State administrations, including autonomous ones, and with national public bodies, including in the form of notes, accounts, bills and the like, must be carried out exclusively in electronic form, in compliance with Legislative Decree no. 52 of 20 February 2004 and the Digital Administration Code, as per Legislative Decree no. 82 of 7 March 2005";

PARAGRAPH 209, ARTICLE 1

[29] Massimo Di Terlizzi ,Mara Palacino, *Finanziaria 2008 le novità sulla disciplina fiscale delle società di capitali,* 2008 pag 239-240

"local authorities may not accept invoices issued or sent in paper form, nor may they make any payment, even in part, until they are sent in electronic form;

PARAGRAPH 210, ART. 1

"The transmission of electronic invoices takes place through the exchange system set up by the Ministry of the Economy and Finance and managed by it also using its own corporate structures";

PARAGRAPH 211, ARTICLE 1

"The "Sistema di Interscambio" manages the process of receiving and subsequently forwarding electronic invoices to the recipient Administrations and manages the data in aggregate form and the information flows also for the purposes of their integration into the Public Finance monitoring systems";

PARAGRAPH 212, ARTICLE 1

"the provisions of paragraphs 209 to 213 constitute fundamental principles for the Regions with regard to the harmonization of public budgets and the coordination of public finance and the tax system".

PARAGRAPH 214, ARTICLE 1

The legislation in question establishes that the transmission of electronic invoices to the PA, called PA invoices, must be carried out through the "Sistema di Interscambio (SDI), an IT system that supports the process of

"receipt and subsequent forwarding of electronic invoices to the recipient administrations".

Year 2010

On 13 July 2010, Directive 2010/45/EU was issued, which amends Directive 2006/112/EC on the common system of value added tax as regards the rules on invoicing.

Year 2013

The Italian Legislator implements Directive 2010/45/EU with article 1, paragraph 325, of Law no. 228 of 24 December ("2013 Stability Law"), implementing the principles contained therein, with amendments to articles 21 and 39 of Presidential Decree no. 633/1972. The "Agenzia delle Entrate", with Circular no. 18 of 24 June 2014, comments on the changes made by the aforementioned Law.

Article 21(1) of Presidential Decree No 633/1972, as adjusted in accordance with Directive 2010/45/EC, states that:

"An electronic invoice is an invoice which has been issued and received in any electronic format; recourse to an electronic invoice is subject to acceptance by the recipient.

According to the Explanatory notes on VAT invoicing rules of 5 October 2011, the acceptance of an electronic invoice by the recipient can be determined in a similar way to that in which a paper invoice is accepted. It may be a written acceptance, or a tacit agreement through, for example, the processing and payment of the invoice

received. In practical terms, an agreement is concluded between the two parties concerned in order to lay down the practical arrangements for the transmission of the invoice. With regard to the entity qualified to issue it, it is provided that:

- the supplier-taxable economic operator may issue the electronic invoice directly;
- or you can make sure it's issued:
- by the assignee / client;
- or by a third party acting on behalf of the taxable person himself (so-called "outsourced invoicing").

It should be noted that according to Article 233 of Directive 2006/112/EC[30], each taxable person shall determine how to ensure the authenticity of the origin (implies proof of the identity of the supplier or of the issuer of the invoice), the integrity of the content (implies that the content required in accordance with this Directive has not been altered) and the legibility of the invoice by the operator, from the time of issue until the end of the storage period of the invoice. This can be achieved:

- through management controls that create a reliable audit trail between an invoice and a supply of goods or services;

30 https://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2006L0112:20130701:IT:PDF, pag 94

- advanced electronic signature, based on a qualified certificate and created by a secure signature creation device;
- electronic data interchange (EDI), where the agreement for such exchange provides for the use of procedures guaranteeing the authenticity of the origin and integrity of the data;
- by other technologies which ensure the authenticity of the origin and integrity of the content of an electronic invoice.

On the basis of the above rules, it can be stated that:

- If the biller generates and transmits invoices electronically, with acceptance by the recipient, both the biller and the recipient are obliged to store the document electronically.
- If, on the other hand, the biller generates and transmits the invoices electronically, without acceptance by the recipient: The issuer may choose whether to digitally store the invoice or to fulfill the preservation obligations in the traditional paper form;

The recipient prints out the invoice (conclusive behavior) and keeps it in paper form.

• If the issuer issues the invoice in paper format, the recipient has freedom of choice: he can adopt the storage method he likes best, paper or electronic.

Ministerial Decree no. 55/2013 sets the starting date for the obligation of electronic invoicing for the Public Administration:

- from 6 June 2014, for Ministries, Tax Agencies and National Social Security Funds;
- from 31 March 2015 (so brought forward with respect to 6 June 2015, by article 25 of Decree no. 66/214), for all the other bodies and organizations of the Public Administration.

Year 2014

By article 9, paragraph 1, letter d) of law no. 23 of 11 March 2014, the legislator delegates the Government to encourage, through the reduction of administrative and accounting formalities for taxpayers, the use of electronic invoicing and the telematic transmission of fees, as well as adequate mechanisms for reconciling VAT documentation with the transactions carried out.

Year 2015

In implementation of the delegation of power referred to in Law no. 23/2014, Article 1, paragraph 3, of Legislative Decree no. 127 of 5 August 2015 provides that taxable persons with VAT, with reference to transactions carried out from 1

January 2017, may opt for the electronic transmission to the Revenue Agency of the data of all invoices, issued and received, and the related changes.

Year 2016

The Legislator with Article 4 of the Decree Law 22 October 2016, No 193, converted with amendments by Law 1 December 2016, No 225, with the aim of combating tax evasion through the drastic reduction of the time that elapses between the operations carried out by taxpayers and their knowledge (and consequent possibility of control) by the "Agenzia delle Entrata" and the "Guardia di Finanza":

- it radically revises the regulations concerning the "expenditure meter", providing for the obligation to communicate - by the last day of the second month following each quarter - the data of the invoices issued and received, the latter if recorded. For the tax period 2017 (and subsequently also for 2018, for the latter on an optional basis), such notification is planned at half-yearly level;
- introduces the obligation to report quarterly the periodic VAT settlements.

As a result of the above, two different methods of communication have emerged since 2017 with regard to the data on invoices issued and received:

- Mandatory notification: new expenditure meter

- Optional communication: electronic invoices and other data transmitted via the exchange system.

The communication of periodic VAT liquidations is common to both of the above methods.

Year 2018

The Budget Law for 2018 (paragraph 909) contains some important provisions on electronic invoicing, making numerous amendments and additions to Legislative Decree no. 127/2015:

- as from 1 January 2019, in relations between economic operators established or identified for VAT purposes in Italy and also with Italian final consumers, the issue of electronic invoices and the related electronic variation notes becomes mandatory; on the basis of the news that appeared in the daily press, it seems that the obligation to issue an electronic invoice will be implemented in a staggered manner (over time) according to the size of the operators.
- They are excluded from this obligation:
- companies benefiting from an advantage;
- lump sum companies;

- the issue of invoices and related change notes is envisaged through the exchange system (already used for relations with the Public Administration and by parties who, as from 1 January 2017, had opted for electronic invoicing between private parties);
- A standard format of the invoice / variation note (expressed in XML) is also adopted;
- further invoice formats may be identified by decree.
- for the supply of goods and services between residents, established or identified in the territory of the State, and for the related variations, only electronic invoices are issued using the Exchange System, according to the XML format (or other format provided by issuing decree);
- economic operators may use, through agreements between the parties, intermediaries for the transmission of electronic invoices to the Interexchange System, without prejudice to the responsibilities of the person who makes the transfer of the goods or the provision of the service;
- electronic invoices issued to final consumers are made available to them by the telematic services of the Revenue Agency; a copy of the electronic invoice, or an analogue invoice, will be made available directly by the issuer of the invoice. However, consumers may waive the need for electronic or analogue copies of the invoice;

- the obligated parties shall transmit electronically to the Revenue Agency the data relating to the transactions of transfer of goods and provision of services carried out and received to and from parties not established in the territory of the State, except for those for which a customs bill has been issued and those for which electronic invoices have been issued or received according to the methods indicated above (so-called "communication of cross-border transactions"). The electronic transmission is carried out within the last day of the month following the date of the document issued or the date of receipt of the document proving the operation;
- in the event of the issue of an invoice, between persons resident or established in the territory of the State, in a manner different from that provided for in paragraph 3, the invoice shall be deemed not to have been issued. In order not to incur in the sanction referred to in article 6, paragraph 8, of Legislative Decree no. 471/1997, the assignee and the client must fulfill the documentary obligations provided for therein through the “Sistema di Interscambio”.

On the basis of this measure, the Italian Legislator, in order to have an effective instrument in the fight against tax evasion:

1. confirms the abandonment of the principle of electronic invoicing on a voluntary basis (as already implemented in relation to invoicing to the PA), thus departing from the behavior of other EU countries;

2. and adopts the principle of mandatory electronic invoicing FOR ALL, regardless of the size of the company / firm (except in the case of minimum taxpayers).

This is a very demanding choice, both for the financial administration and for economic operators. It can certainly lead to a drastic reduction in the scourge of tax evasion and to a simplification of administrative formalities if combined with a strong limitation of the use of cash.

Year 2019

Part of the obligation of electronic invoicing for "...supplies of goods and services between residents or identified in the territory of the State ..." (Article 1, paragraph 3, of Legislative Decree 127/2015, electronic transmission of VAT transactions).

That is:

-B2B invoices and related notes of variation between taxable persons VAT (everyone is a holder of VAT);

-B2C invoice to private individuals: the rule speaks generically of "residents" and not of "VAT taxable persons".

Exclusions: subjects with "minimum" advantage (Art. 27 c.1 and 2 DL 98/2011), subjects with flat rate (Art. 1 paragraph 54-89 L190/2014) and "small agricultural producers" (referred to in art. 34, paragraph 6, of Presidential Decree no. 633/1972).

These persons are in any case required to issue invoices in electronic format for transactions with the Public Administration (Article 1, paragraph 209 of Law 244/2007).

2.7 THE OBJECTIVES OF E-INVOICING

The intentions of electronic invoicing are of various aspects, it has as its primary objective to improve the system by contributing to the fight against tax evasion, simplifying and reducing bureaucracy, in this regard we have seen previously some important numbers due to this change. In order to understand even better the intentions introduced by the law, we refer to the words of the director of the Revenue Agency Ruffini[31]:

"Electronic invoicing also opens up scenarios of profound innovation in the way in which data is communicated to the Revenue Agency, enabling businesses to have, on the one hand, a modern and efficient tool for managing the credit and debit cycle and, on the other, to make the data available to the Revenue Agency free of charge. In general, with a view to simplifying compliance, the strategy is to make the most of the information acquired by the Revenue Agency for control purposes and also to provide services to taxpayers. For example, the possibility for the Revenue

[31] https://www.money.it/fattura-elettronica-2018-obiettivi-agenzia-entrate

Agency to use the analytical data of invoices and periodic VAT payments to prepare annual declarations or to process the data of single certificates to pre-fill the substitute tax declaration. For these purposes, it is of fundamental importance to improve the quality of the databases through a careful analysis and constant monitoring of the information flows transmitted to the Agency".

It is therefore not difficult to understand from these declarations that the ambitious objectives of the "Agenzia delle Entrate" can be summarized in brief:

1. implement and extend the pre-filled tax return system;
2. start the single certification and the pre-filled 770 model.

Even if for many the Electronic Invoice will not be able to resolve the age-old problem of tax evasion in Italy, the Government believes that the Electronic Invoice would be able to give a big boost to the elimination of three of the four types of tax evasion:

- fraudulent VAT evasion for false invoices;
- evasion on invoices not false but not recorded by either party;
- evasion on real but recorded invoices for an amount lower than the real amount of the transaction.

Alongside the objective of reducing the problem of evasion, another very important objective is to guarantee greater practicality for businesses and professionals, bringing various advantages in terms of streamlining processes and therefore reducing costs. To achieve all this it was necessary to organize everything with

great care and attention avoiding the inefficiencies that accompanied the entry into the scene of the LIPE and the "spesometro".[32] The idea to avoid complications and inefficiencies was to introduce the maneuver in a soft way making the procedure mandatory first of all for companies that already had a structure and / or with a minimum turnover, therefore companies that already had sufficient IT structures to support this innovation.

2.8 E-INVOICING IN EUROPE AND WORLDWIDE

In this paragraph we will try to have a broader view on the phenomenon of electronic invoicing outside the Italian reality. The general situation with regard to the other European countries is easily deductible, in fact they either have no particular obligation, or they have introduced an obligation limited to transactions with the public administration. The only country, apart from Italy, to have introduced e-invoicing more fully is Portugal, which introduced the obligation on 24 August 2012, using it effectively in an anti-evasion way during the international financial crisis following the bankruptcy of Lehman Brothers in 2008. As regards the other countries, European legislation provides that e-invoicing should be considered as an option. The only obligation is for public procurement, with all

[32] Is a communication that VAT holders are required to submit to the "Agenzia delle Entrate " when transactions in excess of 3600 euros (VAT included) are certified by receipt or tax receipt and all those invoiced.

countries having to adapt by 27 November 2018. In order to introduce the obligation, a specific derogation must therefore be requested from Brussels (granted to Italy with a view to 2019). Considering that, according to the report, many member countries have anticipated and extended their obligations beyond the scope of application of B2G transactions (business to government), also thanks to "modern digital technologies, which allow, through this invoicing system, a more timely activity of verification, detection and control of VAT fraud, it is not risky to consider that a real rush has now begun to implement mandatory electronic invoicing systems through authorizations in derogation". Having said that, in the table below we can see which countries have no specific regulations and which have introduced an obligation towards the public administration.

Countries without specific regulation	**Countries with an e-invoicing obligation B2G**
Bulgaria	Austria
Cyprus	Belgium
Greece	Croatia
Irleland	Denmark
Latvia	Estonia
Luxemburg	Finland
Malta	France
Poland	Germany
UK	Lithuania
Slovakia	Netherlands
Unghary	Czech republic
	Slovenia
	Spain
	Sweden

Table 2.1: E-invoicing in the worldwide

As far as overseas countries are concerned, electronic invoicing is more widespread in Latin America. In the United States, on the other hand, the adoption of the digital mode is recent but the adoption of it is purely strategic because the US tax system does not provide for the charging of VAT, so there is no need for electronic invoicing to recover revenue. In other parts of the world, looking at the Asian countries, these are still at an early stage, in Africa only South Africa already has an advanced system in this regard, Australia and New Zealand are working on the compatibility of computer systems. Finally, in the countries of Eastern Europe that are not part of the EU, e-bill is generally optional. In Latin America, the three pioneering countries are Chile, Mexico and Brazil. Not only is e-invoicing widespread, but other e-accounting procedures are developing based on a single management platform shared by businesses. The system allows the state to know in real time all the operations carried out (the control, therefore, does not only concern the VAT but the entire administration of the production system). Electronic invoicing is also mandatory in Argentina and Peru, Colombia will introduce it from 2019. As mentioned, the United States feels less the need to digitize the invoice which is not a necessary document to settle the indirect tax (which is not VAT, but a sales tax that has a different mechanism). In 2018, however, the obligation for transactions with the public administration began. In Asia, electronic invoicing is not widespread at the moment. China is beginning to impose it on some large

companies, same situation in Indonesia, but in both cases the results are not positive. The countries with the highest use of e-invoicing are Singapore, Hong Kong, Taiwan and South Korea. In Eastern Europe, electronic invoicing is optional in Russia and Turkey.

CHAPTER 3: AN INITIAL ASSESMENT OF RESULTS

After dealing in general with digitalization and in particular with e-invoicing, in this chapter we will focus on the results achieved so far, the dissemination and the impact on SMEs following the introduction of the legislation that forced their use. An analysis of the difficulties encountered in the new invoicing process will be made and some data processed by the Observatory Electronic Invoicing & eCommerce B2b of the School of Management of the Milan Polytechnic and the numbers released by the "Agenzia delle Entrate" one year after the introduction of Electronic Invoicing will be presented.

3.1 HOW THE PROCESSES HAVE CHANGED IN PRACTICE

Electronic invoicing has required radical changes to the whole system that revolves around the issue and management of tax documents and has imposed a cultural change on all those involved, VAT operators and accountants first and foremost. Focusing on the daily operations, surely this innovation has shortened the time of some procedures, has favored a greater simplicity in the organization of documents and a more linear flow of information, even in the relationship with the financial administration, but for craftsmen, traders and micro-enterprises has caused some more burdensome compliance, with an increase in costs and bureaucracy. One of the main criticisms of the new system have been that it has not supported the weakest contexts in the appropriate way, think of micro companies, shops and small

businesses not yet equipped with internet connections and culturally unprepared for the use of new technologies, especially for certain age groups. These individuals who in the past managed to issue invoices on paper or through Office Automation programs, had to learn how to fill and issue electronic invoices using either the free digital tools provided by the "Agenzia delle Entrate" or the front-end portals recommended by their accountant. This fact was initially of great impact and brought a real cultural revolution for VAT operators who previously used the new technologies in a very limited way.

Accountants have been a very important player in this epochal turning point, for them the advent of the compulsory electronic invoice for private individuals too, has had a double impact:

1) Initially the commercial firms had to face a very difficult phase in fact, in addition to studying and assimilating the new fulfillment, they had to rethink the internal organization, update their management software with the news and new tools provided near the entry into force of the fulfillment by the software houses and they also had to train all customers often illiterate digital, to prepare them for the new management of invoices.

2) Once the initial critical phase was over, accountants were able to benefit from the integration of their software with the front-end software provided to clients to automatically download their invoices, record them quickly in accounting and archive them digitally. All this, in addition to the economic benefits of selling new

services, allowed them to devote more time to value-added consulting services for their clients.

For small and large companies, more structured and equipped with ERP software, the impact was certainly less, the adaptation to the new operating modes was an added factor to the normal management, and the administrative processes were significantly improved. Having an XML file in the information systems has allowed companies to automatically reconcile all documents connected and attached to the invoicing process, whether passive or active. For example, it made it possible to automatically link orders, possible DDTs, commercial offers, contracts and supplies.

3.2 E-INVOICING ONE YEAR AFTER ITS INTRODUCTION

At the end of 2019, almost a year after the invoicing obligation came into force, the "Agenzia delle Entrate" presented an analysis of the number of files sent to the "Sistema di Interscambio" (SDI), also calculating the number of files that were discarded for various reasons.[33] The result of this first balance sheet is certainly positive, as of 27 November 2019 a total of 1,844,690,751 invoices sent were calculated, of which only 2.48% (45,698,520 files) were discarded.

[33] Agenzia delle Entrate, *Fatturazione elettronica , 2018*

For the transmission of all these files, companies were able to use different channels, in the table below you can get a general idea of the most used channels and the amount of errors that were made using them.

The most efficient was the SFTP channel, the one used to talk with the "IS" by the systems designed by the most important software houses and recommended in the technical rules published by the "Agenzia delle Entrate" for the transmission of large volumes of data.

CHANNELS	#FILES SENT	#FILES REJECTED	% REJECTION
Portale (Web, App and stand-alone)	11.085.525	870.004	7,85%
Web Service	794.650.924	24.533.959	3,09%
SFTP	995.991.859	16.904.525	1,70%
PEC	42.355.550	3.367.173	7,95%
Gate of Domain (only PA)	606.893	22.859	3,77%
Total	**1.844.690.751**	**45.698.520**	**2,48%**

Table 3.1: E-invoicing channels Source: Agenzia delle Entrate

The Agency, in order to better understand the trend recorded so far, has also provided a table showing the number (in millions) of invoices sent to the SDI monthly until October 2019 and a graph on the trend of discarded files. These are the numbers of a successful project that demonstrate how this phenomenon of forced digitization is achieving positive results. The data in fact show how much companies, each with its own timing, are adapting and are becoming increasingly aware of the use of new tools and procedures, you can see that after the first months of difficulty the percentage of discarded files has stabilized around 2%.

MONTHLY VOLUMES 2019

MONTH	number of files sent to IS(mln)	N°files rejected(mln)	%files rejected
jan-19	110	5,5	5,00%
feb-19	177,5	7,1	3,98%
mar-19	174	4,9	2,80%
apr-19	179,2	3,9	2,15%
may-19	186,2	3,9	2,11%
jun-19	170,9	3,1	1,80%
jul-19	197,2	3,7	1,88%
aug-19	145,3	3,8	2,63%
sep-19	172,9	3,6	2,11%
oct-19	181,2	3,6	1,98%

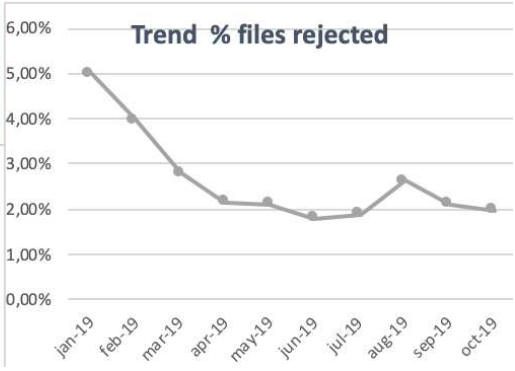

Figure 3.1: E- invoicing monthly volumes Source: Agenzia delle Entrate

With regard to the errors found in the transmitted files, which for the "IS" were a reason for discarding, below are the codes and descriptions of the different types of errors detected up to October 2019.

- 4404-Duplicate invoice
- 5324-1.4.1.1<Fiscal VAT ID> and 1.4.1.2 <Fiscal Code not consistent>.
- 5306-1.4.1.2 <Fiscal code> invalid
- 1200- File not conforming to the format
- 5305-1.4.1.1.2 <Id code> invalid

Going into more detail codes 4404-Duplicate invoice and 5324-1.4.1.1<Fiscal VAT ID> and 1.4.1.2 <Fiscal Code inconsistent> were the most frequent errors forming a total of 50% of total errors, in fact for the first code were made 1,171,308 errors or 30.29% and for the second code 808,810 errors equal to 20.71%. These types of errors were presumably generated by errors on the part of the operator in the case of code 4404 and by outdated customer data files for code 5324.

Analyzing the detailed data at territorial level, from the map below, it is possible to notice that the most important volumes of electronic invoices handled are related to the centre-north area of the "boot". And in particular most of the invoices, as you can see, are sent by companies based in Lombardy and Lazio.

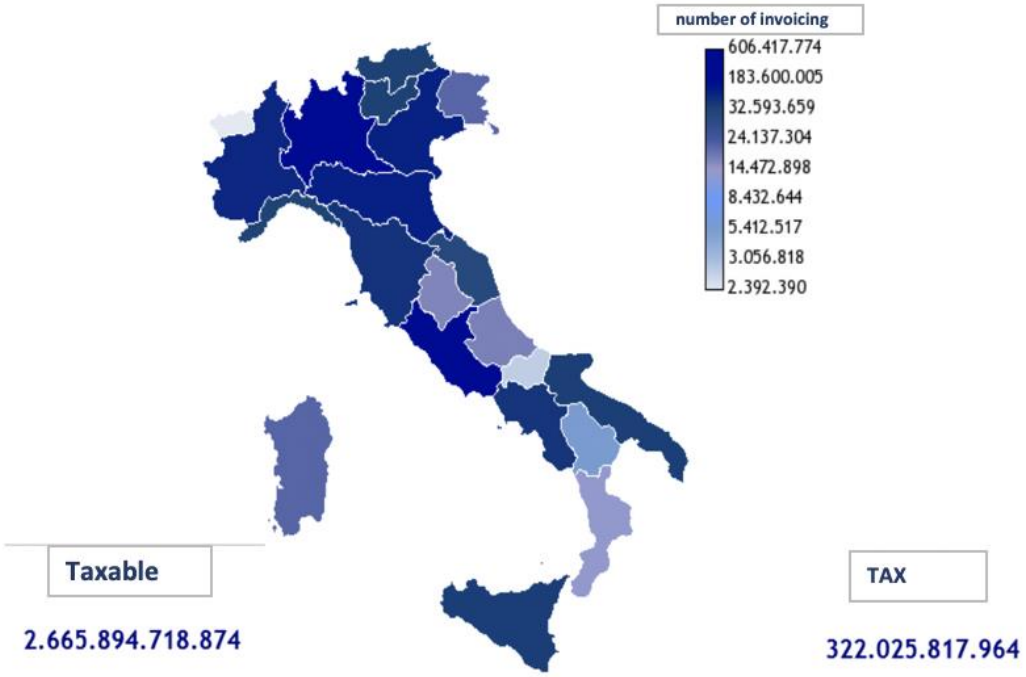

Figure 3.2: Territorial E-invoicing level Source: Agenzia delle Entrate

With regard to the sector in which these companies operate and therefore broken down by activity, it was found that the vast majority of the invoices come from wholesale and retail trade, the utility sector, i.e. the supply of electricity, gas steam and air conditioning, and the service sector.

The following table allows us to have a broader view for each sector.

Section	Description	Sellers	N°of Invoicing
A	Agriculture, forestry and fishing	528.510	196.826.233
B	Mining of minerals from quarries and mines	2.188	693.123
C	**Manufacturing activity**	**334.904**	**182.812.010**
D	**Provision of electricity, gas,steam and air conditioning**	**12.122**	**337.319.980**
E	Waste management and sanitation activities	9.874	72.150.491
F	Building	407.495	31.346.152
G	**Wholesale and retail trade of vehicles and motorcycles**	**763.472**	**498.201.861**
H	Trasport and storage	101.740	73.470.661
I	Catering industry	218.909	44.466.194
J	**Information and communication services**	**99.631**	**294.005.816**
K	Financial and insurance activities	61.741	15.365.876
I	Real estate activities	203.367	9.426.063
M	Professional, scientific and technical activities	526.337	56.508.343
N	**Rental,travel agencies, support ervices for businesses**	**113.735**	**103.216.414**
O	Public administration and social defense	7.171	9.581.444
P	Education	26.717	5.609.106
Q	Health and social care	147.722	10.765.752
R	artistic, sport and entertainement activities	66.117	4.910.959
S	Other services activities	78.025	8.799.521
T	Familiy activities	51	2.872
U	Organisation and bodies extraterritorial	12	9.095
Z	activities not classified	4.935	119.277
Z	Absent / not available	61.051	18.238.954
	Total	3.775.826	1.796.702.587

Figure 3.3: Main E-invoicing sectors Source: Agenzia delle Entrate

At the end of 2019 an update of the electronic invoicing numbers was made public by the Ministry of Economy and Finance, the updated statistics confirmed the trend and results presented the previous month.

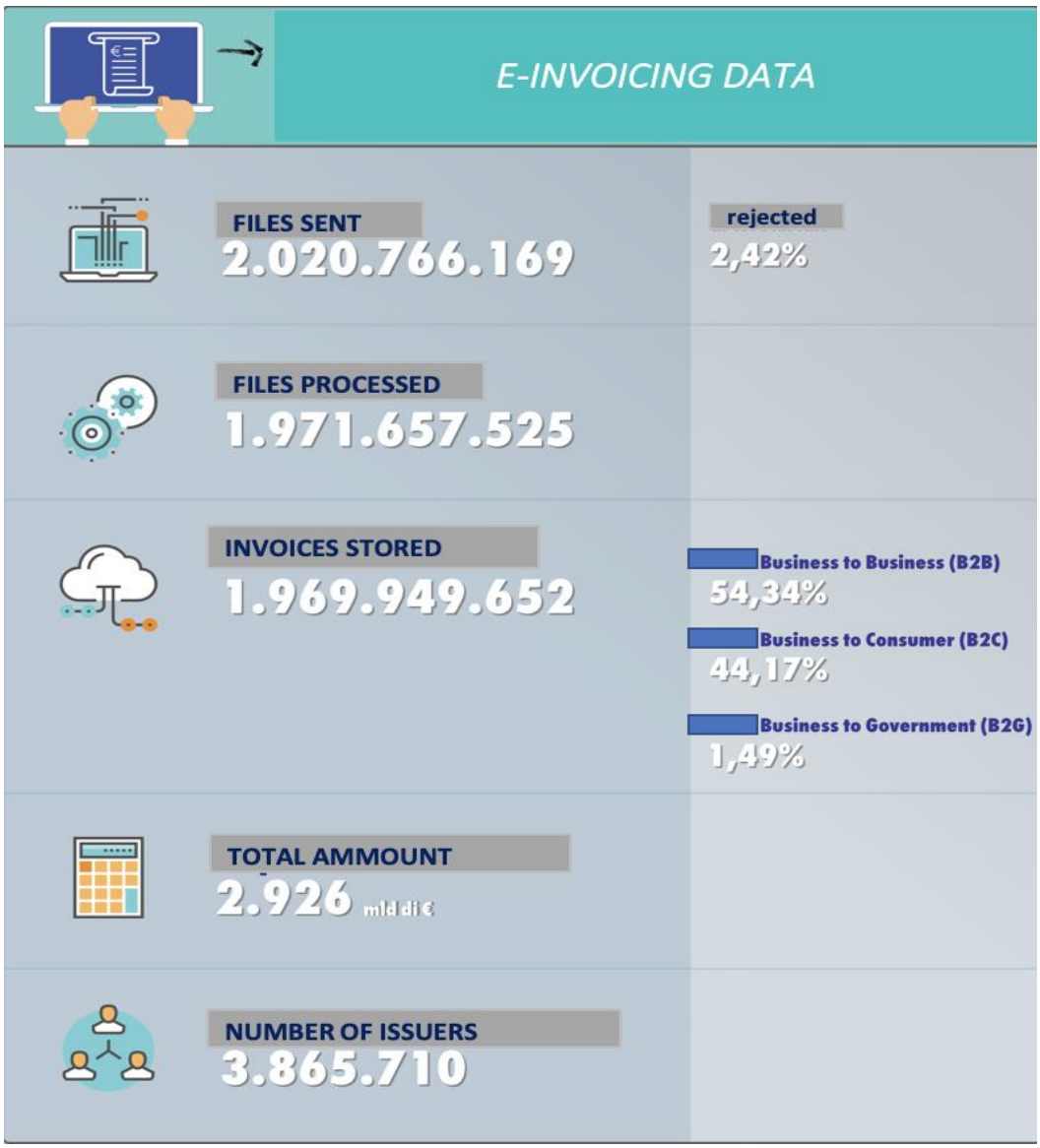

Figure 3.4: E-invoicing data Source: MEF

Thanks to the data previously reported, it is possible to have a general idea of the electronic invoicing phenomenon, a study by the Observatory Electronic Invoicing & eCommerce B2b of the School of Management of the Milan Polytechnic, has analyzed the impacts from a fiscal and organizational point of view and here below we report the data related to the benefits obtained[34]:

- Improvement in the reception process,
- Faster document registration for 33% of large companies and 31% of small companies,
- Streamlined verification procedures for 21% of companies,
- Reduced payment times for 19% of large companies and 14% of small and medium-sized businesses

- 25% of large and 19% of SMEs have a faster payment reconciliation rate.

These data on the positive impacts obtained, although the system is still evolving and being improved, are significant data as they indicate that the introduction of the electronic invoicing obligation has been a successful operation, which has allowed for greater speed and simplification of processes, also taking into account that in Italy half of companies invest less than 1% of their turnover in the digitization of processes, a percentage that shows little drive for change. This "change resistence"

[34]Polytechnic of Milan school of management, *Electronic invoicing mandatory: dissemination and impact in 2019, 27 June 2019*

characterized the SMEs in general and to better understand the whole situation we take into account an empirical investigation done by the Institute of Information Systems, Goethe University Frankfurt. Through the investigation, quantitative and qualitative data of 416 German companies were collected which mark the resistance by companies to the use of electronic invoicing. The results of this analysis show that many factors of different character create this resistance to change. Most of the SMEs analyzed, exactly the 31%, do not adopt the electronic invoicing system due to a lack of interest in the topic in question. Another factor, the second for relevance, relates to the effort to change, the 17% of SMEs believe that the benefits of the e-invoicing may not compensate for initial investments and maintenance operating costs. Interesting data concerns "insufficient IT knowledge" which is a reason for rather low resistance in fact it has an impact of only 6%. Other factors analyzed are shown in the graph below.

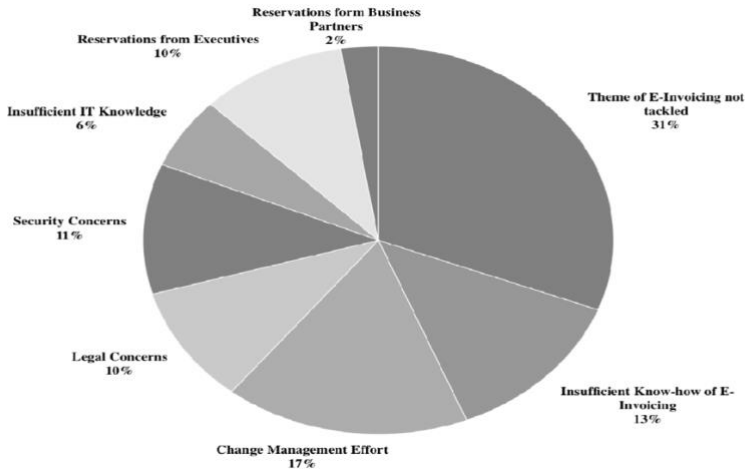

Figure 3.5: Relative Impact of resistant factors Source: Ideas

As we have seen many of the problems that create insecurity towards the e-invoicing are related to lack of time, although the above data are reassuring, many companies need to metabolize the change gradually. An example in this regard could be Perù, a country that has seen a gradual introduction of e-invoicing. The first reforms were dedicated to large companies and more developed sectors, giving SMEs more time to adapt to the new electronic system. A recent study thanks the Peruvian tax authority (SUNAT), which provided the necessary administrative data have estimated the benefits of the sequential introduction of the reform in greater detail. The study focuses on a sample of 78 thousand companies that have received the electronic invoicing obligation in the period between 2014 and 2018 and that represent 80% of Peruvian VAT receipts. In a first phase, the impact of the reform on sales, added value and tax liabilities of the companies under analysis was estimated and then, in a second phase, it was examined how these impacts vary from one company to another. The results of this study suggest that e-invoicing increased sales, purchases and value added by more than 5% on average in the first year, an impact designed to grow over time. On a fiscal level, it enables errors to be returned and compliance costs to be reduced. All this data and studies underline the efficiency of the e-invoicing that for sure is an add value for companies.

In any case, the Observatory would like to underline that structural problems have also been detected in the B2B e-Invoicing system, in fact this presents some critical issues due to the following elements:

1. The first is related to the size of the invoice file managed by the "Sistema di Interscambio", in fact many companies have to add one or more attachments to the invoice, making the sending too slow or even impossible.
2. Another problem is related to the XmlPA format, which often does not meet the needs of companies, in particular the lack of some fields that are considered mandatory, a limited set of special characters and the absence of management fields, such as the destination of the goods.
3. Finally, there was a logistical problem, so all the invoices sent are displayed, but it is not certain that they have been received. In general, these are problems that are capable of hindering the possible improvement offered by digital technology and even hindering work processes.

These problems were taken care of by the "Agenzia delle Entrate", which introduced a series of changes to the XML layout by adding additional fields to improve the management and operation of the system.

Electronic invoicing has not only had a significant impact on the organization and management of companies, but has also brought benefits at a general level of the country system, in fact, in addition to improving the competitiveness of SMEs has contributed to the fight against tax evasion, a phenomenon that according to the

Observatory of the Milan Polytechnic would affect the VAT gap of about 15 billion euros (out of a total gap of 35 billion). According to Umberto Zanini, accountant and technical manager of the observatory, electronic invoicing has allowed and allows to counter escape on several fronts, that of prevention and repression.

In fact, it, as Zanini reports:

1. It acts as a deterrent to those who issue invoices with data that differ from the services actually rendered
2. Allows you to check the stock against those who make purchases regularly invoiced but do not issue invoices in relation to their sales operations
3. It allows you to cross-reference the available data, with particular regard to periodic VAT settlements, in order to carry out a real counter-avoidance activity towards operators who issue invoices but do not register them regularly, as well as towards those who deduct VAT in the absence of an issued invoice.
4. Carries out timely and automatic checks on the consistency between the VAT declared and VAT paid

Although the problem of black payments will persist unless the cash is abolished by looking at a data processing by the "Agenzia delle Entrate" elaborated by Sogei, an Italian company operating in the ICT sector and 100% controlled by the Ministry of Economy and Finance, it is possible to see the important results obtained so far, in fact, it would have obtained a higher VAT revenue of over 2 billion Euros.

CONCLUSIONS

With the following paper, we wanted to address the issue of digitization, a real revolution that is becoming increasingly important today, so much so that it has become a fundamental part in the daily life of every individual and one of the strategic points in the action plan of every company and the country in general. Thanks to the topics dealt with, it has been possible to perceive how digital transformation has become an inevitable challenge for SMEs and for companies in general that have to conceive it as a necessary element for growth and as a useful means to maintain their competitiveness in their market. In some cases, the adoption of technological tools has been made compulsory by national regulations because they are considered indispensable for development, as in the case of electronic invoicing, a subject that we have carefully analyzed in the second chapter. From the study carried out it was found that the advent of electronic invoicing, despite some operational problems encountered in the first moments after its introduction, immediately solved by the "Agenzia delle Entrate", has brought benefits to all parties involved: PA, businesses, individuals and tax authorities. In fact, as we have seen, the Electronic Invoicing system not only provides significant savings in both economic and process optimization for SMEs, but also makes it possible to obtain important results in the fight against tax evasion by the authorities, thanks to the timeliness, greater effectiveness and precision of the controls carried out on the enormous amount of data stored and processed through the new automatic systems.

This series of benefits should play a role in favor of the dissemination of digital culture in SMEs, which, on the other hand, for a number of factors that we have seen in the third chapter, are resisting this intention.

As already mentioned, only 1% of SME income is invested in innovation. There is therefore a need for greater interest in digital development that must start from the corporate mindset, SMEs must take ownership of the "culture of change" in such a way as to accept voluntarily and not suffer them as often happens, the changes brought by digitization, having the conviction that the benefits will be greater than the initial sacrifices. Digitization must be seen as a tool that allows the human component to solve problems within the company quickly and easily. In any case, the negative aspects of this phenomenon should not be lost sight of; a completely digitalized system could, in fact, find various problems connected to Cyber security. Companies must be able to evade any attempt at cybercrime, also a growing phenomenon, which threatens the integrity of personal data, which, in compliance with the new European Regulation No 2016/679 GDPR (General Data Protection Regulation), must enjoy full protection.

In conclusion we have noted that the digitization inside companies' activities, nowadays, is a step that every enterprise will face. The e-invoicing is only an example of the advantages achievable by the digitization of the business processes. All this taking in consideration that this phenomenon is only at the beginning. The

enterprises that will take this opportunity will be better prepared for future challenges.

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