

Digital Transformation related opportunities & challenges

Expert's opinion

Digital transformation & Cybersecurity

Alessandro Leone

Partner Grant Thornton FAS

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Overview

Digital transformation & sustainability

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Digital transformation & Robot Process Automation

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This behaviour is often influenced by the fact that we tend to use a minimum portion of these applications' potential, as if not having to send faxes - not to mention envelopes - nor use an eraser or a calculator all seem to us in themselves satisfactory signs of an indisputable progress. And it is actually true that progress has been made, but it is still early days. One of the cornerstones of digital transformation is the branch of information...

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The digital transformation is what enables corporate transformation in every industry and in every functional department. The event of the digital transformation is leading companies to reinvent themselves and start a process for the evolution of working procedures and strategies adopted so far. Digital transformation means approach innovation. In fact, technologies concerned by this process are not of a “one-size-fits-all” type: In order to obtain the maximum benefit from their application/implementation, companies must, at the same time, introduce an evolution of processes and of their corporate culture. In this deep changing context, the presence and the support of experts having specific skills in this field is crucial in order to be able to exploit the potential of this transformation in the best way possible.

Companies that first decide to move in this direction can benefit from the so-called first-mover advantage, which can bring them in a few years to become industry leaders and leaders in the market segment in this evolution process.

When any change must be faced, some cornerstones should be set during the transition. In the case of digital transformation, the pillars to be observed and maintained are customer retention and relationships with suppliers/partners who collaborate with the company in the supply chain management.

Technologies involved in the digital transformation process are different and each of them can be used differently depending on the industry in which the company operates and on the business model adopted.

However, there is one thing that is common for all digital transformation processes: big data and data analytics. The collection and analysis of data through tools that turn them into useful information opens up new opportunities for companies. This kind of analysis allows them to connect and interpret destructured data to support managers in the decision-making process and in the evaluation of new business strategies in real time, making their activity faster, more flexible and more efficient.

At the same time, since the tools used for the collection, analysis and smart interpretation of data are physical devices that can receive and transmit data through the Internet (IoT technologies), there is a higher need to protect links, tools and data from the increasing threats coming from the IT world. Cybersecurity therefore becomes a crucial element of the digital transformation: investing in technologies and create dedicated cybersecurity teams is essential to implement a successful strategy in any business.



Sustainability

Sustainability is constantly evolving. The challenges for a responsible interaction with the environment, i.e., an interaction that could maintain a high environmental quality in the long run, are constantly changing and become more and more complex. A digital transformation process and the subsequent adoption and integration of new technologies in the business allow production processes to become more functional, more sustainable and less polluting over time.

The application of technologies such as Advanced analytics, IoT, AI, Big Data and Blockchain not only generates value for businesses, but it also contributes to the creation of smart ecosystems. It was demonstrated that investing in sustainability implies an improvement in performances, not only in financial terms, but also from a process and corporate culture perspective. Adopting a Sustainability Strategy that integrates the use and implementation of enabling technologies, such as those mentioned above, allows speeding up the achievement of such objectives, maximising the expected result.

There are many examples that show how the integration of these technologies in the Sustainability Strategy generates advantages for a business and for the in which it operates. Synergies between sustainability and digital technologies become increasingly stronger and more complex, involving an increasing number of industries. Below are some examples.

- Use of AI for the reduction of air pollution levels and for the improvement of energy efficiency within structures.
- Smart Agriculture - Smart Agriculture means using available technologies to create a more rational, efficient and sustainable, minimizing waste and optimizing the use of resources. Smart Agriculture is already a highly growing sector and it is expected to reduce the use of pesticides by 85% and to increase crop (and turnover) by even 20%.
- The application of technologies such as AI, advanced analytics and IoT in this sector allows obtaining automated guided drones and tractors that enable the application of a “precision agriculture”. The pinpoint monitoring granted by such technologies allow reducing, in terms of quantity and cost, raw materials used. Moreover, these tools allow performing activities such as: monitor crops health, identify too-much or too-little irrigated land, and apply pesticides only where it is needed. Smart Agriculture can be an opportunity to save costs for companies and it can contribute to the creation of a circle market that is expected to be worth approximately 127 billion dollars in 2030.



- Smart cities - Smart City is an idea of urban reality that manages resources in a smart way, aiming to economic sustainability and energy self-sufficiency, in order to improve the quality of life of its inhabitants. The purpose is that of rendering infrastructure “smart”, by connecting them with each other and endowing Administrations with instruments that can simplify decision making processes. The use of technologies as AI and IoT can allow integrating city planning, services and infrastructures, improving citizens’ lives. A smart use of data, which is possible thanks to the abovementioned technologies, allows monitoring, analysing and developing smart actions, such as: design of low energy districts, smart management of public lighting, and implementation of a sustainable mobility system.
- Smart Supply Chain – The application of Industry 4.0 technologies (AI, IoT, blockchain, etc.) within the supply chain allows organizing, integrating, and regulating supply chains, turning from a fragmented model to an interconnected model, where companies operate jointly to provide a competitive output thanks to production processes managed in real time and most of all, thanks to the adoption of innovative business models. The implementation of AI within production processes grants visibility on the end-to-end logistic chain, allowing, among other things, to monitor costs, reduce waste and optimize consumption.
- Monitoring the observation of employees’ and human beings’ rights – By using AI and IoT, it is possible to monitor working stations of people working in a supply chain (e.g., assembly line). This allows the legislator to access data needed to assess the working conditions of human resources and ascertain that the employer complies with the law.

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Humans started to develop tools and use metals: a slow evolution followed, which resulted in the first industrial revolution (around 1700 A.D.), mainly centred around textiles and metals, and later in the second industrial revolution, around 1870 A.D, i.e. (only) 151 years ago, with the introduction of electricity, chemical products and oil.

From this moment onwards the evolution gained momentum. The first electromechanical calculator was, probably, the so-called Polish "Bomb", devised and realised by the mathematician Marian Rejewski in 1938.



There were various other examples in that period, for example the Z1 by Konrad Zuse, the first based on the binary method, and the various evolutions of the Bomb realised by Alan Turing and Max Newman in 1942. Many consider the latter as the first modern computer, realised 79 years ago, for others instead this record is held by ENIAC, which is surely the forerunner of the first commercial computer, i.e. UNIVAC.

This was back in 1951. The symbiosis between human and machine had begun and in 1960 there were already 6,000 computers, which increased to 20,000 in 1964 and to 63,000 in 1969, 52 years ago. Nowadays it is impossible to say how many computers are around, if we consider the interconnection with other devices, phones, televisions, vacuum cleaners, cars, industrial plants, etc.

The first personal computer was placed on the market by Olivetti in 1975, the same year in which Microsoft was born. Apple was born the following year and brought personal computers in households, with home computers. IT started to evolve rapidly.



Just to bring back memories to nostalgic ones, until the 70s punched cards were the primary medium for computers input. Magnetic disks were introduced in 1972, first 8-inch floppy disk, then 5.25-inch ones and later the more evolved 3.5-inch floppy disks. Nowadays, they no longer exist (and the more recent CDROMs are not in use anymore, either).

The history of computer networks evolved in parallel. Starting from a network first created for military purposes and later connected to universities, ARPANET was born in 1969 and became the Internet in 1980; it was introduced in Italy in 1986. In 1991, 30 years ago, the World Wide Web was born. Up to this moment, the focus of researchers had been on the functioning of systems. The climate of collaboration among university colleagues did not facilitate the development of information security.

In terms of applications, the first ERP system dates back to the 90s, Amazon was created in 1995, Facebook in 2004 and Whatsapp in 2009. We all know the recent developments.

Corporate operations are supported by and depend on IT systems. Corporate systems are connected with those of clients and suppliers, often also exposed on the Internet.

And cybersecurity? Going back over the history of mankind, safety in general has always been a crucial factor for peoples which, depending on risks, saw to adequate defence measures, enclosures and fires for animals, fortifications and weapons against enemies, selection of the place where to build villages keeping into account natural events, etc. When risks occur, humans are naturally inclined to develop protection systems.

As far as IT systems are concerned, instead, there have been various factors which did not favour the evolution of cybersecurity: first of all - as mentioned above - the speed at which they evolved, secondly the spirit of collaboration among technicians for their development and lastly the extremely reduced number of attacks identified, at least until 2000.

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Actually, up to then the interest of criminals in cybercrimes were not so high, given also the evolution of systems. Hackers were actually IT experts who violated and entered systems often just as a challenge or for fun (the term “hacker” actually means IT expert, and not cybercriminal). The absence of threats, or at least the perception of their absence, did not favour the development of protection systems, nor of a culture of safeguard.

In the last two decades, nonetheless, criminals realised the potential wealth of cyberattacks. Criminal networks have sprung up which have invested in cybercrimes, as well as auctions in which hacking services are offered and purchased. Nowadays it is possible, even for people with a relatively little experience, to hire the software needed for a cyberattack and also to benefit from services relevant to the negotiation and collection of cryptocurrencies. There is a network specialised in every malicious IT service. On the dark web, i.e. an area of the Internet not indexed by conventional search engines, it is possible to purchase all that is needed for an attack.

Just to mention a few global statistics, there have been over 800 million malware attacks in 2018 against 12 million in 2009 (see purplesec.us). One of the most serious threats nowadays are ransomwares. These are malwares which block users’ access to their files using encryption techniques. Usually, cybercriminals demand a ransom payment to decrypt them. Some attacks are generalised, i.e. aimed at the wider population, and ransoms are low (a malicious business based on lower amounts for high volumes).

This type of attacks normally causes few damages, or damages to small businesses. Other attacks are focussed, i.e. addressed to entities identified through an actual targeting process (high turnover, good economic position, good cash levels). In targeted attacks criminals take time to study their target, to undermine the most effective countermeasures (e.g. backups) and to launch coordinated attacks to all key systems.

The victim, who thought to be well protected, often discovers after the attack that it had some vulnerabilities. Indeed, a weak link in the chain is enough to make it useless, besides the fact that those who launch surprise attack always have an advantage on those who need to defend themselves.

Therefore, also well-structured companies are forced to pay large ransoms (malicious attacks based on low volumes of attacks in which very high ransoms are demanded). To give an idea of the phenomenon, the cost for ransomware attacks is estimated to have amounted to 5 billion dollars in 2017, to approx. 12 billion in 2019 and it is estimated that it could reach 20 billion dollars in 2021 (see cybersecurityventures.com).

And what about your company? Which is the level of maturity in the protection from cyberattacks? Being able to reply to this question is the first step to effectively organise the relevant safeguards.

For an effective protection it is necessary first of all to understand what to protect and identify the priorities. A total alignment between the heads of the business and the head of information security has to be granted.



Which are the business objectives? How will they be pursued? Who are the stakeholders to be considered? Which is the organisational structure of security and which are the relevant roles? Which is the assets' mapping and evaluation process? How are security strategies defined? Then, it is necessary to assess the status of one's protection.

Which is the level of expertise of IT personnel on security? And that of users? Have all IT assets been identified and the adequate security measures defined for each of them? From a technical point of view, are security measures adequately applied? Are systems updated on an ongoing basis and those no longer supported by providers discontinued? Which security management processes are in place? Are vulnerability tests carried out? And simulations of phishing attacks to users? Is there a security incident response process in place? And a business continuity management process?

Once the status has been assessed, it is necessary to define a project to address vulnerabilities. This approach is also used to introduce additional protection measures to the existing ones. It is necessary to try and reverse the paradigm according to which those who attack have an advantage on those who defend themselves.

We need to remind ourselves that cybercriminals are no longer nostalgic hackers who violated systems as a challenge. They are pragmatic individuals who aim at maximise results. Even if they think to be able to violate a well defended target dedicating some time, they do not hesitate to change target and choose one with lower defences.

Which is your project portfolio management process? Do you dedicate an adequate budget to security? Which is your project management process? Are there project managers in your company? Which evaluation process do you use to assess progress of a project? Top management commitment is key for cybersecurity management. How is top management involved? Which is the communication and reporting process to the top management to inform about the status of cybersecurity processes and relevant risks?

The last element to consider is the management of the process and systems monitoring system. Have key performance indicators and key risk indicators been identified? Are automatic systems to calculate the level of such indicators in place? Have thresholds, warning systems and reporting systems been defined?

Would like to discuss these topics in detail or would you like to receive support in assessing the maturity of your company as for cybersecurity matters?

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One of the cornerstones of digital transformation is the branch of information technology called Robot Process Automation, or RPA. This includes programs (BOT) which, either automatically or on demand, can perform sequences of repetitive functions in a quick and effective way 365 days a year, 24 hours a day. We will not go into the details of RPA, but we would like to give some examples of how it can increase efficiency while improving the quality of some of the most common office procedures.

Attachments

How many do you send? How many do you receive? How many do you return with amendments and comments? How many do you forward? If your answer to one of these questions is "more than two per day", then think how it would all be simpler if attachments were stored in a shared OneDrive repository and instead of sending them as attachments and having to download them to introduce amendments, you would receive them as simple links accessible with a click in a secure manner, as intrinsically protected by viruses. In this way there would also be an end to the multiplications of versions which often generate mistakes, or at least doubts.

All this while saving time, bandwidth load and disk space. With a simple BOT it is possible to move attachments to OneDrive and send them as links without changing the way you do things, but bringing to the organisation all the relevant benefits. Multiply this by the number of people working in your organisation and consider the economic impact of such a technology.

What about sustainability? 3 emails generate the same CO₂ as that produced by driving 1km by car and a server produces 1 to 5 tons of CO₂ per year.

Forms

Do you ask information to your clients, define discount policies, approve expense reports? Forms are a useful tool as they allow to structure information in such a way that it can be managed by automated processes.



Consider a discount request which instead of being expressed as a free text is categorised in a form with four options “10%”, “15%”, “20%” and “NO”.

You could reply with a single click which would automatically send an authorisation email amending the offer and sending the updated fee proposal to the addressee. The advantages are obvious and would further increase by integrating the analysis of information on the client [is it a bad payer?] or seller [is it in line with the targets?] in the process..

Meetings

The pandemic has added momentum to remote working and brought applications such as Teams to the fore. Now, how many steps do you need to take to organise a meeting? Or, in case an email exchange becomes obviously unproductive and a call is needed, which are the steps you need to take?

Again, actions like contacting via Teams the person who sent us the email we have open on our screen, schedule a group call for a working team sharing in advance the documents which will be discussed, record attendances and keep track of the time spent in calls are just few examples of tasks which can be automated with simple BOTs.

The partnership with Automation Anywhere

In order to create BOTs, Grant Thornton Italy established a partnership with Automation Anywhere, which realised one of the most adopted software, ranked by Gartner among the global top leaders of the industry. First of all, Automation Anywhere provides a complete software platform offering both the development environment and the runtime environment, on premise and in cloud. Moreover, it includes various components. The workplace allows to automate, innovate and transform any recurring digital activity with a BOT. The IQ BOT allows to acquire and transform non-structured data also through AI and machine learning algorithms (it can also decode human handwriting). Finally, BOT Insight provides a data analytics solution which allows the reclassification and presentation of data. A further interesting aspect of the Automation Anywhere platform is the Discovery BOT solution. Through this function, a specific BOT uncovers processes that can be automated, thus avoiding high consultancy expenses. The identification of processes that can be automated and the implementation of BOTs are thus sped up. It is actually possible to record users' activities, report on business processes, support the analysis of processes to uncover automation opportunities, generate blueprints and automate them.

With a little familiarity, users will be autonomously capable of atomating their activities simply by activating functions to register their actions.



Data Driven Company

In 2006 the mathematician Clive Humby declared that “Data is the new oil”, i.e. the new most important raw material. We believe he was right, as well as those who later expanded on this concept saying that data, like oil, are quite useless if not refined and transformed in something that can be used.

Equally right were those who later clarified that refined data are useless if not included within a Data Driven Decision Making (DDDM) process. We fully support this vision and we consider Data Driven those companies in which data are collected, classified, analysed and then used to make business decisions in all business divisions.

It is actually not a technological approach, but one that requires the employment of technology, due in particular to the fact companies use different platforms, at different stages of maturity often not completely integrated: from Enterprise Resource Planning (ERP) systems used in core processes such as bookkeeping and warehouse management, to websites and social channels, to more advanced platforms such as Customer Relationship Management (CRM) and Master Data Management (MDM) systems.

Depending on the corporate systems and processes, it is necessary to define a data collection strategy and identify an aggregation platform, i.e. the data lake where raw data are collected and the data warehouse where data are structured and ready to be used





for a specific purpose. A physical separation is actually not necessary, but rather a clear logical distinction in a sole repository, ideally on cloud.

The key step is the refining, which implies the identification of Key Performance Indicators (KPI) which can represent and communicate in the most effective way the corporate mission and the relevant trend.

For example, if revenues and margin are always valid as KPIs, indicating their priority has an immediate impact on the target of individuals' activities: should we sell more or increase the margin? If we reduce the margin, will we be selling more? With the current margin, how much do we need to sell to reach the expected profits? And if we were to increase payment terms from 60 to 90 days, which would be the impact on sales and cash flow?

Data refining and data visualisation of KPI in a simple, interconnected and easy to understand way is assured by business intelligence tools. The offer is wide and - in our opinion - not strategic; the important thing is structuring dashboards in an effective way.

There are three key elements to consider:

1. Summary: KPIs need to be visible on a single screen, with trends highlighted in colour
2. Grouping: for each KPI, a screen with more details showing all related elements
3. Drill-down: upon request and for further levels, it is possible to go more in detail.

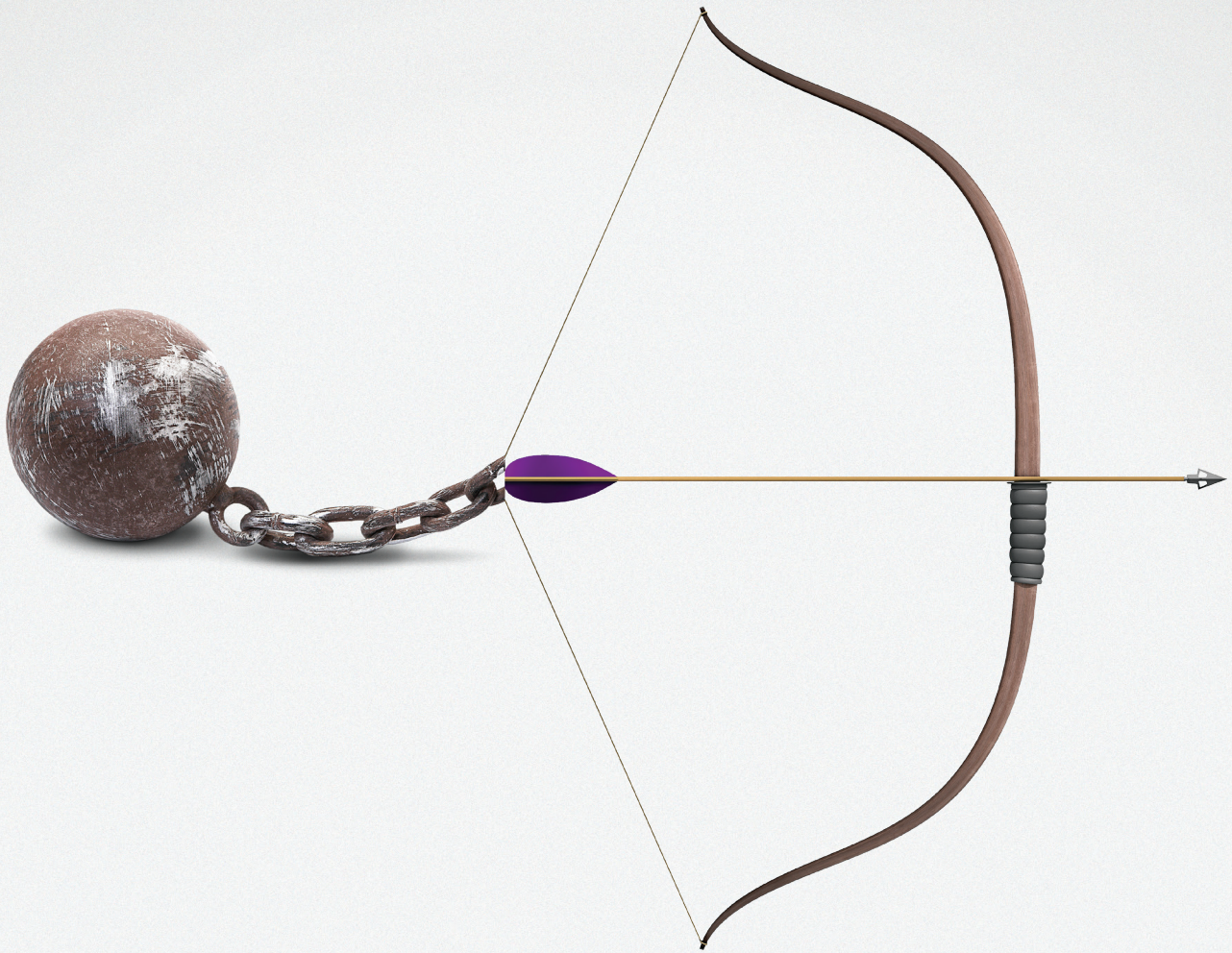
What discussed so far is the 1st Step of the process to follow to transform a company into a Data Driven Company, the basis to start making a more intelligent and profitable use of data, i.e a predictive use of data. This means using historical data to forecast future trends and understand how to influence them.

A key role in building predictive models is played by Artificial Intelligence (AI) and Machine Learning algorithms: what is important to know is that the effectiveness of these algorithms is directly proportional to the amount of available data, which leads back to the importance of a wide-ranging data collection and of high performing data lakes.

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