

13 Digital Transformation through Digital Leadership and Examples of Digital Transformation

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13.1 Abstract

Technology nowadays plays a significant role in our daily activities and the rapid as well as continuous technological advancements in the last decade have imposed their rhythm. They affect the humanity in such a disruptive way that anyone who wants to attend these changes should be continuously up to date with all the recent developments. Within this context the meaning of digital transformation is materializing, affecting every sector of the human activity. Though these changes equip someone with the necessary capabilities to sustain his existence in our modern world, often through digital transformation we observe phenomena of job polarization. New job opportunities are generated which demand advanced technological skills, while simultaneously the most repetitive tasks with the minimum requirements of skills are set aside. Therefore there is a need of capable leaders who can find the balance between the skills in hand, by making sure that the employees share equal opportunities of being educated on new technologies.

Within the context of digital transformation in this paper our effort is to locate the best attributes a digital leader should have in order to cope up with the survival of his organization through the digital era. After a short introductory part to digital transformation and the phenomenon of job polarization it causes, we are going to examine the required skills an appropriate digital leader should encompass, in order to lead to a successful digital transformation. Later on we will try to identify the most characteristic styles of leadership and offer some examples of digital transformation. Finally we are going to study the DESI index concerning the engagement of new technologies within the organizations.

Keywords: digital transformation, digital leadership, disruption, job polarization, new technologies

13.2 Introduction

Due to the fact that digital transformation is adopting to any type of organization and it is formulating according to its needs, there is not a clear and unique definition and guidelines of digital transformation. The point up to everybody agrees is that digital transformation is the process of harmonizing the organization to the environment of new technologies. And because technology never cease to evolve, digital transformation does not have a clear ending point but rather is an on-going process. As Martin Wilckens, Senior Manager of HR Digital & Innovation department of Deutsche Telekom, stated each organization should begin the transformation process with any means available and start with small steps, so as to build a strong digital environment. Apart from the tools that can help the businesses on this pathway, the proper utilization of Artificial Intelligence as well as robotics can boost the organizations to create their own tools in order to serve them better to their transformation effort.

From all the above we can clearly realize that digital transformation is not just a trend that will vanish after a while, but rather it is here to stay and grow through the organizations. New ideas are being introduced and to the farther extent new job positions are being generated. However, often the zealous to undertake the transformation process in the best way creates phenomena like job polarization, where new jobs are generated that demand higher technological skills,

while simultaneously tasks with the minimum requirements are being set aside. This practically means that the new needs that are generated through the job creation seek for personnel with higher knowledge on digital and new technologies and at the same time workers with lower digital skills are in danger of lay-off, since the machines are replacing them in the repetitive routine tasks. Therefore actions should be organized by the companies in order to educate as much as possible their employees of all levels, so as to minimize the effects of phenomena like job polarization.

As we have said previously the process of digital transformation may not provide a typical guideline, which implies that in order to be able such a process to be characterized as viable for the organization there should be the suitable person who will set some ground rules to be followed. Such a person encompasses the characteristics of an accountable and responsible leader, who could apply the suitable digital strategy for the success of the organization. Within this context this paper will try to underpin the essential meaning of digital leadership that could lead to a successful digital transformation. Then the typical characteristics of a digital leader will be mentioned and an effort to allocate the basic leadership styles will be made. Furthermore an array of examples of companies that have applied a digital transformation process will be mentioned. Finally we are going to conclude with a report of a newly established index, which explores the levels of adoption of digital technologies within our society.

13.3 Digital Leadership and Required Skills

As digital disruption sweeps across every major industry there is no doubt that any type of organization needs a new kind of leader, a digital leader who can build teams, keep people connected and engaged and drive a culture of innovation, risk tolerance and continuous improvement. The term may be relatively new and there is no given definition of it, however, we can certainly say that this kind of leader is destined to undertake the role of a technology pioneer not in the terms of understanding how technology works, but how he can effectively use it to create competitive advantage. The role of the leader nowadays is not very different from those leaders over a hundred years ago, where we observed the uptake in electricity by enterprises. The focus and devotion on new technologies is analogous to that era. Sure enough the leader should be not only a person who understands thoroughly the digital world, but also an individual who can set a prototype of inspiration and trust. With this characteristics the employees are willing to follow his directions, in order to guide the organization to its digital transformation. However, in their effort to apply the best suitable approach to digital transformation most of the leaders make the mistake to believe that the establishment of fully equipped websites, social media and online activity makes them successful digital leaders. It goes far beyond that, as digital transformation is about the creation of a new philosophy and mentality of the organization. Therefore some of the roles that a proper digital leader should undertake are:

- Use data driven analysis rather than subjective analysis
- Set vision rather than inspiration
- Develop citizen based strategy rather than inside-out plans
- Outline coherent action rather than disjointed performance programs
- Focus on outcomes rather than outputs

Usually the role of the digital leader goes to the chief of the IT department, due to the fact that the director of that section is more able to understand and implement the mentality of new technologies. However, it is important to clarify that the digital leader is equally important to the organization as the chief financial officer or the head of any other department. So, in this framework any person of responsibility within the organization can be an accountable digital leader.

It is up to each organization to identify the person who gathers the most important attributes of a digital leader and delegate him to enlighten the way to success and competitive advantage. The most important attributes that characterize a digital leader are:

- **Communication:** a proper communication strategy should be developed by the digital leader so as to inform anyone within and outside of the company about the steps that are going to be followed for a successful transformation
- **Vision:** is the trait that makes digital leaders stand out and is the only way that employees will trust and follow them to the pathway that will make them move on in this digital era
- **Digital literacy:** the person who will take the role of a digital leader should at least be able to utilize effectively all the modern technologies for the purposes of the organization. There is a gap between the generations, since the millennials are born inside the technology, so it is easier for them to apprehend it, while the older generations called the digital immigrants strive to understand the way digital technologies work
- **Strategy:** the most important activity of a digital leader is to unite the organization's personnel under the umbrella of a well-structured digital agenda, so as to cultivate the proper digital culture that will inspire everyone to participate in the viability of the organization within this modern digital world
- **Innovation:** the key to innovation for leaders is to keep abreast of developments in the digital sphere and ensure the workforce is embedded in a culture that values innovation and takes risks to trial new platforms and technologies
- **Risk-taking:** innovation is impossible without risk and as Mark Zuckerberg the CEO of Facebook stated, in a world that is changing really quickly, the only strategy that is deemed to fail is not taking risks
- **Adaptability:** the way to be flexible and quickly adjust to any obstacle or opportunity may be given by the rapid changes of technology is a crucial element in the character of a digital leader
- **Talent spotting:** a digital leader is not a lone wolf but rather a team player and through his effort to guide the organization to its digital transformation, he should be able to spot the employees who present a talent in dealing with digital matters and be able to develop these talents and make them valuable assistants to the digital agenda

To summarize for any type of organization that wishes to enroll in the game of the digital world so as to be able to survive, they should consider thoroughly the matter of developing a proper digital agenda through the effective promotion of the digital leader, following the steps below:

- Rethink the organization's leadership model so as to include innovation and team work
- Identify the likely digital leaders in the organization and cultivate their talents
- Ensure accountability
- Promote younger people into leadership much faster
- Foster risk-taking and experimentation through leadership strategy
- Move beyond traditional leadership training

13.4 Digital Leadership Styles

As we have seen in the previous section, digital leadership encompasses all the characteristics of the traditional leadership, with the only difference that it utilizes effectively and for the benefit of the organization the digital technologies and all the developments deriving from them. Through this section we will make an effort to identify the most important leadership styles in this digital era. We have found two different studies with a different approach to the types of digital leadership, the five Cs and the four Vs, therefore below we present both of them. Nevertheless their common point of view is the recognition that digital leadership is a game played by teams and not individually.

According to Kasey Panetta, a contributor at Gartner research and advisory company, identifies five ways through which a team can be managed in order to reach to the desired digital transformation and competitive advantage and these are:

- Commander: this is a style often seen on more experienced or self-managing teams which focuses to a specific goal and their leaders delegate decisions and actions while providing direction, objectives, rewards and a certain pace
- Catalyst: within the entrepreneurial or innovative teams is more often to meet the catalyst style of leadership, where the focus is on action and their leaders instigate and motivate to help generate creative options through a framework for innovation
- Coach: when the focus of the team is on performance then it is characterized as operational or action-oriented and the person in charge provides real-time feedback to improve skills and execution, taking the role of a responsible person who guides and directs
- Collaborator: in teams that are relatively new and quite inexperienced it is more possible to find this style of leadership, with focus to execution and the director of the team supporting and modeling the best practices through his direct involvement
- Consultant: finally in teams that are more conservative or they are just evolving the style of leader consultant is more probable to be implemented, where the focus is on outcome and the leader uses his personal experiences, insights and knowledge so as to efficiently advise his team and make it contribute to planning and long-term outcomes

On the other hand Stijn Viaene, a Professor in digital transformation, formulates his leadership model through a matrix including two axes, with connectivity through people and ideas on the vertical one and development through opportunity and capability on the horizontal axis, providing the following four leadership styles:

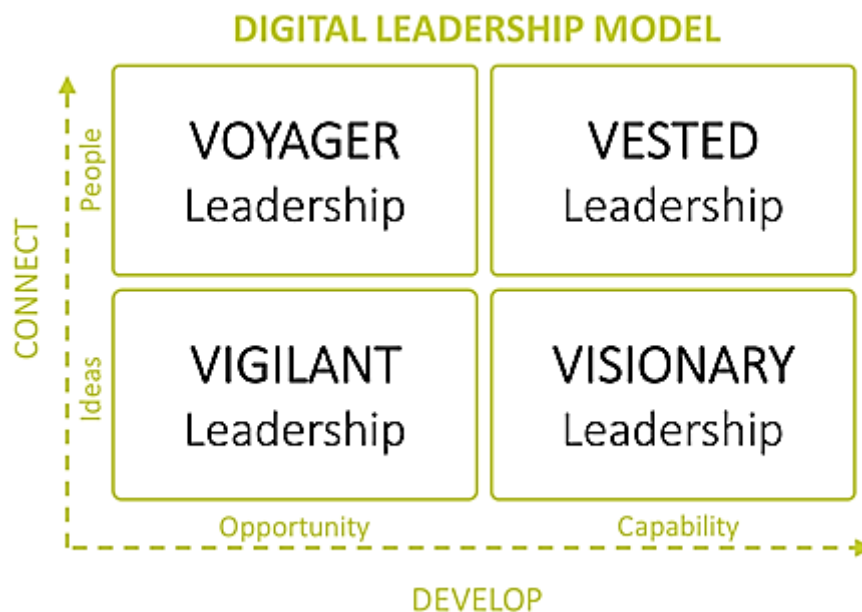


Figure 1: Digital leadership Model

- Vigilant: leaders who take on this role are trying to navigate their way through turbulent times of digital disruption. They are constantly scanning the environment, including far beyond the boundaries of their organization or sector, looking for ideas and opportunities
- Voyager: this type of leadership succeeds in tapping into the creativity of individuals and teams, turning abstract opportunities into concrete solutions through experimentation
- Visionary: leaders who take on this role paint a convincing and ambitious picture of a successful digital company. They make sure that everyone in the organization feels as if they are striving towards a common goal
- Vested: this type of leadership actually puts the entire organization, like a well-oiled machine, on the pathway to successful digital transformation

13.5 Digital Transformation Cases

13.5.1 Nurses Education

Through the continuous developments of the ICT sector new means of managing a business are being introduced, which affect organizations from all the areas of industry and consequently health care department as well. The expansion of the broadband services and the usability of mobile devices alternate the classical way of training of nurses through four trending areas:

- Expanded electronic health record (EHR) use and interoperability, an online collaboration of doctors and nurses from various fields, assisted by cloud services, that allows them to exchange valuable information concerning the health status of the patient and the proper treatment for him.
- Increased influence of technology wearables for both patients and practitioners, permitting the most accurate communication with the patient and the right understanding of his symptoms and health status. It is most probable to see in future nurses being equipped with small devices like contact lenses or glasses on which with the aid of algorithms various biometrical data of the patients are going to be displayed.
- Big data and data analytics do not only accelerate scientific advances, but also enable new mods of discovery making this way the predictions of the healthcare system more accurate and up to the point. The creation of massive electronic archives as well as the proper utilization of data mining and predictive analytics methods and tools can support in the best way the medical decision.
- Patient engagement in directing and managing care is materializing through the expanded use of social media. The patient is able to communicate easier with the healthcare team through the activation of e-visits or other electronic communication and aid them to a proper data collection for the best suitable diagnosis.

13.5.2 CIN in Japan

The Clinical Innovation Network is one of the ten projects form a challenge initiated by the Liberal Democratic Party of Japan in June 2015 aiming to have a significant policy effect by 2020 and allow Japan to achieve high economic growth and innovation. It is actually an online registry for the efficient clinical development of new drugs, medical devices and regenerative medical products. Within this registry various categories have been made according to the disease they are referring to, so as to offer to people the opportunity to be informed about the generation of advanced drugs and even participate in the product generation process through their comments on other tested remedies and their results.

13.5.3 “HUANGSHAN 168”

The company Beijing Tourye Outdoors Culture Communication Limited was founded at the late 2008 and is operating in the field of outdoors activities' organization and especially in hiking planning. Major attraction is considered the area called Huangshan 168, which offers pleasant routes through nature. Due to the increased preference of this area the company decided to use every suitable digital mean of technology, in order to sustain the trails secure and offer to the visitors an integrated and memorable experience. The data that the company gathered and manipulated regarded the ground morphology as well as the hydrogeological formulation of the area.

For the best mapping of the area and the possibility of new trails' discovery have been used drones with attached camera and a GPS locating system so as to record every detail of these routes. Furthermore all the participants are equipped with GPS devices for reasons of personal security and their faster tracking by the rescuers in case of emergency.

Within the framework of digital transformation of the company, electronic platforms of social networking have been designed for the most accurate information of existing and new expedition members, as well as the best designing of the offered hiking programs.

13.5.4 Kutesmart Platform

Another example coming from China is this of the clothes production industry Red Collar Group, which was founded in 1995 so as to serve both the local as well as the foreign markets. For the increase of competitiveness and the faster response to the market the industry moved to the production of clothes on order, so as to utilize effectively the available sources.

Of great importance is considered the use of a mobile unit that was equipped with all necessary three dimensional technologies for the most accurate measurement of the size of each customer. Also the company designed a system of personalized order, so as to give the ability to every customer to manage effectively their own order. With this new way of order planning the designing and warehousing costs were decreased up to 90% and the production cost is only 10% more than mass production, a fact that led to the increase of profit margins up to 25%. Furthermore the company adopted a flatter organizational structure which offers great flexibility in the managing activities and increases its effectiveness. By avoiding the strict hierarchy the company managed to minimize the number of its departments making in this way much faster the response time to the customers. Due to this fact there was a fall in managing expenses up to 20%.

Moreover a modern digital platform was designed on which could participate more clothes and other accessories' producers so as to offer an integrated dressing suggestion to the clients. This interconnection was achieved through the development of a digital ecosystem named KuteSmart, which also includes businessmen from similar sectors. Therefore the company is more able to be accurately informed for the needs of the customers and serve them in the best suitable way.

13.5.5 LKAB Mining Company

A very successful example of application of new digital processes is the one of the Swedish mining company LKAB which is cooperating with the technical company Monitoring Control Center for the remote maintenance of mining mechanical equipment. Due to the fact that the maintenance of excavating machinery until now was keeping them out of use for a quite long period, in order to be dismantled so as to be able to locate the malfunction, the companies decided to put on basic parts of the machinery digital sensors that would send various measurement data to the analysts of Monitoring Control Center. After that the analysts were being connected via a digital platform with the technicians of LKAB so as to guide them to the most accurate location of the malfunction or the part of the machinery which had to be repaired. In this way they were managing to face efficiently whichever case of malfunction without keeping the machinery for a long time out of order.

With the application of the digital sensors the problem diagnosing procedure is consisted of four stages: the collection of measurements, the problem diagnosis, the scheduling of interventions and finally the completion of maintenance. Through this maintenance on demand system the companies managed to combine knowledge and skills of people in remote locations and apply them effectively on machinery maintenance.

13.5.6 Cases from Greek Market

Greece has just recently designed its National Digital Strategy, therefore is far behind in the chase of digital transformation in relation to other European countries. However, as new generation networks are being developed and the level of technological skills remains pretty above average, the country can look forward with optimism. In the public sector and the local governance there is no much of improvement due to the lack of resources and the absence of national digital strategy so far. Nevertheless, we can observe some cases from some municipalities which make an effort to approach the digital era through transformation. The greatest improvement is being noted on private sector, where especially large organizations recognize the need for digital transformation and create new job positions with that direction.

Startups in particular can lead the way to the digital world because they come up with new ideas and greater spirit for facing the difficulties of the digital era.

One of the speakers of the HR Forum 2018 was Ms. Elena Papadopoulou, Chief Human Resources Officer of OTE Group, the largest telecommunication services provider in Greece. Ms. Papadopoulou referred to big ICT projects undertaken by OTE Group both in public and private organizations, contributing in their digital transformation process. She referred to the role of HR in businesses, which is called to co-formulate the new business operating model and to participate actively in the decision-making process. The new infrastructures should be more lean and agile and programs for education of employees on new technologies should be developed. Concerning the adoption of digital transformation by OTE Group itself, Ms. Papadopoulou said that the Group's HR strategy is based on three pillars, growth mindset, agility and finally learning and development. The target of this strategy is to cultivate a culture of constant skills improvement, so as to aid the personnel define their role in the new ecosystem. Simpler organizational structures are being designed and new and flexible models of working and cooperation are being generated. However, the most important is that the Group offers equal opportunities of education on digital skills to its personnel cultivating at the same time innovation. Completing her speech Ms. Papadopoulou mentioned that maybe technology is a valuable partner in this digital era but it cannot change the world by itself. It is up to humans, with the assistance of technology, to create a better world.

Always one step ahead of the advances in the world of technology Xerox continue to play crucial role in the era of digital transformation by offering solutions of computerization of processes in the internal environment of a business. Especially Xerox Hellas is considered one of the best Xerox subsidiaries in Europe and for six years have been awarded for its working environment. The CEO of Xerox Hellas Mr. Vasilis Rampat describes that Xerox itself is evolving providing technology, innovation and services on digital transformation matters. The company develops many applications, software and technological solutions which computerize business procedures, assisting in this way the businesses to communicate, connect and work faster and efficiently. Such an example is an integrated software for banks which includes all the kinds of transactions of the banking system and the loan approval for example is operated at a rate of 80% faster than in past. Also for businesses operating on tourism an innovative application is Xerox Easy Translator, which gives them the ability to translate a document automatically in more than 45 languages.

The benefits of artificial intelligence in every aspect of our lives foresaw Mr. Charis Laoudis CEO of Ira Media and brought in Greece the integrated platform Leadmark. A solution which introduces the world of brand marketing into the benefits of artificial intelligence predicting with an accuracy of more than 80% all the parameters that ensure the success of a campaign. We are speaking of a program that is fed with an array of data, country's macroeconomic details, weather conditions, numbers of products sold on certain periods, etcetera and the program recognizes how they interact with each other and how they practically affect the sales and product demand. The outcome of this procedure is the model of the best mixture of marketing activities and the minimum required budget for the goal achievement. This program encompasses also the technology called TV Attribution, which practically measures the effect on sales from TV channels or kinds of TV programs and zones. Furthermore, the platform respects all the recent laws on protection of personal data and never publishes any lists of these. The reason that artificial intelligence was chosen was the need to develop something that would offer added value to the companies, something that as Mr. Laoudis points out is not fully understood by large organizations in Greece and that is why the aim of such technology by Ira Media were the foreign markets as well.

13.6 Digital Economy and Society Index

Digital Economy and Society Index (DESI) is a complex summary of basic indicators depicting the digital performance of every E.U. member state and how high they score in digital

competitiveness when compared to the other member states. It measures the performance indicators of five main categories:

- Connectivity, which measures broadband network coverage within the region of each member state
- Human capital, regarding the people equipped with the proper digital skills
- Use of Internet, by citizens and to what extend
- Integration of Digital Technology, in industries and business sector
- Digital public services, measuring the amount of public services can be conducted online by each member state.

It was published recently and this is the reason why the chronological span of data is so limited and it concerns the 28 countries consisting the European Union. Additionally, in 2016 the International Digital Economy and Society Index (I-DESI) was published in order to broaden the data coverage and offer chances of comparison to the newly added countries in question, USA, Japan, Korea, China, Australia, Canada, Russia, Switzerland, Norway, Iceland and Turkey. In fact the responsibility of the publication was received by a contractor who was about to calculate the index from 2013 to 2017, or as recent as possible when these years are not available.

The above mentioned categories are further analyzed into various sub-categories. For the purposes of our research we are going to focus on integration of digital technology in order to grasp the general trend of businesses regarding digitalization. Then the analysis that follows have been done by taking under consideration the demand level of ICT specialists, an outcome of the phenomenon of polarization we have mentioned earlier.

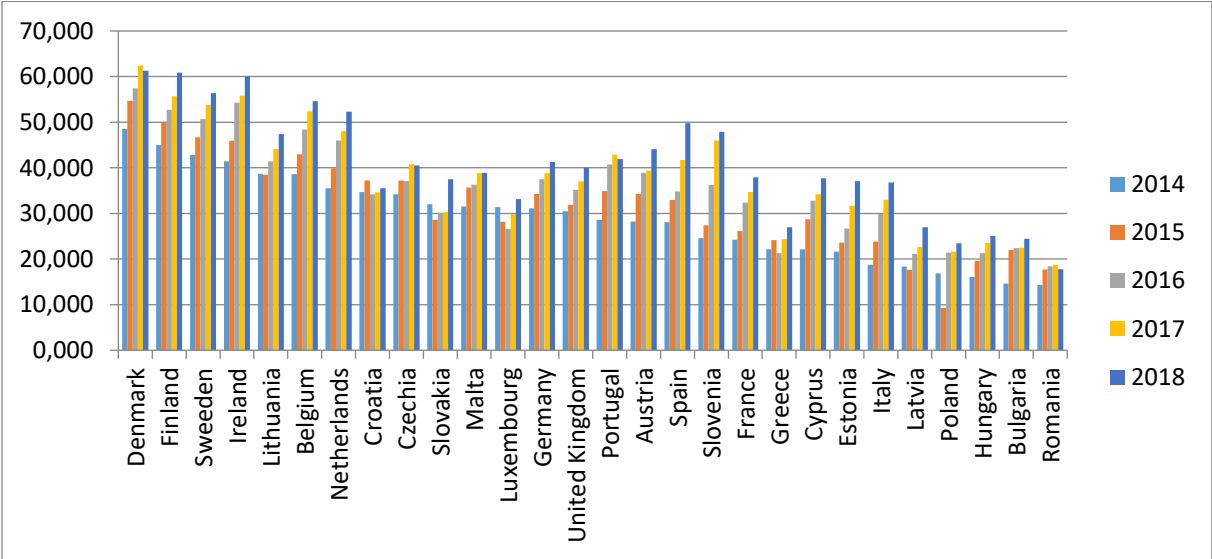


Figure 2: ICT Specialists Scores

At a first glance on the overall DESI score we can observe that Denmark, Sweden, Finland and Ireland are located at the top of the board, as they present the highest scores, while the lowest scores are achieved by Poland, Hungary, Romania and Bulgaria. However, the highest scores do not automatically mean that they are the best in every category of factors. Denmark with 92% of its population being regular internet users, appears also one of the highest shares of ICT specialists. Furthermore the adoption of digital technologies rate remains on top among the European countries and a large percentage of Danish businesses turnover comes from e-commerce. In Sweden where 91% of the population uses internet, despite the high ranking on ICT Specialists researches show that demand for ICT professionals surpasses the supply. Thanks to the great adaptability of businesses on digital technologies Sweden maintains a high ranking. With a high percentage of users with basic digital skills Finland scores equally high on STEM graduates. Also there is a quite big adoption of new technologies rate.

Due to a range of successful programs Ireland manages to reduce any skill shortage problem with the simultaneous increase of competitiveness. However, on the business sector there is still room for improvement regarding utilization of digital technologies. Indeed, these countries with a low unemployment rate share a more effective absorbing rate of the ICT professionals, unlike Poland, Hungary, Romania and Bulgaria, where a pretty high unemployment rate blocks the absorbing of ICT skilled personnel. Half of the Polish population have got no digital skills and along with a low percentage of population with a STEM degree, drag down the development of the economy. Moreover, a low turnover on e-commerce leads to a bad adoption of digital technologies rate. Due to the long recession period and the low percentages of internet usage by the population Hungary is not the ideal case for digital technologies engagement. However, Hungary proves to be a moderate performer in effective utilization of digital technologies. Finally, both Romania and Bulgaria suffer a severe gap of digital skills among their population and their adoption of digital technologies rate are among the lowest in Europe, with a negative effect to the development of their economy.

13.7 Conclusion

Unlike any other transformation process digital transformation does not have a clear starting and ending point, but it is rather an on-going procedure due to the fact that it concerns the effort of an organization to evolve on the digital world. In order to avoid phenomena like job polarization, which generate a discrimination within the working environment, the person with the most appropriate characteristics should be declared a digital leader and take the responsibility to guide properly the organization. It is up to the hands of the digital leader to exploit the new technologies in the most efficient way so as to create a competitive advantage. Nevertheless, we should always have in mind that digital transformation is a team work, thus the digital leader should inspire and enhance the communication within working groups.

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