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# A Competence Framework for e-Leadership

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*Let's protect our environment!*

## Content

# 1. Introduction.

In a globalised society, e-leadership skills are essential because they give leaders the ability to manage remote teams, interact with individuals from different cultural backgrounds, use technology for innovation and growth, think strategically, and successfully manage change. These skills enable e-leaders to negotiate the challenges of the digital age and guide their companies to success in a globally interconnected environment.

The E(U) Leaders project responds to the high priority of the EU in strengthening e-leadership and digital skills, thus changing the mismatch between the skills available and those required for the digital transformation of the economy. Therefore, the aim of the project is to foster the competitiveness and productivity of companies and organisations by developing strategic e-leadership skills needed by entrepreneurs, employers, leaders and managers (as well as VET trainers, educators and mentors) to manage their teams effectively and efficiently within virtual working environments.

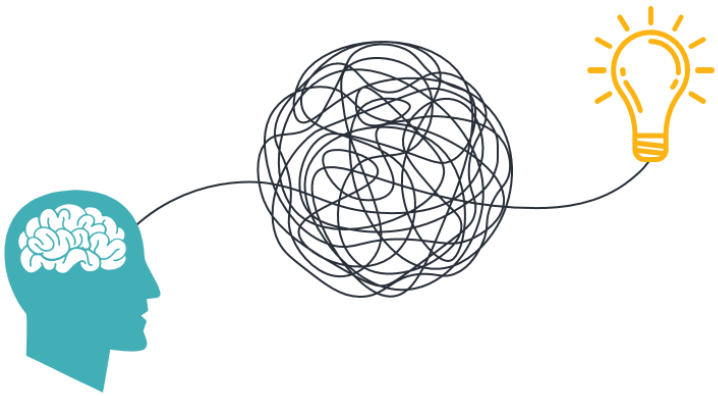

**Figure 1 – Idea.**

Currently, there is considerable growth in labour demand as well as a high increase in ICT graduate inflows in Europe, leading to an estimated IT workforce growth from 8.5 million in 2016 to 9.5 million in 2020. The final 2017 EC report on "High-Tech Leadership Skills for Europe" clearly highlights that "Europe is required to generate around 50,000 additional high-tech leaders per year in the years up to 2025, or a total of around 450,000 by 2025, by providing them with relevant education opportunities and exposing them to the necessary work and leadership experience." The growing demand for e-leaders likely reflects the changing work landscape and the need for leaders who can effectively navigate the complexities of the digital age and lead organisations in an interconnected world. The skills of e-leaders are becoming more critical as businesses expand globally, adopt digital technologies, and move towards remote working.

The E(U) Leaders project aims to contribute to the development of a complex and reliable set of digital tools and approaches for the assessment, development, evaluation and certification of e-leadership skills, thus addressing the needs of the labour market and supporting the digital transformation of companies.


**Figure 2 – e-leadership skills.**

This E-Leadership Model Competency Framework represents the second outcome of the project, which is an E-Leadership Model adopted within technology-based and non-technology-based organisations. The purpose of the Model is to identify the training needs, challenges and gaps that entrepreneurs, employers, leaders, managers face when managing virtual work environments and teams, targeting entrepreneurs, employers, leaders, managers who are

managing their teams virtually. As part of the project, the partnership has published the first results which correspond to an Inclusive Guide to best practices on digital working environments. The Guide includes examples of good practices already established at national and European level, promoting electronic strategies and tools that organisations adopt in their daily management to ensure the efficient virtual working environment of their employees. The Guide can be accessed via the link: https://euleaders.eu/results/ .

A technology-based organisation is a company or entity that focuses primarily on the development, design and implementation of technology products and services. These organisations often operate in the technology sector, which includes industries such as software development, electronics, information technology, and telecommunications. Technology-based organisations use technology to improve business processes, streamline operations, and provide innovative products and services to customers. These companies may also specialise in specific areas of technology, such as artificial intelligence, blockchain, or cybersecurity.

A non-technology-based organisation is a company or entity that focuses primarily on providing goods or services that are not primarily technology-based. These organisations operate in various industries, such as retail, healthcare, hospitality, education, manufacturing, and more. Non-technology-based organisations may use technology to support their operations, but technology is not the primary focus of their business. For example, a retail shop may use technology to manage inventory, process transactions, and communicate with customers, but its primary focus is selling physical products to customers. Non-technology-based organisations may still rely on technology to support their business functions, such as email, website management, and accounting software. However, the core business model is not based on the development or sale of technology products or services.

**Figure 3 – source: Unsplash, 2023.**

To develop this e-leadership Model Competency Framework, the partnership collected data on e-leadership best practice, identified training needs, challenges and gaps for e-leaders in managing virtual work environments and teams. The partnership conducted fieldwork with focus groups with at least 60 experienced entrepreneurs, employers, leaders, managers who manage their teams (physically or virtually).

Each partner organised focus groups with at least 10 participants. The outcome contains a collection of e-leadership best practices with a sample drawn from six European countries: Cyprus, Greece, Germany, the Netherlands, Portugal, and Slovenia.

Data collection focused mainly on e-leadership styles, web-based teaching and learning approaches, distance strategies and culture, monitoring individual progress at a distance, using web-based tools (to measure productivity, engagement, work progress, etc.) and managing the interactions and well-being of virtual teams.

A focus group is a research method that brings together a small group of people to elicit shared experiences by answering questions in a moderated environment, used to collect data by integrating groups around semi-structured discussions.

The group was chosen due to pre-defined characteristics, and the questions were designed to shed light on a topic of e-leadership, within technology-based or non-technology-based organisations.

**Figure 4 – source: Unsplash, 2023.**

The partners analysed the data from the focus groups in each country and drafted the synthesis report. This handbook presents the outcome of the analysis of the data collected in the focus groups in the form of an e-leadership competency framework.

This manual includes the preliminary information for the focus groups, with an explanation of the topics and questions in the guide. In addition, the document presents the results with the e-leadership competences considered relevant, with the most frequent mentions by the participants. Finally, this handbook presents the training needs, challenges, and e-leadership gaps in the management of virtual working environments and teams identified during the analysis of the data collected in the focus groups.

## 2. What is e-leadership?

E-leadership is a term used to describe leadership in the digital age. It refers to the use of technology, digital tools, and online platforms to lead and manage organisations, communities, and teams in the work context where people are not geographically in the same location (Amorim et. al., 2022).


**Figure 5 - Unsplash, 2023.**

E-leadership involves the ability to harness the power of technology to communicate, motivate and engage stakeholders, including employees, customers, partners, and the public.

E-leadership requires the ability to navigate the digital landscape, understand how technology is changing the way organisations operate, and develop strategies that leverage technology to achieve strategic goals.

These skills improve communication and interaction between staff and senior management, and also enhance the skills of the workforce to become more competitive.

E-leadership competencies can be the skills, knowledge and capabilities required by leaders to effectively manage and lead in digital that are not geographically in the same location. E-leadership involves using technology to manage and lead people, processes, and resources, and requires a unique set of skills that go beyond traditional leadership skills. Overall, e-leadership skills are essential for leaders to drive organisational success in a rapidly changing business environment.

## 3. Methodology.

The methodology chosen for data collection was focus groups, which can be understood as a qualitative research method used to collect data on a specific theme or issue by bringing together a small group of people to gain shared experiences by answering questions in a moderated environment through the integration of groups around semi-structured discussions.

It is called "semi-structured" because it has a loosely defined structure that allows flexibility and exploration of ideas while adhering to an overall framework. While the discussion is guided by the facilitator, participants are encouraged to share their own perspectives, ideas and experiences with the group. The aim is to generate rich data through discussion, which can be analysed for themes and patterns.


**Figure 6 - source: Unspash, 2023.**

For this study, the group was chosen due to predefined characteristics, and the questions were designed to shed light on an e-leadership topic. This activity aimed to investigate how leaders manage their teams, following strategic and digital (if possible) methodologies and tools.

The focus groups had a dual moderation strategy, while only one moderator takes the initiative to ask questions.

The co-moderator observes the behaviour of the participants and takes notes and writes down the relevant answers. The duration of the focus groups was 45 to 90 minutes. The time and date of the meeting were confirmed with the participants well in advance. The focus groups took place from November 2022 to January 2023.

**Figure 7 - Script**

There were differences in the studies conducted for technologists and non-technology-based organisations. The partnership developed two scripts to moderate the meetings, one for technicians and one for non-technology-based organisations. In this context, the following templates pose questions for each type of focus group. For technology-based organisations, the script addressed the topic of e-leadership styles, web-based teaching and learning approaches, distance strategies and culture, monitoring individual progress at a distance and using web-based tools (to measure productivity, engagement, work progress, etc.). For non-technology-based organisations, the script emphasised traditional and innovative management, based on changes due to the COVID-19 pandemic and the emergence of companies to adapt to new business cultures.

## 3.1 Characterization of the digitization per country.

### 3.1.1 Cyprus.

Cyprus has made progress in digitalisation in recent years, but there is still room for improvement in some areas. Cyprus ranks 20st among 27 EU Member States in the 2022 edition of the Digital Economy and Society Index (DESI). Cyprus has improved its performance in almost all DESI dimensions, although it still scores below the EU average in most cases.

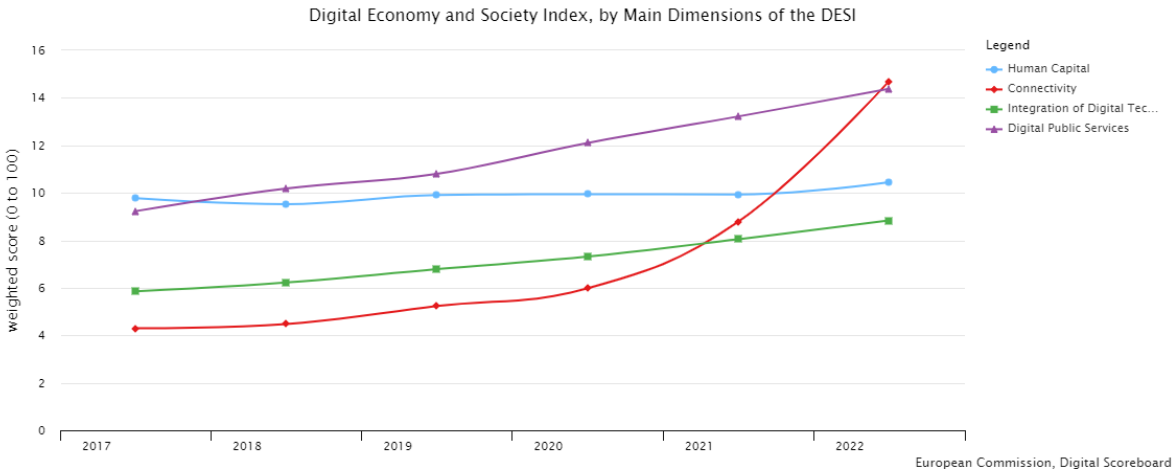


**Figure 8 - source: DESI, 2023.**

Here are some key areas of digitisation in Cyprus:

**Connectivity**: Cyprus has a good level of connectivity, with a well-developed broadband infrastructure and extensive 4G coverage. However, there is still limited 5G coverage, and some rural areas may have poor internet connectivity.

**Digital public services**: Cyprus has made progress in digitising its public services, with many government services available online. The country's Citizen's Portal, for example, offers a range of public services such as tax declaration, voting registration and passport applications.

**E-commerce**: E-commerce is growing in Cyprus, with a significant increase in online shopping during the COVID-19 pandemic. Many Cypriot businesses have also embraced e-commerce, with an increasing number of companies selling their products online.

**Digital skills**: Cyprus invested in digital skills training, with initiatives aimed at improving the digital literacy of the population. The country's Digital Skills and Jobs Coalition aims to train 25,000 Cypriot citizens in digital skills by 2025. Cyprus ranks 23rd in the EU in human capital, below the EU average. According to data released by Eurostat, the EU's statistical service, one in two Cypriots had at least basic general digital skills in 2021, just below the average across all EU member states.

**Start-up and innovation**: Cyprus has a growing start-up ecosystem, with a number of successful start-ups in areas such as fintech, healthcare and software development. The country has also established innovation hubs, such as the Cyprus Research and Innovation Centre, to support entrepreneurship and innovation.

Overall, Cyprus has made progress in digitisation in recent years, with investments in infrastructure, public services, skills training, and innovation. However, there is still room for improvement, particularly in areas such as digital skills and the uptake of new technologies by small and medium-sized enterprises.

### 3.1.2 Germany.

Germany is a highly developed country with a well-established digital infrastructure, but there is still room for improvement in some areas.

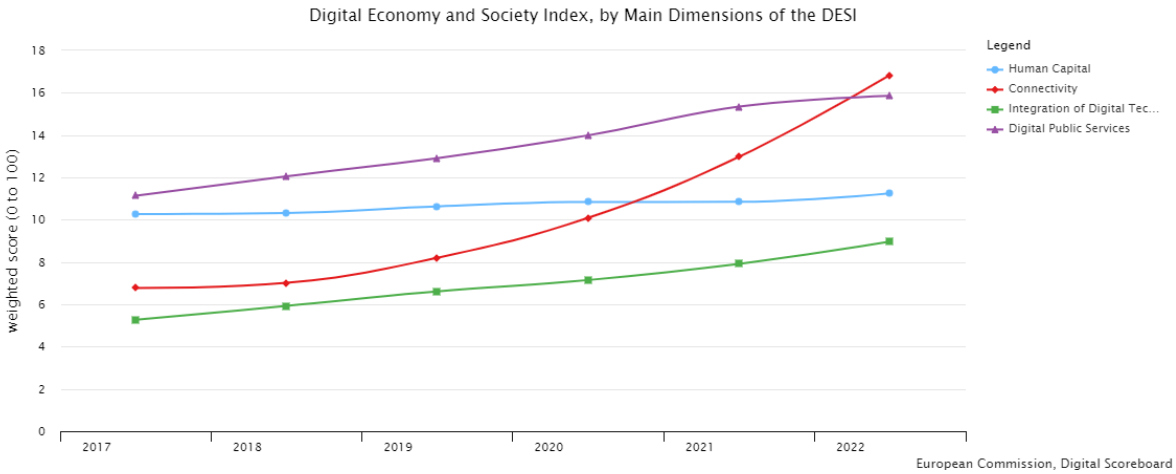


**Figure 9 - source: DESI, 2023.**

Here are some key areas of digitisation in Germany:

**Connectivity:** Germany has a high level of connectivity, with a well-developed broadband infrastructure and extensive 4G and 5G coverage. However, there are still some areas with poor internet connectivity, particularly in rural areas.

**Digital public services**: Germany has made progress in digitising its public services, with many government services available online. The country's digital identification system, the electronic identity card (eID), is used and allows citizens to access a range of public and private services online. The use of digital government services in Germany remains at an average level: 52% of online users have used these services in the last twelve months. The satisfaction of citizens in Germany with the online services currently available from their city or municipality has dropped to 47% this year (survey year = 2021).

**E-commerce**: E-commerce is growing in Germany, with a significant increase in online shopping during the COVID-19 pandemic. Many German companies have also embraced e-commerce, with an increasing number of companies selling their products online. Germany ranks 16th in the EU in the integration of digital technology into business activities. Germany's performance in most indicators of this dimension is close to the EU average, including SMEs with at least a basic level of digital intensity and the uptake of advanced technologies by firms such as the cloud, big data, and artificial intelligence.

**Digital skills**: In terms of human capital, Germany ranks 16th out of 27 EU countries, below the EU average. Basic levels of digital and digital content creation skills are below the EU average. Germany has invested in digital skills training, with initiatives aimed at improving the digital literacy of the population. The Digital Literacy Initiative, for example, aims to provide training in digital skills to 70% of the German population by 2025.

**Start-up and innovation**: Germany has a thriving start-up ecosystem, with a number of successful start-ups in areas such as fintech, healthcare, and software development. The country has also established innovation hubs, such as the Berlin-based Factory, to support entrepreneurship and innovation.

Overall, Germany is a highly digitised country with a strong digital infrastructure and a thriving startup ecosystem. However, there are still some areas where improvements can be made, particularly in the area of digital skills and the uptake of new technologies by small and medium-sized enterprises.

### 3.1.3 Greece.

Greece has made progress in digitisation in recent years, but there is still room for improvement in some areas. Greece has the lowest DESI scores across Europe, along with Romania and Bulgaria. Greece ranks 25th among the 27 EU Member States in the 2022 edition of the Digital Economy and Society Index (DESI) (only in third (3rd) place before the end). Greece's score is 37.3, while the average score of EU member states is 50.7. According to the Greece Digital Economy and Society Index (DESI) 2021, published by the European Commission (here), Greece continues to improve its performance in almost all dimensions of the DESI. In most cases, it continues to score below the EU average. Overall, the country has made slight progress on digital skills.

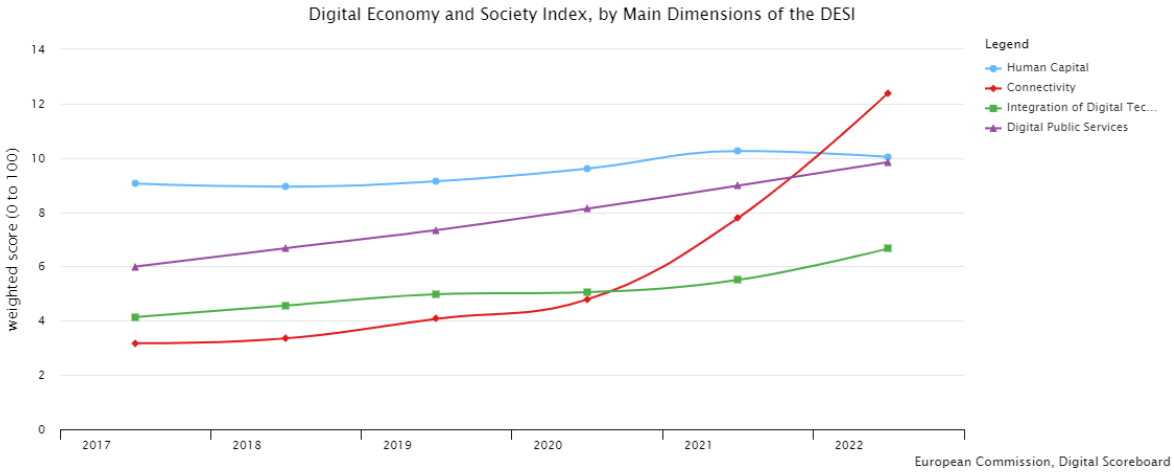


**Figure 10 - source: DESI, 2023.**

Here are some key areas of digitisation in Greece:

**Connectivity**: Greece has a good level of connectivity, with a well-developed broadband infrastructure and extensive 4G coverage. The country has also launched a 5G network in some cities. Greece has improved its connectivity scores and started deploying very high-capacity networks. However, it remains well below the EU average in very high-capacity network coverage and fixed broadband take-up speeds of at least 100Mbps.

**Digital public services:** Greece has made progress in digitising its public services, with many government services available online. The country's e-government portal, gov.gr, offers a range of public services such as tax returns, voter registration and passport applications.

**E-commerce:** E-commerce is growing in Greece, with a significant increase in online shopping during the COVID-19 pandemic. Many Greek businesses have also embraced e-commerce, with an increasing number of companies selling their products online. According to DESI scores, Greece scores 28.5 on Digital technology integration, while the EU average is 37.6. On integrating digital technology into business activities, Greece ranks 22nd in the EU**.**

**Digital skills:** Greece has invested in digital skills training, with initiatives aimed at improving the digital literacy of the population. The country's National Digital Strategy aims to provide digital skills training to all Greek citizens by 2021.

**Start-ups and innovation:** Greece has a growing startup ecosystem, with several successful companies in areas such as fintech, healthcare and software development. The country has also established innovation hubs, such as the Athens Entrepreneurship and Innovation Centre, to support entrepreneurship and innovation.

Overall, Greece has made progress in digitisation in recent years, with investments in infrastructure, public services, skills training, and innovation. However, there is still room for improvement, particularly in areas such as digital skills and the adoption of new technologies by small and medium-sized enterprises. Furthermore, Greece faces challenges related to the digital divide, with some rural areas lacking adequate internet connectivity.

### 3.1.4 The Netherlands.

The Netherlands is recognised as one of the most advanced countries in the world in terms of digitalisation. The Netherlands ranks third in the European Union (EU) in the 2022 Digital Economy and Society Index (DESI). The country, which ranked No. 4 in the previous two annual rankings, continues to promote innovation as it prioritises digitisation on a national scale. The Netherlands ranks second in human capital and connectivity and fourth in the integration of digital technology and digital public services.

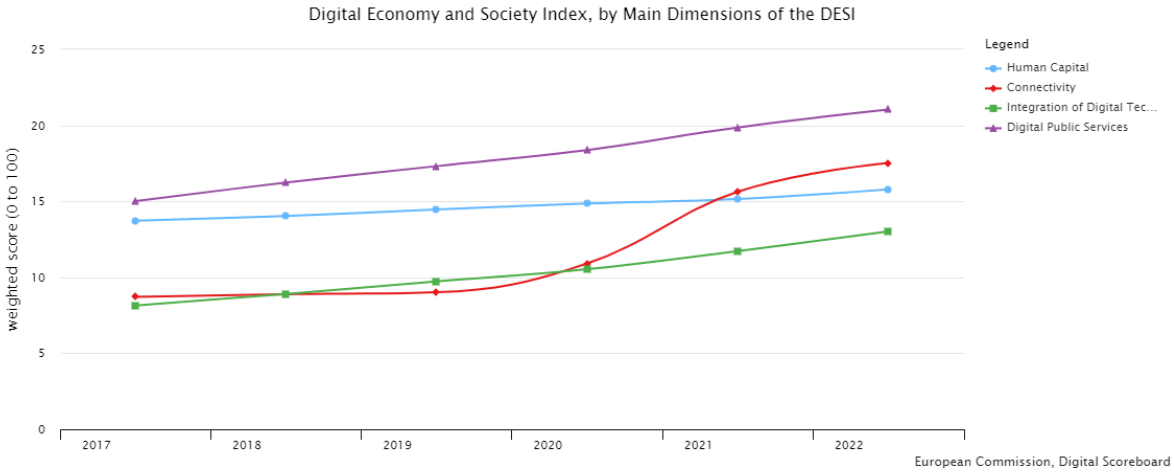


**Figure 11 - source: DESI, 2023.**

Here are some key areas of digitalisation in the Netherlands:

**Connectivity**: The Netherlands has a well-developed broadband infrastructure and extensive 4G coverage. The country has also launched a 5G network in some cities.

**Digital public services:** The Dutch government has made significant progress in digitising its public services, with many government services available online. The country's digital portal, DigID, offers a range of public services such as tax returns, voter registration, and passport applications.

**E-commerce**: E-commerce is very popular in the Netherlands, with a high percentage of the population shopping online. Many Dutch companies have also embraced e-commerce, with an increasing number of companies selling their products online. As for the integration of digital technologies, the Netherlands ranks fourth in DESI 2022. Among Dutch small and medium-sized enterprises (SMEs), 3 out of 4 already have a basic level of digital technology integrated into their operations. This is significantly above the EU average of 55%. This pattern of Dutch performance above the EU average can be seen by the adoption of various digital technologies.

**Digital skills**: The Netherlands has a high level of digital literacy, with a well-educated population and a strong focus on STEM education - an approach to learning and development that integrates the fields of science, technology, engineering, and mathematics. The country's Digital Agenda 2021 aims to improve digital skills among the Dutch population. The Netherlands was ranked 3rd in the DESI rankings, compared to the previous year. With an overall score of 67.4, compared to the average score of 52.3. The country has consistently performed at the top of the EU and, despite its already high scores, is still able to make progress in some key areas.

**Start-ups and innovation**: The Netherlands has a thriving startup ecosystem, with several successful startups in areas such as fintech, healthcare, and software development. The country has also established innovation hubs, such as the Amsterdam Science Park, to support entrepreneurship and innovation. Existing partnerships in digital technology and innovation, including the Dutch Artificial Intelligence Coalition, the Dutch Blockchain Coalition, and the Smart Industry Programme, aim to propel the Netherlands to cutting-edge status in digital technology, innovation, and high-tech knowledge.

Overall, the Netherlands has made significant progress in digitisation, with investments in infrastructure, public services, skills training, and innovation. The country is widely regarded as a leader in digitisation, with a strong focus on innovation and a highly skilled population. However, there is still room for improvement, particularly in areas such as cybersecurity and the adoption of new technologies by small and medium-sized enterprises.

### 3.1.5 Portugal.

Portugal has made significant progress in digitalisation in recent years. According to the Digital Economy and Society Index (DESI) 2022 report, Portugal ranks 13th among the 27 countries of the European Union (EU) in terms of overall digitalisation.

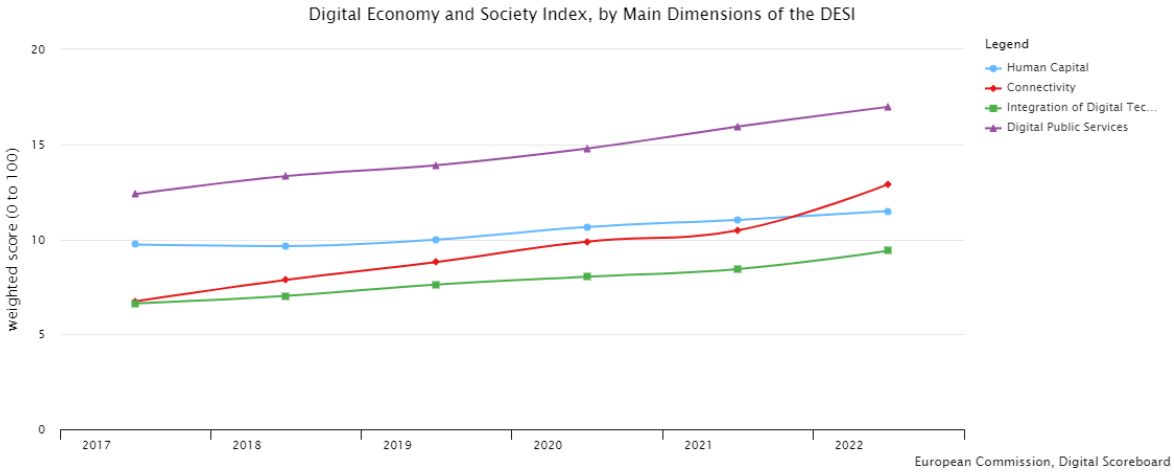


**Figure 12 - Source: DESI, 2023.**

Here are some key areas of digitalisation in Portugal:

**Connectivity:** Portugal has made significant investments in broadband infrastructure, and currently has one of the highest fixed broadband coverage rates in the EU. The country is also investing in 5G technology and has already launched 5G services in some cities. Portugal's connectivity infrastructure is considered to be of good quality. The country scores well in terms of fixed broadband access (minimum 100 Mbps) and fixed high-speed internet coverage. The same is not true for the number of mobile data subscriptions per 100 inhabitants and the deployment of 5G technology.

**Digital public services**: Portugal has made progress in digitising its public services, with many government services available online. The country's Citizens' Portal, for example, offers a range of public services such as tax declarations, voting registration and passport applications. Portugal stands out among EU leaders. The government's creation of the Information and Communication Technologies Council (CTIC) has enabled the coordination and implementation of the Digital Transition Strategy in the public sphere. Through investments in "digital enablers" (digital identity and interoperability platforms) and political support for reform, Portugal has succeeded in digitising its government services, as exemplified by the administrative simplification programme SIMPLEX, in operation since 2006.

**E-commerce:** E-commerce is growing in Portugal, with a significant increase in online shopping during the COVID-19 pandemic. Many Portuguese companies have also embraced e-commerce, with an increasing number of companies selling their products online. In 2018 a protocol was signed between ACEPI - Associação da Economia Digital, CCP - Confederação do Comércio e Serviços de Portugal and PT. Under the aegis of the Ministry of Economy to develop the ComércioDigital.pt Project - Qualifying Commerce and Services for the Digital Economy which aims to modernise and train more than 50,000 SMEs, in the adoption of an effective and consequent presence on the

Internet and support in the use and acquisition of digital marketing tools, for the sustainable and globalised growth of their businesses.

**Digital skills**: Portugal has invested in digital skills training, with initiatives to improve the population's digital literacy. Social incentives: Portugal has taken a number of measures to equip its population with digital skills, including expanding connectivity and supporting technology adoption by small businesses. However, disparities persist between businesses and individuals when it comes to the adoption of information and communication technologies (ICT). Portugal's score (4.7%) is very close to the EU average (4.5%) - a trend that looks positive for its future share of digital specialists in the workforce, in the context of the EU Digital Decade target for basic digital skills and ICT specialists.

**Start-ups and innovation**: Portugal has a growing start-up ecosystem, with several successful companies in areas such as fintech, healthcare and software development. The country has also established innovation hubs, to support entrepreneurship and innovation.

Overall, Portugal has made significant progress in digitisation in recent years, with investment in infrastructure, public services, skills training, and innovation. However, there is still room for improvement, particularly in areas such as digital skills and the adoption of new technologies by small and medium-sized enterprises.

### 3.1.6 Slovenia.

Slovenia has made progress in digitisation in recent years, but there is still room for improvement in some areas. Slovenia ranks above the EU average in the digitisation of the economy and society, showing some progress in the past year, but slowly losing its lead over the EU average in the long term.

According to the revised methodology, Slovenia has ranked above the EU average in the Digital Economy and Society Index (DESI) since 2016. In 2022, it moved up one place (to 11th), but has been at a similar level, i.e., between 11th and 14th place among EU Member States, since 2016. On the other hand, its lead over the EU average decreased from 8 to 4 index points between 2016 and 2021, with no change in the last year.

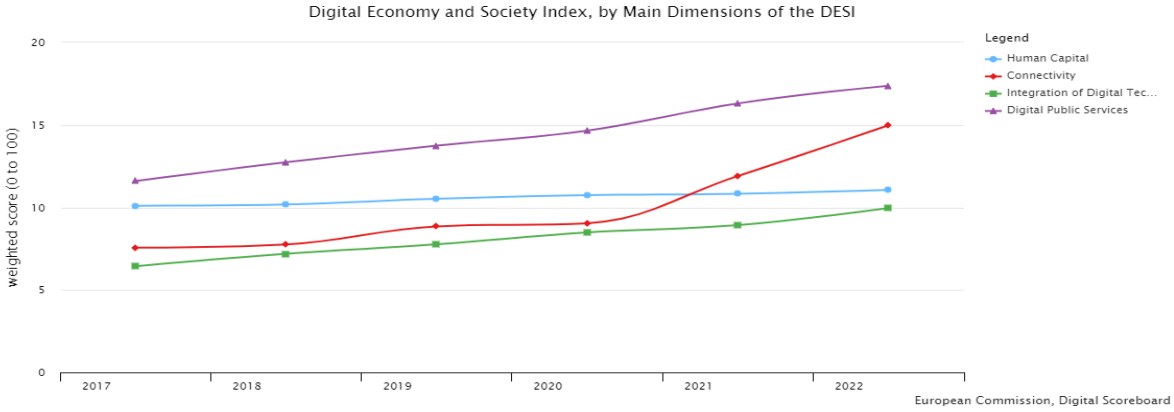


**Figure 13 - Source: DESI, 2023.**

Here are some key areas of digitalisation in Slovenia:

**Connectivity**: Slovenia has a good level of connectivity, with a well-developed broadband infrastructure and extensive 4G coverage. The country has also launched a 5G network in some cities. The country is comparatively lagging behind in fixed broadband coverage, which is particularly disadvantageous for ensuring quality digital accessibility for all, especially in rural areas.

**Digital public services**: Slovenia has made significant progress in digitising its public services, with many government services available online. The country's eGovernment portal, eUprava, offers a range of public services such as tax returns, voting registration and passport applications. With significant progress in 2021, Slovenia has for the first time reached the EU average in digital public services, ranking 16th among EU Member States (it achieved the same ranking in 2019). The main reason for this remarkable progress lies in the significant increase in the percentage of people who used the internet to interact with public authorities.

**E-commerce:** E-commerce is growing in Slovenia, with a significant increase in online shopping during the COVID-19 pandemic. Many Slovenian companies have also embraced e-commerce, with an increasing number of companies selling their products online. Slovenian companies, especially large ones, were among the most digitally intensive in 2021. According to the Eurostat Digital Intensity Index (SURS, 2020), which measures the state of computerisation and digitisation, 25% of enterprises in Slovenia had a high or very high digital index in 2021. This puts the Slovenian business

sector in a relatively strong position, ranking tenth in the EU, especially for large enterprises, 77% of which are digitally advanced, which is the fourth largest share in the EU.

**Digital skills**: Slovenia has invested in digital skills training, with initiatives aimed at improving the digital literacy of the population. The Digital Slovenia 2020 strategy aims to provide digital skills training to all Slovenian citizens by 2020. While Slovenia remains slightly above the EU average in terms of human capital in the area of digitalisation, it is at the same time falling further behind the innovation leaders. In the area of human capital, Slovenia's relative position remains slightly above the EU average at 13th place: slightly below average for online user skills and slightly above average for more advanced ICT skills.

**Startups and innovation**: Slovenia has a growing start-up ecosystem, with a number of successful start-ups in areas such as fintech, healthcare and software development. The country has also established innovation hubs, such as the Ljubljana Technology Park, to support entrepreneurship and innovation. Slovenia has a diverse startup ecosystem, fuelled by public and private initiatives. Every year, around 100-150 new start-ups are created in Slovenia, giving the power to grow entrepreneurship in the country annually.

Overall, Slovenia has made progress in digitisation in recent years, with investments in infrastructure, public services, skills training, and innovation. However, there is still room for improvement, particularly in areas such as digital skills and the uptake of new technologies by small and medium-sized enterprises.

## 3.2 Focus groups with e-leaders of Tech-Based Organisations (TBO).

The structure of the focus group was designed to facilitate open and honest discussion among participants and to generate valuable insights that can inform about e-leadership styles, web-based teaching and learning approaches, remote strategies, and culture, monitoring individuals progress remotely, the use of web-based tools (for measuring productivity, engagement, work progress, etc.) and managing virtual team interactions and well-being.

The structure presented organised the meeting in five blocks, each one corresponding to one of the topics above. The first block concentrates the questions regarding the e-leadership style. The second one is focused on web-based teaching and learning approaches. The third block seeks to collect data on remote strategies and culture. The fourth one is about monitoring individuals progress remotely. And the fifth block of question explores the use of web-based tools (for measuring productivity, engagement, work progress, etc.).

The four blocks were presented as follows.

1. **E-leadership style.**
   - *What comes to your mind when you think about e-leadership?"*
   - *"How would you describe your leadership style to other people?"*
   - *"What do you like/dislike about being a e-leader?"*
   - *"How likely are you to staying working virtually?"*
   - *"What is the biggest challenge you face when it comes to the problem that e-leadership is supposed to solve?"*
   - *"What is one strategy or tactic you think is underrated in e-leadership?"*
   - *"What is one recent trend you have noticed in e-leadership?"*
   - *“What is one good practice in e-leadership you would recommend?”*

2. **Web-based teaching and learning approaches.**
   - *"Which specific sources do you go to for learning about e-leadership, for web-based teaching and learning approaches?"*
   - *"What gaps do you see in the content about good practices in e-leadership?*

3. **Remote strategies and culture.**
   - *"How do you communicate the vison and purposes of each action in line with the aims of the project thought e-leadership?”*
   - *“What is one strategy or tactic you think is useful to promote remote strategies and culture?"*

4. **The use of web-based tools (for measuring productivity, engagement, work progress, etc.).**
   - *“What comes to your mind when you think about monitoring individuals progress remotely?”*
   - *“What is the degree of use of web-based tools for measuring productivity, engagement, work progress, etc.?”*

## 3.3 Focus groups with e-leaders of Non-Technology-Based Organisations (NTBO).

The framework presented for the focus groups of non-technology-based organisations seek to explore the topic of traditional and innovative management (following the PR2-A3 approach), based on the changes occurring due to the COVID-19 pandemic and the emergence of companies to adjust to new business cultures.

This structure divides the meeting into three blocks. The first on e-leadership and the second on traditional and innovative management. The third block is dedicated to exploring e-leadership situations while facing the changes occurring due to the COVID-19 pandemic and the emergence of companies to adapt to new business cultures.

The five blocks were presented as follows.

**1. E-leadership style.**

- *"How would you describe your leadership style to other people?"*
- *"What do you like about being a e-leader?"*
- *"How likely are you to staying working virtually?"*

**2. Traditional and innovative management.**

- *"How would you describe your leadership style during the covid 19 pandemic to other people?"*
- *"What comes to your mind when you think about the changes from traditional to innovative leadership during the pandemic?"*
- *What was the one strategy or tactic you think worked e-leaders during the pandemic?"*
- *"What was the biggest challenge you faced when it comes to monitoring work remotely while isolation took place during the pandemic?"*
- *"What was the degree of use of web-based tools for measuring productivity, engagement, work progress, etc during pandemic?"*
- *"What gaps do you see in the content about good practices in e-leadership?*

**3. Changes occurring due to the COVID-19.**

- "*How often did you have to make decisions without all the information they would dearly like during the pandemic?"*
- *What is one strategy or tactic used to respond to the inevitable missteps and unexpected challenges?"*
- *How did the pandemic re-shaped the way you see e-leadership?"*
- *Which specific sources do you go to for learning about e-leadership, for web-based teaching and learning approaches?"*
- *"What gaps do you see in the content about good practices in e-leadership?*
- *"How did you communicate the vison and purposes of each action in line with the aims of the project thought e-leadership?"*
- *What is one recent trend you have noticed in the emerge of businesses to adjust to new corporate cultures?"*

## 4. Results and discussions.

The results show the e-leadership competences considered relevant, with the most repeated mentions by the participants, in order identify the training needs, challenges, and gaps of e-leaders in the management of virtual working environments and teams.

**Figure 14 - Source: Unsplash, 2023.**

In this section, results are organized in a logical and easy-to-follow manner, with tables and graphs to help to clearly illustrate the findings and make them easier to understand, following the structure of the focus group.

The results also prioritize the most important findings and highlight the experiences narrated by the focus group participants that seemed to cut across all the topics of e-leadership styles, web-based teaching and learning approaches, remote strategies, and culture, monitoring individuals progress remotely, the use of web-based tools (for measuring productivity, engagement, work progress, etc.) and managing virtual team interactions and well-being.

The results are presented separately for tech-based and non-technology-based organisations. In a later section, the common results for both types of organizations are presented.

## 4.1 Tech-Based Organisations (TBO).

The results for technology-based organisation show the participants' perspective on the environment of companies that mainly focus on the development, design and implementation of technological products and services. The working environment in technology-based organisations can vary depending on the company size, culture, and industry. However, some common characteristics that are often associated with the technology industry.

### 4.1.1 E-leadership style.

Participants were asked about their leadership style with various approaches, including what they like and dislike about being an e-leader, best practices, likelihood of remaining a remote worker, challenges, strategies, and e-leadership trends.

Through the interpretation of the statements and based on the set of leadership style found in the literature, what the focus group participants said can be interpreted as characteristics of the transformational e-leadership style. The transformational leadership style is concerned with inspiring and motivating team members to reach their full potential by giving them a clear vision, challenging goals, and insightful feedback (Avolio et al., 2009). Technology is used by transformational e-leaders to interact and cooperate with their teams, and they place great value on cultivating positive cultures and lasting partnerships.

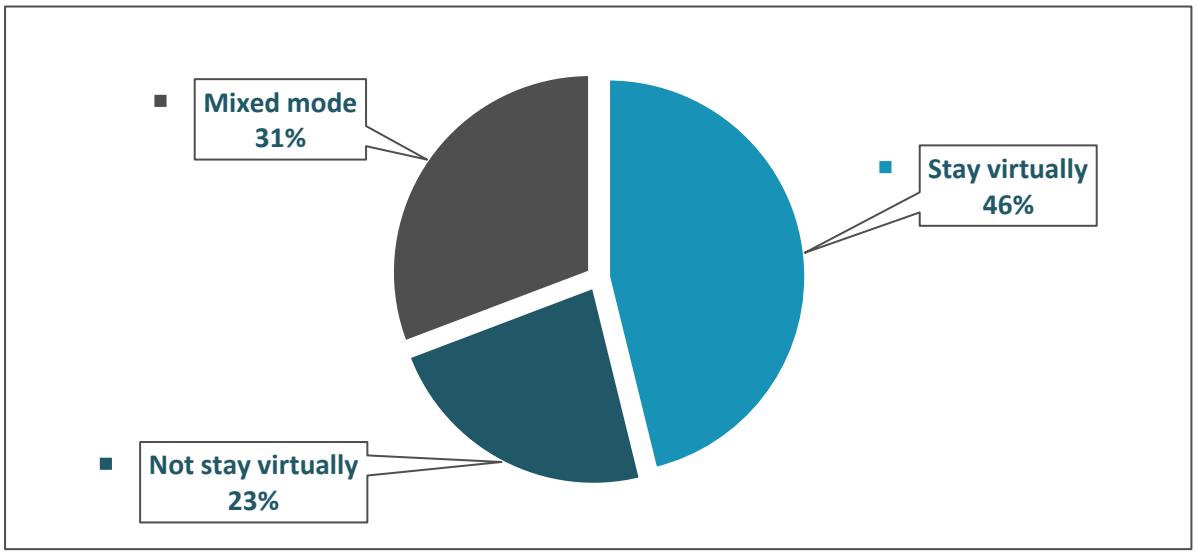


**Figure 15 – Tech-based organisation.**

When asked about the possibility of continuing to work virtually, almost the majority of participants said they will continue in virtual mode and a third said they will maintain mixed work, part in the office and part virtual.


**Figure 16 - Word cloud.**

The word cloud presented here was prepared with the most repeated words in the participants' answers about the e-leadership style session. The analysis shows that the word "team" is mentioned 78 times and the term "communication" appears 56 times in the participants' answers. The word "employees" is seen 37 times in the participants' statements.

### 4.1.2 Web-based teaching and learning approaches.

Participants were asked about their web-based teaching and learning approaches with two questions, one about sources of learning about e-leadership, and another about gaps in content about good practice in e-leadership.

Based on the shared experience among the participants, the Internet was indicated as the most used source, both for the use of research tools and for online training.

When asked about gaps in knowledge on e-Leadership, participants responded that there is a lack of guides and collections of best practices that they can apply in the context in which they work guidelines and best practices for virtual team leaders.


**Figure 17 - Word cloud.**

The word cloud presented here was prepared with the most repeated words in the participants' answers in the Web-based teaching and learning approaches section. The analysis shows that the word "internet" is mentioned 18 times, and the term "best practice" appears 8 times in the participants' responses. The word "online" is also seen 8 times in the participants' statements.

### 4.1.3 Remote strategies and culture.

The participants were asked about distance strategies and culture with two questions, one about communicating sources of vision and purpose and the other about strategy or tactic to promote distance strategies and culture in e-leadership.

Based on the responses shared by the participants, vision and purpose are communicated through reports and questionnaires with employees, providing information and regular meetings. The most frequently used strategies to promote culture were effective communication with employees, feedback, and honesty.


**Figure 18 - Word cloud.**

The word cloud presented here was prepared with the most repeated words in the participants' answers in the section Strategies and distance culture. The analysis shows that the word "communication" is mentioned 23 times, and the term "effective" appears 16 times in the participants' answers. The word "meeting" is also seen 12 times in the participants' statements.

### 4.1.4 The use of web-based tools.

The participants were asked about the topic of using web-based tools with two questions, one about monitoring individual progress remotely, and the other about using web-based tools to measure productivity, commitment, work progress, etc. in e-leadership.

The focus group discussion resulted in the participants' responses electing as most relevant the use of digital monitoring tools, project management techniques, frequent meetings, and results-oriented leadership. Regarding the degree of use of online tools for work monitoring, participants responded that the use is high.


**Figure 19 - Word cloud.**

The word cloud presented here was prepared with the most repeated words in the participants' answers in the section The use of web-based tools. The analysis shows that the word "high" is mentioned 16 times, and the term "monitoring tools" appears 13 times in the participants' answers.

## 4.2 Non-Technology-Based Organisations (NTBO).

The results for the technology-based organisation show the participants' perspective on the environment of organisations that may use technology to support their operations, but technology is not the main focus of their business.

### 4.2.1 E-leadership style.

Participants were asked about their leadership style, including what they like and dislike about being an e-leader, the likelihood of remaining a remote worker.

Based on the shared experience among the participants, the transformational leadership is emphasised. This style focuses on inspiring and motivating team members to reach their full potential by providing them with a clear vision, challenging goals, and meaningful feedback (Avolio et al., 2009). In E-leadership, transformational e-leaders use technology to communicate and collaborate with team members and prioritise building strong relationships and promoting a positive culture.

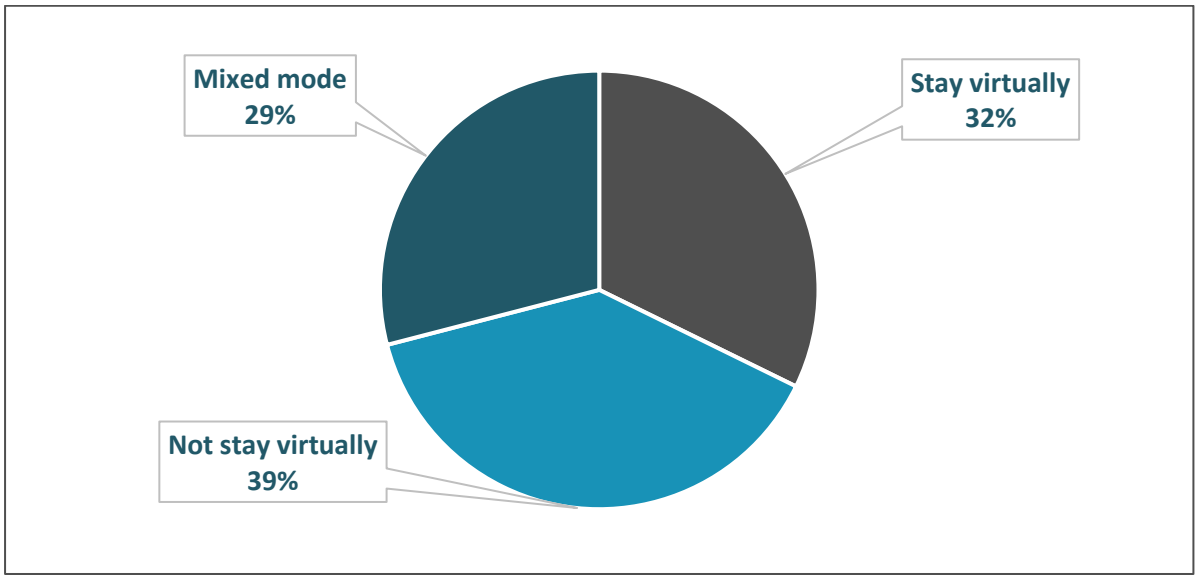


**Figure 20 - Non-tech-based organisations.**

When asked about the possibility of continuing to work virtually, more than a third of respondents said they will not continue in virtual mode. Working in mixed mode, part in the office and part virtual, is highlighted with 29.03% of respondents.

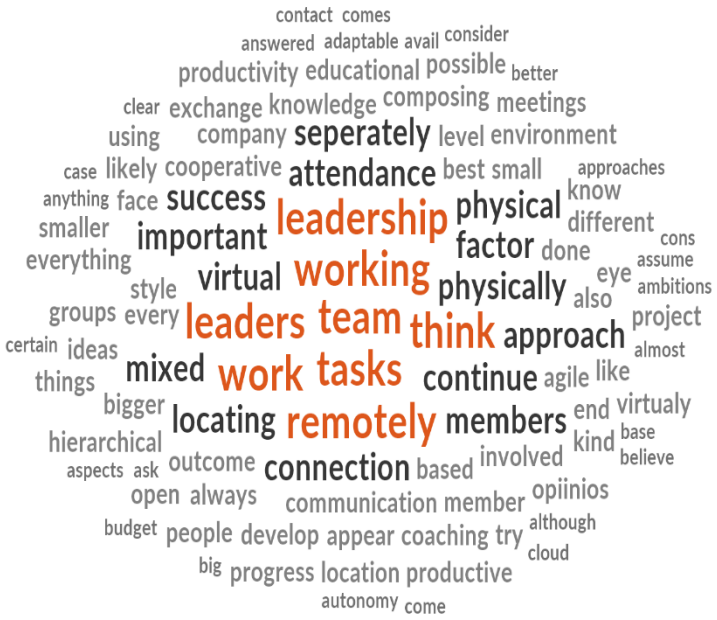


**Figure 20 - Word cloud.**

The word cloud presented here was prepared with the most repeated words in the participants' responses in the E-Leadership style section.

### 4.2.2 Traditional and innovative management.

Participants were asked about their leadership style during the covid 19 pandemic, including strategy or tactics used for e-leadership during the pandemic, challenges, use of web-based tools, and content gaps on best practices.

Participants stressed the need to exercise e-leadership adaptively, with an understanding of the situation, innovation, and support for the team. For e-leaders, the biggest challenges were monitoring the team in the context of remote working, promoting effectiveness in work development. Team-oriented management, effective communication and regular meetings with the team were the most frequently used strategies. For the participants, the most repeated gaps in knowledge about e-leadership were good practices, communication, and ways of finding the right work-life balance.


**Figure 21 - Word cloud.**

The word cloud presented here was prepared with the most repeated words in the participants' answers in the traditional and innovative management section. The analysis shows that the word "tools" is mentioned 10 times, and the term "communication" appears 7 times in the participants' answers.

### 4.2.3 Changes occurring due to the COVID-19 pandemic.

The participants were invited to discuss about the Changes that have occurred due to COVID-19 pandemic. In this section questions were presented on the decision-making process, strategy, and changes in the perception of e-leadership during Covid 19 pandemic, sources and gaps in e-leadership learning, communication of vision and trends in e-leadership.

For the participants, during the Covid 19 pandemic there were times when they had to make decisions without all the necessary information. For them, the most used e-leadership strategies were sharing information with the team, keeping a record of all activities to serve as future examples, adaptability, quality control and regular meetings.

Participants said that Pandemic has reshaped their idea of the importance of knowing how to manage teams in a remote working environment. In addition, they stated that e-leadership skills are very important for leaders now and especially in the future.

The participants pointed to the Internet, training, conferences, and social media as the main sources of information on e-leadership. For them, the main gaps are in best practices, small business content and guidelines. They also said that the trends they perceived were web-based training, flexible working with days in the company and days in remote work, using project management methods and being able to hire people from other locations. On how they communicate vision and purpose, they said they do this with process definition and follow-up meetings.


**Figure 22 – Word cloud.**

The word cloud presented here was prepared with the most repeated words in the participants' answers in the section Changes occurred due to the pandemic of COVID-19.

## 5. Conclusions.

In this chapter, the document presents the Competency Framework for e-leaders who manage teams in a virtual work environment. The identification of these competencies occurred during the analysis of the data collected in the focus groups, considering the most revealing mentions, and the repetition of the statements transversally in all countries of the sample.

Participants' statements showed that e-leadership challenges are cross-cutting and recurrent in all countries where focus groups were conducted. The findings draw attention to the challenges faced by e-leaders in managing teams in remote working environments, which may be due to digital proficiency, lack of information on how to proceed in situations related to cultural differences, training, or the availability of best practices to apply.

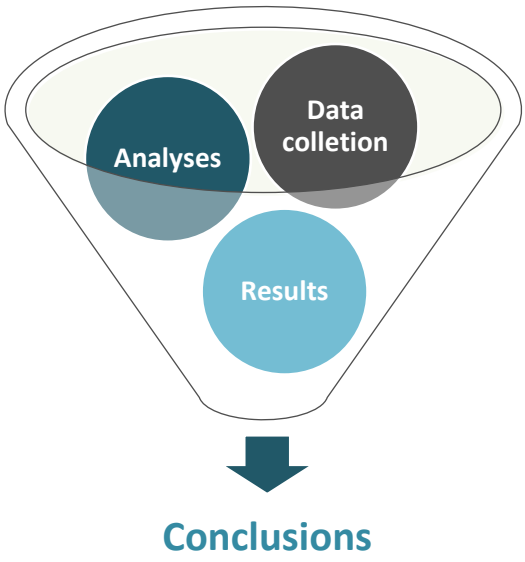


**Figure 23 – Conclusions.**

The data allows us to conclude on the importance of e-leadership and the development of a competency framework with the main competences inherent to the e-leader's job, and which can help them to be more efficient and productive. In addition, identifying the skills needed to perform the e-leadership role can help anyone looking to enter the career, change roles, or meet the challenge of leading teams in a remote working context.

## 5.1 Training needs.

As more and more companies move to remote and virtual work teams, e-leadership skills have become a core specialty for leaders across all businesses. As leaders adapt to this new reality, the need for training in core e-leadership skills arises. E-leadership training can help e-leaders understand the unique challenges and opportunities of managing virtual teams.

Based on the analysis of the results of this study, it can be concluded that there is a need to train leaders in digital proficiency and effective communication, team building, how to adapt their leadership styles, monitor productivity and lead in multicultural teams.

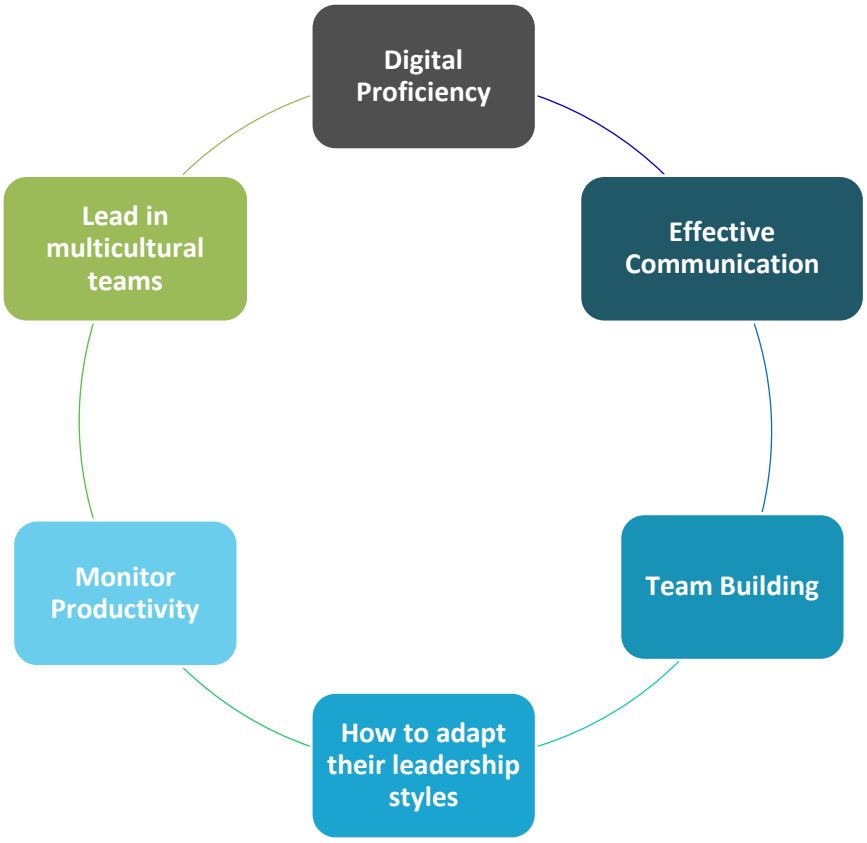


**Figure 24 - Training needs.**

In this regard, training programmes can be widely used for leaders to learn how to communicate effectively with team members, build trust and relationships, and foster collaboration in virtual environments. Furthermore, e-leadership training may aid leaders become proficient in using technology tools that enable remote work. This includes tools for video conferencing, project management, and collaboration.

E-leadership requires leaders to adapt their leadership styles to suit virtual environments. Training has the potential to improve e-leaders' knowledge of how to motivate and engage team members,

provide feedback, and support, and create a positive team culture in a virtual environment. In addition, e-leadership training also helps leaders gain knowledge on how to build and manage effective virtual teams. This includes identifying talent, creating virtual onboarding processes, and building a strong team culture.

## 5.2 Challenges.

While e-leadership can offer many benefits, such as increased flexibility and access to global talent, it also presents a unique set of challenges. The results show that the main challenges for e-leaders in the context of remote work are:


**Figure 26 – Challenges.**

**Building trust:** In a virtual environment, participants reported the difficulty of establishing and maintaining trust between team members. In this sense, E-leaders strived to foster open communication and create a culture of transparency and accountability to build trust among team members.

**Communication:** E-leaders showed discomfort in navigating the challenges of communicating with team members across different time zones and cultural contexts. Participants narrated attempts to be proficient in using digital communication tools and understanding the nuances of written communication to avoid misunderstandings.

**Ensuring productivity**: Without the ability to personally monitor team members, e-leaders have claimed obstacles to finding new ways to ensure their team is productive and meets objectives. This can involve setting clear expectations, providing regular feedback, and implementing project management tools to track progress.

**Team building –** E-leaders exposed that they were facing challenges fostering a sense of connection, collaboration and trust among team members who were geographically dispersed and working in different time zones due to limited opportunities for face-to-face interaction.

**Balancing work and life:** E-leaders recognised that the boundaries between work and personal life can become blurred in a virtual environment. Participants noted the challenge of being sensitive to their team members' needs and finding ways to support their well-being, while ensuring that work is completed on time.

**Cultural differences** – E-leaders deal with unique challenges, including differences in communication styles, work practices, and expectations. Participants identified challenges when team members come from different cultures, highlighting the concert with the possibility of communication leading to misunderstandings, miscommunication, and lack of cohesion among the team.

**Overcome the absence of face-to-face interaction** – E-leaders narrated challenges resulting from limited visibility into the day-to-day operations and struggles faced by line staff, which can make it difficult to make informed decisions. In addition, leaders stated that it is difficult to know to what extent the employee is satisfied with the job.

## 5.3 Gaps.

Although the topic of e-leadership is receiving an increasing degree of market attention, there are still gaps in the knowledge and understanding of this field among e-leaders. One of the aims of this study is to identify the two main gaps in e-leadership described by focus group participants.

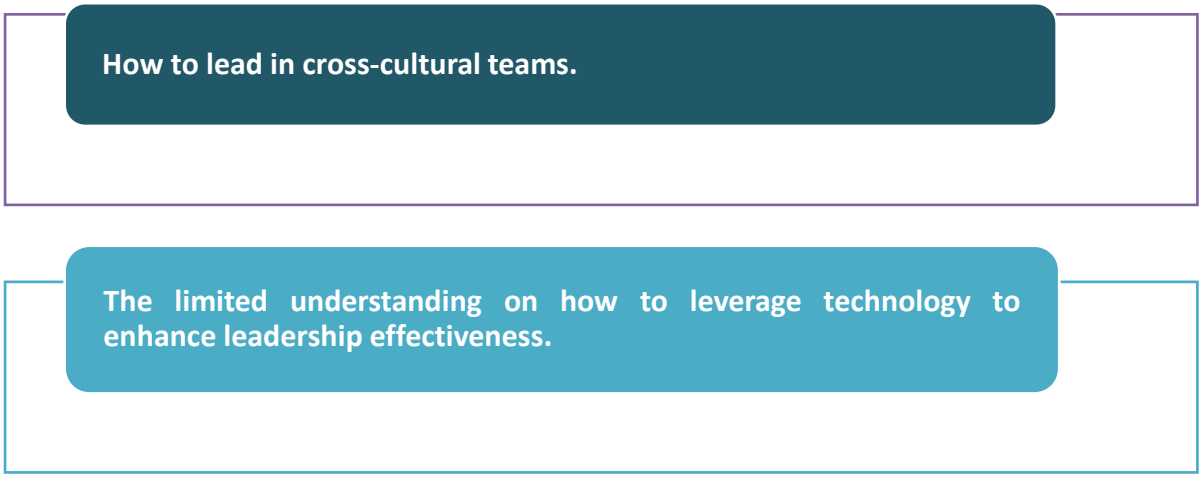


**Figure 25 – Gaps.**

One of the main knowledge gaps in e-leadership described by the e-leaders' participants is the **lack of clear guidelines and best practices for leading virtual teams**. The e-leaders said that they were implementing what they thought would work in the context of the company, without reference to other companies' method or practices already tested in the market for the situations they were experiencing.

The other knowledge gap observed in e-leadership is **the limited understanding of how to leverage technology to increase leadership effectiveness**. While technology has the potential to improve communication, collaboration, decision-making in organisations, monitoring work progress and evaluating outcomes, e-leaders stated that it is unclear how e-leaders can best use these tools to achieve their goals.

## 6. Competence Framework.

Virtual teams are becoming increasingly common in today's globalised and digitised world. However, e-leadership research has yet to provide a comprehensive framework on how to effectively lead virtual teams.

This section seeks to respond to this need and presents a framework of e-leadership competencies as a conclusion to the analysis of the data collected throughout the study. This compendium of competencies contains those that were recognised by the participants as facilitating the work of the leader, who performs his or her functions in the context of distance working. These competencies seem essential for leaders to effectively perform their function, role, or function. These competencies can be the foundation on which a leader can build their expertise, experience, and career in the context of e-leadership.

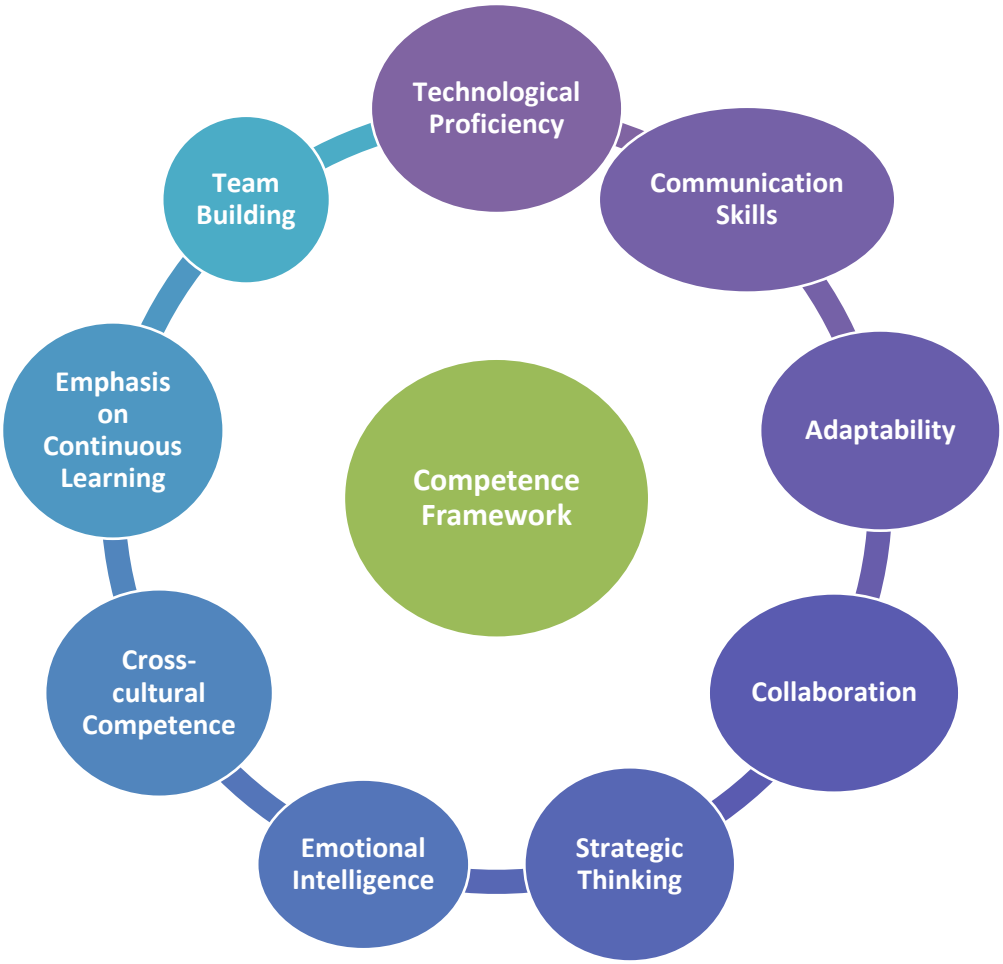


**Figure 26 - Competence Framework.**

The framework of competences contains nine components, which are described below:

**Technological proficiency**: E-leaders have to be proficient in the use of technology, including communication tools, project management software, and virtual meeting platforms. They should be able to solve technical problems and understand the capabilities and limitations of the technology they use.

**Communication skills**: Effective communication is fundamental to e-leadership. Leaders need to be able to communicate clearly and concisely through digital channels such as email, chat, and video conferencing. They must also be able to actively listen and be able to provide feedback and support to their team members.

**Adaptability:** E-leaders are expected to be adaptable and able to respond to changing circumstances, including changes in technology, team composition, and project objectives. They must be able to pivot and adjust their strategies quickly to ensure their team's success.

**Collaboration**: Collaboration is a key component of e-leadership. Leaders shall be able to foster collaboration and teamwork among team members who may be located in different geographic locations. They must be able to create an environment that promotes cooperation, knowledge sharing and innovation.

**Strategic thinking**: E-leaders ought to be able to think strategically and develop plans that align with the organisation's goals and objectives. They should be able to identify opportunities and challenges and develop creative solutions to address them.

**Emotional intelligence**: Emotional intelligence refers to the ability to understand and manage one's own emotions and the emotions of others. E-leaders must be able to recognise and respond to the emotional needs of their team members, especially in a virtual environment where non-verbal cues can be more difficult to detect.

**Cross-cultural competence**: E-leaders are expected to be able to work effectively with team members from diverse backgrounds and cultures. They must be able to understand and appreciate different perspectives and be able to create an inclusive and welcoming environment for all team members. They must be aware of cultural differences and be able to adapt their communication style accordingly.

**Team building:** Team building is an essential component of e-leadership, as e-leaders must be able to build and manage effective virtual teams. E-leaders must communicate clear goals and expectations for their virtual team, including deadlines, roles and responsibilities, and performance metrics. Trust is critical in virtual teams, as team members may not have face-to-face interaction. E-leaders need to build trust by being transparent, demonstrating integrity, and following through on commitments made. E-leaders should address conflicts promptly, using digital tools to facilitate conflict resolution when necessary. This helps maintain a positive team dynamic and prevent conflicts from escalating.

**Emphasis on continuous learning**: Given the fast-paced nature of digital change, organisations need to prioritise continuous learning and development to keep their employees up to date with the latest technologies and trends. This can take the form of training programmes, conferences, and mentoring opportunities.

## 7. Annex.

**Template for the Focus Group**

The first few moments in focus group discussion are critical. In a brief time, the moderator must create a thoughtful, permissive atmosphere, provide ground rules, and set the tone of the discussion. Much of the success of group interviewing can be attributed to the development of this open environment.

The introduction of the group discussion:

(1) Welcome,

(2) Overview of the topic

(3) Ground rules and

(4) First question.

**Opening statement:**

TBO - Good evening and welcome to our session. Thanks for taking the time to join us to talk about E-leadership.

NTBO - Good evening and welcome to our session. Thanks for taking the time to join us to talk about E-leadership in the context of the pandemic of covid 19.

My name is XXXXXXX and assisting me is XXXXXX. We're both with the University of Aveiro in the partnership of the Project EU Leaders. XXXXXX, who is with us, is here to help coordinate the technology set up.

You were invited because this study focusses on experienced entrepreneurs, employers, leaders, managers managing their teams (physically or virtually) in the project countries.

There are no wrong answers but rather differing points of view. Please feel free to share your point of view even if it differs from what others have said. Keep in mind that we're just as interested in negative comments as positive comments, and at times the negative comments are the most helpful.

You've probably noticed that the meeting has been recorded. We're digitally recording the session because we don't want to miss any of your comments. People often say very helpful things in these discussions, and we can't write fast enough to get them all down. We will be on a first name basis tonight, and we won't use any names in our reports. You may be assured of complete confidentiality. The reports will go back to the county extension staff to help them plan future programs.

**About the EU Leaders Project:**

The E(U)-leaders project responds to the EU high priority on boosting the e-leadership and digital competences, thus amending the mismatch between the skills available and those demanded for digital transformation of the economy. Therefore, the aim of the project is to foster the competitiveness and productivity of businesses and organisations through the development of strategic e-leadership skills necessary for entrepreneurs/employers/leaders/managers (as well as

VET trainers, educators, and mentors) to manage their teams effectively and efficiently within virtual working environments.

The project will contribute to the development of a complex and reliable set of digital tools and approaches for e-leadership skills assessment, development, evaluation, and certification, thus addressing the needs of the labour market and supporting the digital transformation of businesses. In the current globalised environment, we observe the emergence of a new class of e-leaders, namely leaders who display strategic leadership, business, and ICT savviness (www.eskills-guide.eu ).

**What we consider E-Leadership to be:**

E-leadership can be characterised by the absence of face-to-face interaction (Amorim et. al., 2022) and is defined as a "social influence process mediated by AIT to produce a change in attitudes, feelings, thinking, behaviour, and/or performance with individuals, groups, and/or organisations (Avolio et al., in 2001)".

"E-leadership has received increased attention with the advent of the Covid 19 pandemics, and the rapid operational transformation in organisations because of the global expansion of remote work. The transformation might have helped increase in the number of articles published on e-leadership from 2019. This fact drew attention to the importance of checking the status of publications on the subject" (Amorim et. Al, 2022)

**This meeting aims to collect information about:**

**TBO**:

(1) E-leadership styles,
(2) web- based teaching and learning approaches,
(3) remote strategies and culture,
(4) monitoring individuals progress remotely,
(5) the use of web-based tools (for measuring productivity, engagement, work progress, etc.).

**NTBO**:

(1) traditional and innovative management, based on the changes occurring due to the COVID-19 pandemic,
(2) the emerge of businesses to adjust to new corporate cultures.

Well, let's begin. Please write your name and organisation on the screen to help us remember each other's names. Let's find out some more about each other, so please tell us your name, where you live and your role in the organisation.

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