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IO1-A1.3 – National Need analysis Desk Research

Greek National Report

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1. Introduction

Nowadays, Greece is picking up the pace of the transition into the digital era in all sectors. The country is rolling out a plan allowing for more state services to move online and businesses to grow increasingly tech friendly. At the same time, it is boosting the capacity of broadband networks. Telecoms companies are spearheading these efforts with investment plans to install powerful infrastructure and encourage more Greeks to embrace the digital era.

The position of Greece on the Digital Economy and Society Index (DESI) for 2020 has dropped one place compared to the previous year. For 2020, Greece ranks second to last, in the 27th position out of the 28 EU Member States.

In the public sector, the pandemic acted as an accelerator for digital transformation. A unified government portal is currently providing different government services to citizens, including an electronic prescription service and a mobile platform for the cabinet to function remotely.

In the private sector, the majority of businesses recognize the growing importance of digital transformation. An interesting fact shows that, although before the pandemic, 7 out of 10 Greek businesses had a maximum 25% of their workforce working remotely, after the breakout 6 in 10 businesses have over 50% of their workforce work remotely.

A number of specific national laws and decrees, national and European acts and contributions supports the public and private sector as well as education and training towards the digital tranformation. Many national and European funding projects for specific projects to implement digital technologies locally, also considering the global pandemic, are being designed and established A national framework started to support the incorporation of digital technologies in education and training.

The Digital Transformation Book (Digital Transformation Bible 2020-2025 https://digitalstrategy.gov.gr/) reflects the guiding principles, the architectural design of the systems, the strategic axes of intervention, the model of governance and implementation and all the horizontal and vertical interventions that will implement the digital transformation of the Greek society.

The national desk research in the frame of the “REthinkin EDUcation COmpetencies. Expertise, best practices and teaching in Digital Era - RE-EDUCO” Erasmus+ project aims to support the competence profiles update perspective and impacts for the future digital society.

2. National desk research. The impact of digital transformation in Greece

2.1 National Framework

The coronavirus pandemic in Greece acted as an accelerator for the digital transformation of the country as several services got digitalized quickly. Greece, as soon as the first lockdown was imposed, tried to launch an online platform offering services such as medical prescriptions, residence certificates, recognition of university degrees etc. At the same time ministerial cabinet meetings were held through online meeting platforms, while distance learning and teleworking was expanding among the student and working communities. During the second lockdown, last November in the country, Greece made a progress in distance learning as all classes, from nursery schools to universities, were held on-line with not crucial interruptions or obstacles.

According to data presented in the report created by Foundation in collaboration with EIT Digital (part of the European Institute of Innovation and Technology) the majority of companies surveyed recognize the importance of digital transformation, as 90.2% have either initiated or intend to activate a digital transformation roadmap.

The Greek Ministry of Digital Governance recently presented a Digital Transformation "bible' for the years 2020 – 2025 (available at https://digitalstrategy.gov.gr/principles_of_implementation) outlining a holistic digital strategy that was initially designed before the pandemic outbreak. The "bible" outlines the guiding principles, the strategic axes and the horizontal and vertical interventions that will lead to the digital transformation of the Greek society and economy. Through collaborations with stakeholders from the public and private sector as well as with the research & academic community and the civil society, the "bible" describes the objectives but also the implementation measures of the digital transformation strategy. The national Digital Transformation strategy sets seven objectives:

1. Safe, fast, and reliable access to the Internet for all
2. A digital state offering better digital services to the citizens for all life event
3. Development of digital skills for all citizens
4. Facilitate the transformation to digital enterprise
5. Support and strengthening of digital innovation
6. Making productive use of public administration data
7. Incorporating digital technologies to all economic sector

The digital transformation is a complex and difficult task. The rapid technological changes combined with the low digital maturity of Greece demand urgent and immediate action on multiple axes through the implementation of a holistic digital approach.

The Digital Transformation Strategy, according to the "bible", concerns the implementation of more than 400 projects in the sectors: Economy, Development & Innovation, Foreign Policy, Education, Culture, Sports, Employment & Social Affairs, Health, Environment & Energy, Justice, Public Administration, Transformation of Cities and Communities, Transportation, Maritime Affairs & Insular Policy, Tourism, Migration & Asylum Policy.

A great number of European (all actions of Eramus+ program, Horizon Project, Health Programme, European Regional Development Fund (ERDF), Structural Reform Support Programme (SRSP), European Structural and Investment Funds (ESIF)) and National public and private financing programs (funding of existing SMEs in the retail sector for the development/upgrade and management of an online store,) of specific projects are designed and establishing in all the abovw mentioned sectors to implement digital technologies at local context. The global pandemia and its impacts are also under consinderation.

Schools and Universities in Greece have been closed since March 11 due to the coronavirus pandemic as part of the government's measures to prevent the spread of the disease. The Ministry of Education responded to the emergency developing and gradually implementing distance learning, offering students the opportunity to keep in touch with the educational process. Without intending to replace face to face learning the Ministry is activating digital platforms and tools (https://www.amna.gr/en/article/439127/Education-ministry-launches-distance-learning-platforms) offered for free by ICT providers, addressed to the secondary and primary school students, as well as to Greek Universities. Distance learning is be mainly available through registration to the National School Network. So far, 631.269 student accounts have been created all over Greece and registration is open until March 30. The digital platforms "e-class" and "e-me" will be used for e-learning courses, while students will have the opportunity to follow "Open Classes" posted in the platforms by their teachers without prior registration. The IT companies CISCO, Webex, Zoom, Google and Microsoft have offered for digital platforms to the Ministry of Education and the Greek Universities aiming to cover the increased needs in distance learning under these exceptional circumstances. Greek Universities already possess e-learning education programs and they can more easily offer online courses to their students.

2.2 Type and selection of sources adopted for national need analysis

A Desk research was employed to find and analyze resources and to derive results and conclusions. The role of the researcher in desk research is to review previous research findings to gain a broad understanding of the field under investigation. Our research is an External Desk Research that involves research done outside the organizational boundaries and collecting relevant information. These outside resources are Online Desk Research (directly browsing specific information from industrial, marketing or business sites and extracting the

information out of these sites and using various search engines like www.google.com, www.yahoo.com, etc, for modulated searching as well as Government published data related to social, financial and economic aspects and European Commission data)

A Desk research presents a summary of published research related to a topic of interest and the reviewer determines the study's quality on a study-by-study basis. The researches included in the desk research were national framework for the adoption and the development of ICTs in market labour (specific laws, decrees, acts, contributions), financing programs of specific projects to implement digital technologies at local context also considering the global pandemia, national framework to support the incorporation of digital technologies in education and training. A total of 30 documents were selected and finally 13 documents used in the desk research.

2.3 Professional units defined at national level

EOPPEP (www.eoppep.gr) is the National Organization for the Certification of Qualifications and Vocational Guidance, an all-encompassing statutory body investing on better quality and more efficient & reliable lifelong learning services in Greece. EOPPEP operates under the supervision of the Minister of Education, Research and Religious Affairs and is seated in Athens. It has derived from the amalgamation of three national bodies, all under the supervision of the same Ministry: the National Centre for the Accreditation of Lifelong Learning Providers (EKEPIS), the National Organisation for the Certification of Qualifications (EOPP) & the National Centre for Vocational Guidance (EKEP).

The General Secretariat for Lifelong Learning (www.gsae.edu.gr), acting as the executive authority for Lifelong Learning in Greece, conducted for the first time at national policy level, an initial registration of all LLL activities organized and implemented by state agents and major social partners. The information contained in this report is a result of data provided by ten different ministries, by Regions and municipalities and by 25 major social partners, including tertiary trade union organizations. The annual report refers to the overall political and social environment, to the European and international policy context as well as to the legal framework underlying Life Long Learning in Greece.

The Youth and Lifelong Learning Foundation (www.inedivim.gr) originates from the National Youth Foundation (founded in 1947). Its current name and state came about from the merging of the Institute for Continuing Adult Education and the Institute for Youth. It is an entity governed by private law operating in the wider public sector, which is independent in financial and operational terms. It is a non-profit, public benefit institution, which is supervised by the Ministry of

Education, Research and Religious Affairs but also directly related to it as a provider and as contractor of the projects and programmes the Ministry assigns to the Foundation. The Youth and Lifelong Learning Foundation" is administered by a 7-member Administrative Board. It includes, among others, university professors and executives with long professional and teaching experience in adult education, lifelong learning and youth. They are highly qualified professionals specialised in the fields of the Foundation's competence and in particular in educational research, planning, implementation and assessment of European programmes for adults, young and vulnerable social groups.

The Labor Institute of GSEE (www.inegsee.gr) was founded in 1990 and during its years of operation it demonstrates rich work in the fields of scientific research, training, education, lifelong learning and documentation of the positions and claims of GSEE, as well as the wider trade union movement. country. The Labor Institute, throughout this period, with its regional and sectoral development (regional and sectoral INE) developed a rich activity and its work is recognized scientifically as valid and socially as useful, thus justifying the strategic choice of its establishment by part of the trade union movement in the early 1990s and thus being a valuable tool of its action.

The Institute of SMEs (www.imegsevee.gr) is a research body for the small and medium enterprises of the country and scientifically supports the companies of the sector and acts as a counselor to the government.

2.4 Resources used for national needs analysis

1. Athanasiou, A. (2020) 21st CENTURY SKILLS, Final year report, https://hellanicus.lib.aegean.gr/bitstream/handle/11610/21181/ΔΕΞΙΟΤΗΤΕΣ%20%20ΤΟΥ%2021ΟΥ%20ΑΙΩΝΑ.pdf

2. Economistas (2019) The 10 skills that every company will be looking for in 2020, https://www.economistas.gr/eleytheros-hronos/20942_oi-10-dexiotites-poy-tha-anazita-kathe-etaireia-mesa-sto-2020

   According to recent studies (Athanasiou, 2020; Economistas, 2019), the 10 skills that every company will be looking for in 2020 are: critical thinking, technical skills, adaptability and flexibility, creativity, emotional, intelligence (eq), cultural intelligence and diversity, leadership skills, judgment and complex decision making, and cooperation.

3. CEDEFOP (2020) Coronavirus and the European job market: how the pandemic is reshaping skills demand, https://www.cedefop.europa.eu/en/news-and-press/news/coronavirus-and-european-job-market-how-pandemic-reshaping-skills-demand

CEDEFOP (2020) verifies these needs in demand of skillful persons in ICT, soft skills, data analysis and an increase in demand for marketing, retail, and human resource management across Europe.

4. CEPIS, Alliance For Digital Employability, (2016) Creating 500,000 jobs in IT, https://www.hepis.gr/wp-content/uploads/2016/02/RESEARCH.pdf

   CEPIS (2016) researched the needs for IT skills in Europe and for Greece it is projected that 500,000 new positions in IT will be created from 2016 το 2025. The report mentions that large number of positions in the field of new technologies and information technology remain vacant and employers report significant difficulty in finding skilled people to fill these positions.

5. Protopapadakis P. (2018). Self-employment in Europe and Greece: A timeless choice and a resilient reality, SME Institute of Greece, https://bit.ly/2YRgEXF

   Protopapadakis (2018) reports that an estimated 11.5% of the task force are self-employed in Greece and the there is a tendency for increase. According to the study, the GIG economy (https://www.investopedia.com/terms/g/gig-economy.asp) will increase the demand for skilled independent contractors in Greece. The skills needed vary from ICT to soft skills.

6. Roupakias St. (2018), Forecasts for professions and skills in the Greek labor market 2018-2022, National Institute of Labour & Human Resources (N.I.L.H.R.), https://lmd.eiead.gr/wp-content/uploads/2019/01/Skills_Forecasting_EIEAD_JANUARY_2019.pdf

   Roupakias (2018) repost a forecast for the labor market needs in Greece, in terms of supply and demand for occupations and skills during the period 2018-2022. According to the study, there is a significant tendency to reduce unskilled work. On the contrary, a dramatic increase in the supply of skilled labor is expected. The supply of moderately skilled work is projected to be relatively stable. Overall, people with a moderate level of skills will continue to make up about half of the workforce. Respectively, the share of people with a Higher Education degree is expected to exceed 30% of the total.

7. DIGITAL GREECE: THE PATH TO GROWTH COMMUNICATIONS INDUSTRY DIGITAL STATE. 2017 Accenture

There is a description of Initiating the digital transformation in Greece concerning Initiatives that refer to individual organizations within the industry and Initiatives that can be jointly undertaken by the organizations to enable the industry's and Greece's rotation to digital era.

1. DIGITAL TRANS FORMATION IN GREECE 2020-2021. Accelerated change in a time of a global crisis. Annual report. Foundation. www.thefoundation.gr

   The research, published in the extensive report created by Foundation in collaboration with EIT Digital (part of the European Institute of Innovation and Technology), for the fourth consecutive year, reveals interesting aspects of the business reality in the new circumstances.

The report entitled Digital Transformation in Greece 2020-2021 extensively analyzes the dimensions of the digital transformation in this particular conjuncture of the pandemic, while outlining the situation that prevails in Greece, both in the public and in the private sector. Also, examples of good practices are presented, regarding their strategic approach to digital transformation, by the **Greek Tourism Confederation** (SETE) and the company **Kotsovolos** (Dixons South-East Europe). The research involved experienced business executives, with the aim of examining whether companies and large organizations have adopted the digital transformation, and in what ways. Particular emphasis was placed, of course, on the challenges posed by the pandemic, on how it affected companies and how digitally prepared they were.

2. MONITORING PROGRESS IN NATIONAL INITIATIVES ON DIGITISING INDUSTRY. Country report. Greece, 2019. WiK Consult.

According to the report, Greece performance in terms of digitisation is below the EU average. On the Digital Economy and Society Index (DESI) Greece ranks 27th out of the 28 EU Member States in both 2017 and 2018, indicating a low integration of more sophisticated digital technologies throughout the economy. The country's performance in digital public services and digital skills remains low, a fact that can act as a barrier for further development of the digital economy and society. To reverse the above negative trends, the Greek government during 2016, established a new Ministry for Digital Policy, Telecommunications, and Media with the responsibility for the policy- making, design, overall coordination and monitoring of the implementation of the ICT investments in the country.

3. Strategic directions of the National Recovery and Resilience Plan. 2020. HELLENIC REPUBLIC Ministry of Finance

The Greek National Recovery and Resilience Plan (NNRP) presented hereafter in the form of a draft proposal, aspires to facilitate a paradigm shift in the Greek economy and institutions towards a more extrovert, competitive and green economic model, with a more efficient, less bureaucratic digitalised state, a much reduced «grey sector», a more growth friendly tax system and a more resilient social safety network. This is not just an economic transition. It aims at a more fundamental economic and social transition affecting not only economic activity but also technologies, attitudes and institutions. A transition that combines economic efficiency with social inclusion and justice. The Greek National Recovery and Resilience Plan comprises of four pillars: (1) Green, (2) Digital, (3) Employment, skills, and social cohesion and (4) Private investment and economic & institutional transformation.

4. GREEK NATIONAL COALITION FOR DIGITAL SKILLS & JOBS. ENHANCING DIGITAL SKILLS and JOBS IN GREECE National Action Plan 2017. Digital skills Greece.

Acknowledging that the broader use of digital technologies and the acquisition and smart use of digital skills can boost economic growth, job creation, entrepreneurship and efficient operation of the public sector leading to Greece's digital transformation, a broad coalition has been established that addresses the development of digital skills and competencies.

5. Strategic Partnerships in the field of education, training and youth.

The document concerns Strategic Partnerships aim to support the development, transfer and/or implementation of innovative practices as well as the implementation of joint initiatives promoting cooperation, peer learning and exchanges of experience at European level.

6. The Digital Transformation "bible" of Greece (2020-2025). Greek news agenda

The Greek Ministry of Digital Governance recently presented a Digital Transformation "bible" for the years 2020-2025 (available at https://digitalstrategy.gov.gr/principles_of_implementation) outlining a holistic digital strategy that was initially designed before the pandemic outbreak, it had though to move faster due to the urgent situation. The "bible" outlines the guiding principles, the strategic axes and the horizontal and vertical interventions that will lead to the digital transformation of the Greek society and economy. Through collaborations with stakeholders from the public and private sector as well as with the research & academic community and the civil society, the "bible" describes the objectives but also the implementation measures of the digital transformation strategy. It should be noted that the formulation of the Action Plan of the strategy is an open and dynamic process as new actions will be added when needed.

3. Description and results of national research

According to the study "Self-employment in Europe and Greece: Timeless choice and resilient reality" (Protopapadakis, 2018) of IME GSEVEE, the demand for new services and professions is increasing. These include IT services and the various professions that include IT skills.

Regarding self-employment in Greece, the trend is generally increasing and is also supported by programs such as the "Enhancement of Self-employment of Higher Education Graduates-Second Cycle". A similar program is implemented by OAED.

According to the forecasts of the study "e-Skills in Europe" the demand for digital skills continues to grow at a huge rate. In 2020, the European labor market is projected to grow by more than 670,000 new jobs, but could absorb another 756,000 ICT professionals if there is a sufficient supply of trained workforce.

Labor demand includes the 'expansion demand' component, which concerns the creation of new jobs due to the growth of the economy and the 'demand for replacement' cpmponent, ie the need to replace workers who either change occupation, retire, leave the workforce for personal reasons, or emigrate.

The analysis shows that about 250 thousand new jobs were to be created during the period 2018-2022, if the economy continues to grow at a rate of 1.4%. Based on the optimistic scenario, about 462 thousand jobs are expected to be created due to the demand for expansion. In terms of the professions with the largest increase in demand over the next five years, these appear to be "*Employees providing services and salesmen in shops and outdoor markets*" and "*Professionals*". On the other hand, the reduction of demand for "*Farmers, stockbreeders, foresters and fishermen*" is expected to be significant, while smaller losses are expected to be experienced by "*Senior managers and administrators*" and "*Skilled craftsmen and related professions*".

The demand for skilled labor is increasing significantly and decreasing for workers belonging to the lower part of the skills distribution. It appears that about 689 thousand jobs will be created due to the demand for replacement. It is estimated that the supply of unskilled labor is expected to decrease significantly. On the other hand, there is a significant increase in the supply of skilled labor. A small increase is also foreseen for workers who have a moderate level of skills.

3.1 Factors affecting the structure and levels of employment

Regarding the changes in the structure of employment, a pattern that has been observed in several countries in recent years, both in Europe and in the United States, concerns the rapid decline in the share of total employment of people with average skills. This phenomenon is usually called *job polarization*. Information and Communication Technologies (ICTs) are gradually replacing routine tasks, squeezing employment in these professions.

On the other hand, technology complements and increases the productivity of highly skilled workers who perform complex problem-solving tasks or task that involve the element of communication, among others. In addition, to date, it has not been possible for ICTs to substitute work performed by unskilled workers, such as e.g. the transports etc.

In addition, globalization and international trade are important determinants of the structure of employment in an economy. The more open an economy is to trade, the more it will tend to produce internationally tradable goods and services in which it has a comparative advantage. Regarding the determinants of employment levels, there is a wealth of empirical research focusing mainly on the macroeconomic conditions under which economic activity is shaped and the quality of institutions governing the labor and product market. A general conclusion to be drawn is that labor market flexibility is desirable to the extent that it allows the economy (macroeconomically) to adapt to economic fluctuations and to redistribute labor into more productive occupations.

It is also worth noting that a number of empirical studies have found negative effects of employment in the public sector on employment levels in the private sector. However, more detailed evidence supports the idea that the public sector is competitive with the internationally traded sectors and complementary to the services sectors. Furthermore, it should not be overlooked that the dramatic changes that have taken place over the last ten years and the changes in the structure of employment within the economic sectors are very likely to adversely affect the predictive capacity of a model based on historical data.

3.2 The Greek economy and labor market

Greece presents a fragmented labor market or a binary market. Public sector workers enjoy the protection of strong unions and receive relatively generous wages. A large percentage of private sector workers - mainly unskilled - are employed in the informal economy, collecting low wages in a highly competitive environment. In addition, labor market institutions tend to favor those who are already occupied and create adverse outsiders. The Greek economy is full of regulations that act as an obstacle to the flexibility of the market and the correction of short-term imbalances and incompatibilities, while causing high unemployment However, in recent years there has been a significant improvement in some relevant indicators. Examples of such rules governing business-employee relationships are the ease with which companies can make dismissals during periods of low demand, etc.

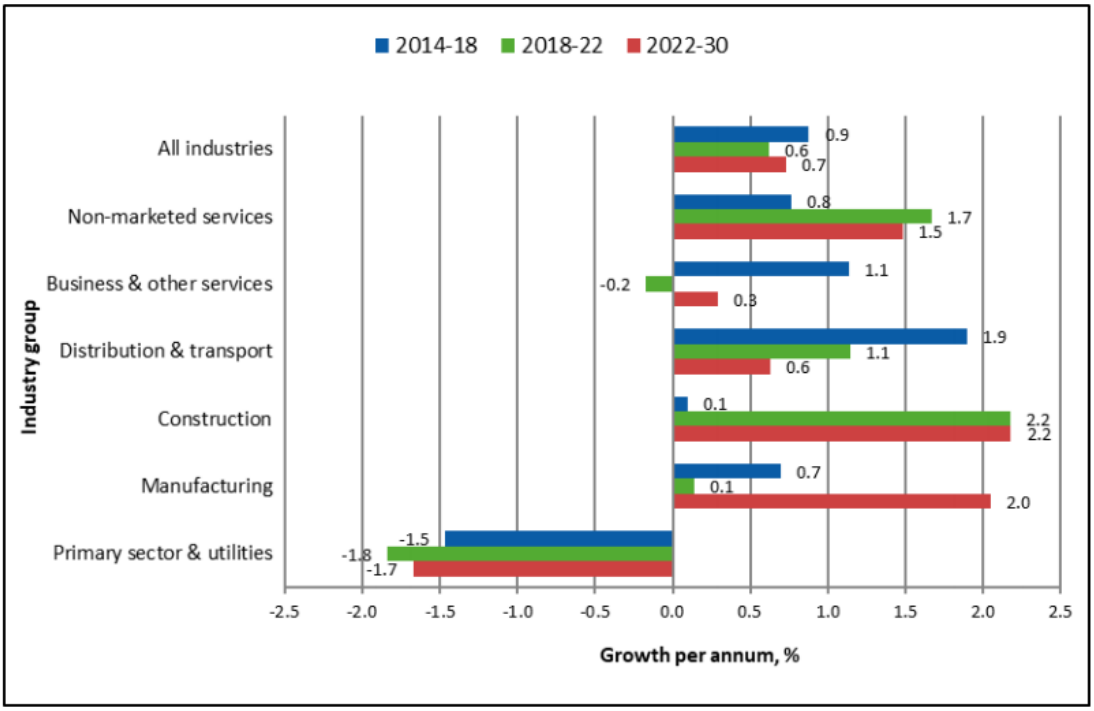
The importance of labor market flexibility in reducing the negative effects of the 2007 financial crisis on employment. Greece had one of the strictest legislations, behind only Portugal, the Czech Republic and the Netherlands. In broad terms, the picture was similar for the other indicators of labor market flexibility. However, perhaps the most important factor determining the course of the labor market is the regulatory framework associated with entrepreneurship. For example, the high tax burden on businesses and especially the unstable tax environment are discouraging factors for the adoption of innovative initiatives and business actions. In addition, the rules that determine the degree of ease of entry of a company into a manufacturing industry, the justice system and access to finance are critical factors regarding the quality of the business environment.

3.3 Sectoral employment trends

As shown in the next figure, all sectors apart from business and other services as well as primary sector and utilities are expected to see increases in employment in both the short term (2018-22) and the longer term (2022-30). The strongest employment growth is expected in construction, with growth of 2.2% in both the short and longer term, and much higher than was observed over 2014-18. This expansion in growth is driven by the recovery expected in the

construction sector, which was hit particularly hard during the financial crisis in Greece. Non-marketed services is also expected to see strong growth, with employment increasing by 1.7% pa and 1.5% pa in the short and longer term respectively.

Meanwhile, primary sector and utilities is expected to see a continued decline in employment at a higher rate than the 1.5% pa decline observed over 2014-18. Elsewhere, business and other services observed reasonably high growth over 2014-18 but is expected to see a decline in employment in the short term and only modest growth in the longer term. Manufacturing is expected to see almost no employment growth in the short term, but strong growth of 2% pa in the long term.



Source: Cedefop (2020 Skills Forecast).

Employment growth by broad sector of economic activity, 2014-30

3.4 Demand for and supply of skills

Greece is rapidly increasing its share of higher qualified in the labour market. While the share was at 32% in 2018, it is expected to increase to 40% by 2030. The increase in the share of higher qualified is expected to come from the outflow of older workers, both low and medium qualified. The share of medium qualified workers is expected to decrease from 41% in 2018 to 36% in 2030, while the share of low qualified workers is expected to decrease only slightly, by 4 pp, over the same period. Relative to the EU-27 average qualification mix, Greece is expected to continue to have a lower share of medium qualified and a higher share of lower qualified.

Overall, the forecast implies a shortage of the medium qualified, while the supply of the high and low educated is forecast to sufficiently fill the demand within high and low-level occupations.

3.4.1 Demand for skills

The level of education is by no means entirely identical to the required skills, but it is generally accepted that there is a strong correlation between them. The ISCED levels are applicable in Greece: No school (0), Primary education (1), High school (2), Lyceum (3-7), Technical training (8), Higher education (9–12) and Postgraduate, Doctorate (13).

Education level	Employment 2017	2022 employment forecast		
		Low	Moderate	High
No school	14,890	5,811	5,922	6,116
Primary education	390,649	260,920	265,900	274,637
High school	358,599	337,107	343,540	354,828
Lyceum	1,300,000	1,391,323	1,417,877	1,464,468
Technical training	366,677	437,084	445,426	460,063
Higher education	1,300,000	1,557,379	1,587,101	1,639,253
Postgraduate, Doctorate	29,790	51,786	52,774	54,509
Total	*3,791,408*	*4,041,408*	*4,118,539*	*4,253,872*

Total employment by level of education (2017-2022)

(source: Roupakias (2018) https://lmd.eiead.gr/wp-content/uploads/2019/01/Skills_Forecasting_EIEAD_JANUARY_2019.pdf)

According to Roupakias (2018), there is a clear trend of declining demand for people with few skills (high school graduates and below). The largest job losses are expected mainly for primary school graduates. Specifically, according to the reference scenario, demand is projected to decrease by about 130 thousand positions. On the other hand, the prognosis is positive for people who have a high school diploma and above. Unsurprisingly, the demand for higher education graduates and postgraduate students will increase significantly. However, it is worth mentioning the findings on the change in demand for people who have a high school diploma or have received technical education. On average, approximately 100 thousand positions are expected to be created for the former and 80 thousand for the latter. In conclusion, the results for the skills are compatible with those produced for the demand of the professions. There is a widespread trend for jobs that require a high level of skills, while the demand for manual labor is projected to decline significantly. On the other hand, the demand for a moderate level of skills does not seem

to be shrinking. On the contrary, it is expected to increase, perhaps following the increase in demand for service-related and sales-related occupations, which, for the most part, employ secondary school graduates.

The professions that are expected to show the greatest growth are those of salespeople and those related to the provision of services, i.e. professions that have a high correlation with a moderate level of skills. However, in sellers the majority of positions are expected to arise due to the demand for replacement, and in those employed in the provision of services is expected to come from the expansion of the economy. To a lesser extent, an increase in demand is also expected for professions that are skill-intensive, such as e.g. those related to health and education. On the contrary, a significant contraction in demand is provided for occupations related to agriculture and stock raising. However, the decline in demand in these occupations is partly offset by job creation resulting from the replacement of workers. The contraction of the demand for unskilled work (high school and below) is offset by the demand for replacement, with the result that there are about 137 thousand vacancies in 2022. On the other hand, the expected increase in demand due to expansion of the economy combined with replacement needs will create about 412 and 420 thousand jobs for moderate and highly skilled workforce.

According to the 2020 skills forecast - Greece 2020 skills forecast Greece for the years between 2018-30 will be a total job opening of 2.418.000 with an 8.5% increase of needs (Replacement needs (90%) and New job openings (10%)). There is a prediction for needs for about 341000 sales workers, 247000 personal service workers, 214000 market oriented agricultural workers (https://www.cedefop.europa.eu/files/skills_forecast_2020_greece.pdf)

3.5 Strategic Axes of Intervention for Digital Transformation in Greece

According to the Digital Transformation "bible' for the years 2020 - 2025 (available at https://digitalstrategy.gov.gr/principles_of_implementation) the key interventions of Digital Transformation incorporate a series of actions and projects organized in six distinct strategic axes.

This distinction was deemed appropriate based on the nature and subject matter of the interventions, in order to clearly reflect the way in which the Digital Transformation Action Plan will be implemented. Also, special emphasis is given to the utilization of emerging technologies for the development of advanced solutions that will support the implementation of its goals. The strategic axes are presented below and analyzed in the following sections:

- **Connectivity**

  In the new digital age, connectivity is a key prerequisite for the digital transformation of states, as the expected economic and social benefits will only be achieved if states ensure the widespread deployment of networks and the provision of very high capacity services throughout their territory.

- **Digital Skills**

The development of appropriate digital skills in terms of human resources is an integral part and plays a key role in the well-being of society as well as the uninterrupted operation of the state and the economy.

- **Digital State**

With the establishment of the new Ministry of Digital Governance a large part of the critical IT and telecommunications structures related to the provision of electronic services to the citizens and the wider digital transformation of the country are gathered.

- **Digital Business**

Digital technologies are radically changing all sectors of the economy. The application and adoption of digital technologies as well as the utilization of digital skills are no longer an optional action for businesses but a key survival factor.

- **Digital Innovation**

Actions aimed at the substantial strengthening of start-up innovation companies, with the main strategic goal being the creation of an organized, reliable, sustainable and coordinated network of support nodes for the digital transformation of Greek companies. In addition, actions are described in some "horizontal" issues, such as in the critical sector of high-performance computer systems and in the development and utilization of artificial intelligence in our country.

- **Integration of Technology in every sector of the economy**

The Economy Sectors specialize in the individual strategies of digital transformation with the common goal of digitally serving the citizen and the business. The aim of the Sectoral Projects is to support the transition of existing systems to new infrastructure and modern implementation architectures, as well as the adoption of modern technological tools in the individual sectors of the economy. The Public Administration implements digital projects that enhance the transparency, participation, accessibility, privacy and security of citizens and businesses, while ensuring the existence of a nationwide, modern communications and connectivity infrastructure.

4. Conclusions

Based on all the above we could conclude that:

There is a significant tendency to reduce unskilled work. On the contrary, a dramatic increase in the supply of skilled labor is expected. The supply of moderately skilled work is

projected to be relatively stable. Overall, people with a moderate level of skills will continue to make up about half of the workforce. Respectively, the share of people with a Higher Education degree is expected to exceed 30% of the total.

A large number of positions in the field of new technologies and information technology remain vacant and employers report significant difficulty in finding skilled people to fill these positions.

The 10 skills that every company will be looking for in 2020 are: critical thinking, technical skills, adaptability and flexibility, creativity, emotional, intelligence (eq), cultural intelligence and diversity, leadership skills, judgment and complex decision making, and cooperation. An estimated 11.5% of the task force are self-employed in Greece and the there is a tendency for increase. According to the study, the GIG economy (https://www.investopedia.com/terms/g/gig-economy.asp) will increase the demand for skilled independent contractors in Greece. The skills needed vary from ICT to soft skills. CEDEFOP (2020) verifies these needs in demand of skillful persons in ICT, soft skills, data analysis and an increase in demand for marketing, retail, and human resource management across Europe.

Skilled labor supply appears to exceed by about 99 000 the corresponding demand. However, significant changes are expected during the five years 2018-2022. The gap for the moderately skilled workforce is expected to approach 379 thousand from 541 thousand in 2017. On the other hand, the deviation of demand from supply is expected to reach the level of 16 thousand for people with a degree in higher education. An effective policy should directly aim at facilitating flows within the labor market in order to achieve optimal long-term matching. In addition, good workforce management practices are required by the relevant human resources departments of companies.

The majority of companies recognize the importance of digital transformation, as 90.2% have either initiated or intend to activate a digital transformation roadmap immediately. They include a large part of their workforce in relevant projects (over 74% participate full time or dedicate a significant part of their time). For yet another year, staff education and training in hard and soft skills is emerging as the most effective pr/actice for implementing any digital transformation plan.

Although, before the pandemic, 7 out of 10 Greek companies had only 25% of their workforce in remote work, after the outbreak of Covid-19, 6 out of 10 companies have more than 50 % of their employees working remotely. Only 14.8% of companies were able to proceed with the change immediately, while 48.4% said they were quite ready to do so.

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