



**TECHNICAL ASSISTANCE FOR PROMOTING  
DECENT FUTURE OF WORK APPROACH WITH  
A FOCUS ON GENDER EQUALITY  
  
(TREESP1.3. FoW/P-01)**

**TÜRKIYE**

**CATEGORY 3: SCIENTIFIC AND TECHNICAL STUDIES**

**INTERVENTION 8: SECTOR STUDIES**

**EXECUTIVE SUMMARY REPORT ON SECTOR STUDIES**

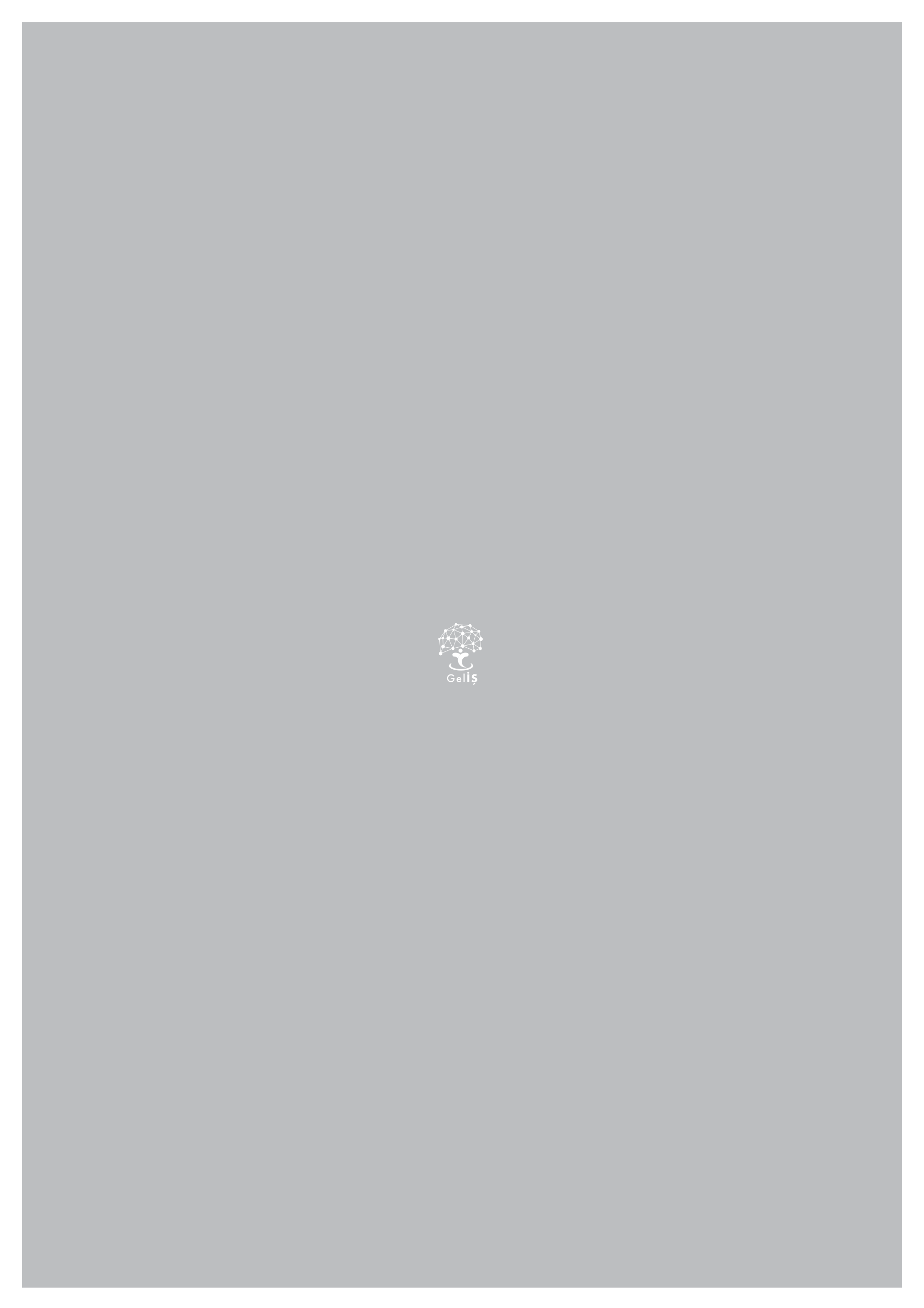
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Table of Contents

* [EXECUTIVE SUMMARY 7](#_Toc118366137)
* [1. INTRODUCTION AND BACKGROUND OF THE STUDY 9](#_Toc118366138)

[1.1 Aim 9](#_Toc118366139)

[1.2 Scope 9](#_Toc118366140)

[1.3 Commissioning the Work 9](#_Toc118366141)

[1.4 Context and Focus 9](#_Toc118366142)

* [2. RESEARCH METHODOLOGY AND APPROACH 10](#_Toc118366143)

[2.1 Outline Methodology 10](#_Toc118366144)

[2.1.2 Desk Research (see Annex 1) 10](#_Toc118366145)

[2.1.3 Structure of Desk Research Report 10](#_Toc118366146)

[2.1.5 References Consulted for Desk Research 11](#_Toc118366147)

[2.2 SWOT Analysis Workshop (see Annex 2) 11](#_Toc118366148)

[2.2.3 Main Findings 11](#_Toc118366149)

[2.3 Pre-Study Workshop (see Annex 3) 12](#_Toc118366150)

[2.3.1 Workshop Structure 12](#_Toc118366151)

[2.4 Field Research (see Annex 4) 12](#_Toc118366152)

[2.4.1 Methodology 12](#_Toc118366153)

[2.4.2 Focus of Questioning 12](#_Toc118366154)

[2.4.3 Data Analysis 13](#_Toc118366155)

[2.5 Post-Study Workshop (see Annex 5) 13](#_Toc118366156)

[2.5.1 Workshop Structure 13](#_Toc118366157)

[2.5.2 Summary of Key Findings 13](#_Toc118366158)

* [3. RECOMMENDATIONS 13](#_Toc118366159)
* [3.1 . All sectors (Common) 13](#_Toc118366160)
* [3.1 . Sector specific recommendations 18](#_Toc118366161)
* [3.3. Recommendations by sector experts 19](#_Toc118366162)
* [3.3.1. Education 19](#_Toc118366163)
* [3.3.2. Health 20](#_Toc118366164)
* [3.3.3. Energy 20](#_Toc118366165)
* [3.3.4. Finance and Banking 20](#_Toc118366166)
* [3.3.5. ICT 20](#_Toc118366167)
* [1. CONCLUSIONS AND SECTORAL COMPARISONS 21](#_Toc118366168)
* [4.1. The decent future of work 21](#_Toc118366169)
* [4.2. Digital technologies and compliance 23](#_Toc118366170)
* [4.3. Prominent professions, hard-to-fill positions, and lost professions in sectors 24](#_Toc118366171)
* [4.4. Training, workforce development and upskilling for new technologies and digital adaptation 27](#_Toc118366172)
* [4.5. Gender and disability perspective 30](#_Toc118366173)
* [5. BIBLIOGRAPHY 31](#_Toc118366174)

[5.1 References Examined during Desk Research 31](#_Toc118366175)

[B. Websites: 33](#_Toc118366176)

[B. Websites: 35](#_Toc118366177)

[B. Websites: 36](#_Toc118366178)

[B. Websites: 38](#_Toc118366179)

[A. Resources 38](#_Toc118366180)

[B. Websites: 40](#_Toc118366181)

LIST OF ABBREVIATIONS

|  |  |
| --- | --- |
| **Abbreviation** | **Meaning** |
| 21C | 21st Century |
| AI | Artificial Intelligence |
| CPD | Continuous Professional Development |
| EU | European Union |
| ICT | Information and Communication Technology |
| ILO | International Labour Organization |
| MOH | The Ministry of Health |
| MoLSS | The Ministry of Labour and Social Security |
| MONE | The Ministry of National Education |
| NSFE | Non-Standards Forms of Employment |
| OB | Operation Beneficiary |
| OHS | Occupational Health and Safety |
| PwDs | People with Disabilities |
| RPA | Robotic Process Automation |
| SMART | Specific, Measurable, Achievable, Relevant, Time-bound |
| STEM | Science, Technology, Engineering, Mathematics |
| SWOT | Strengths, Weaknesses, Opportunities and Threads |
| TAT | Technical Assistance Team |
| TNA | Training Needs Analysis |
| ToR | Terms of References |
| TVET | Technical and Vocational Education and Training |
| UI | User Interface |
| UX | User Experience |
| VQA | Vocational Qualification Agency |
| VR | Virtual Reality |

# EXECUTIVE SUMMARY

This Report was commissioned by the Turkish Ministry of Labour and Social Security (MoLSS)’s Department for Employment Policies, to examine the current situation within 5 sectors of Türkiye – Education, Health, Energy, Banking/Finance, and ICT. The Report was produced by a Technical Assistance Team (TAT) working within the EU-funded project ‘Technical Assistance for Promoting Decent Future of Work Approach with a Focus on Gender Equality’.

The information has been derived from numerous sources (each element of which is attached to this Report in a series of standalone Annexes):

* Extensive desk research involving sectoral analyses of each selected sector from a Turkish and an international perspective;
* A series of SWOT Analysis Workshops involving sectoral experts from each sector;
* A Pre-Study Workshop at which 77 representatives of the public, private and third sectors formulated their ideas on the current and future state of their respective sectors;
* A field study involving 840 respondents using semi-structured questionnaires;
* A Post-Study Workshop at which 96 representatives of the public, private and third sectors provided feedback to the draft Recommendations.

This has been carefully analysed and processed to produce a series of 102 evidence-based recommendations which are presented in 2 categories: cross-sectoral and sector-specific.

The project’s Terms of Reference (ToR) required that 5 sectors be studied. To provide some element of choice, 7 sectors were initially examined (the 5 which were eventually chosen together with the Automotive and Textile sectors) through a thorough and deep desk research exercise, and MoLSS representatives selected the 5 sectors mentioned above.

The study was conducted against a backdrop of increasing changes in the World of Work. Already, the impact of increased digitalisation is being felt in the way we bank and the way we shop, with significant moves towards online services. Commentators suggest that, by 2030, some 7.5m jobs will be lost in Türkiye through the forces of digitalisation, robotisation, automation and AI, although the same commentators predict that some 9m new jobs can be created by the very forces which will have eliminated the older jobs in the first place. But, to take advantage of the new job opportunities, new skills will be needed, which will require existing workers to adapt, and a new generation of workers to be prepared. The extent to which Türkiye is successful in meeting the challenges of this process of transition will depend on the preparedness of the private and public sectors – the former to identify and train for the new skills, and the latter to create awareness for the changes and develop policies and strategies to support them.

These factors underpinned the study covered in this Report. Through extensive dialogue with many interested stakeholders - employers, employees and sector experts from the public and private sectors - a picture emerged of how stakeholders perceived the changes which would affect them, and the extent to which they were ready for them.

The study included a focus on gender in order to assess the extent to which women might be disproportionately affected by the changes. In Türkiye, women appear to be less drawn to technologically-oriented professions, and could, therefore, be more severely impacted by a future in which technology-related jobs may predominate. In fact, this is not a specifically Turkish phenomenon. A study visit to Finland in October 2022, in which TAT accompanied 8 representatives of MoLSS to consider how that country was facing up to similar challenges, revealed that Finnish women too tended to opt for careers outside of technology, despite scoring as well or better than males in technology at academic levels prior to joining the workforce. Finnish institutions were at something of a loss in explaining the reasons for this, but it did reflect the fact that this is an issue which has broad implications and which will need to be addressed.

This Report is the result of a collaborative effort to which many stakeholders have contributed with their time, ideas and comments. This has been greatly appreciated by the project team, who have been very impressed by the depth of knowledge and commitment they have encountered during the assignment.

**FoW TAT**

**October 2022**

# 1. INTRODUCTION AND BACKGROUND OF THE STUDY

## 1.1 Aim

The primary aim of this Report, and the research it summarises, was to enable Turkish policy-makers to understand how different sectors were preparing for the changes which will impact them - from greater moves towards digitalisation, automation, AI, etc. – and to understand which policies or strategies might be needed to support their transition.

## 1.2 Scope

The scope of the research was broad, involving public and private organisations and companies in 5 selected sectors, and covering a geographic spread including 5 provinces – Adana, Ankara, Bursa, Istanbul and Izmir. 840 people were interviewed, face-to-face, representing a mix of employees, employers and sector experts from the 5 sectors in the 5 provinces.

## 1.3 Commissioning the Work

The Report was commissioned by the Turkish Ministry of Labour and Social Security (MoLSS)’s Department for Employment Policies, to enable them to understand how sectors were, or were not, preparing for workplace change, and, thereby, to understand how MoLSS might be better able to support them with new policies and strategies. The Report was produced by a project team working within the EU-funded project ‘Technical Assistance for Promoting Decent Future of Work Approach with a Focus on Gender Equality’.

The project’s Technical Assistance Team contracted a team of research experts to conduct the field research and to contribute to the drafting of the recommendations and this Report. In all, 286 expert days were deployed to this exercise, which began in April 2022 and was concluded in August 2023.

## 1.4 Context and Focus

The project, Technical Assistance for Promoting Decent Future of Work Approach with a Focus on Gender Equality was given a Terms of Reference (ToR) which set the following task for the Technical Assistance Team:

*Sector studies will be conducted in five sectors to determine their labour demands, skills and occupations within the scope of Future of Work approach. Indicative sectors which are chosen in accordance to the ILO Reports issued on 2017 and 2019[[1]](#footnote-1), can be chosen among informatics/automation, education, health, transportation, media/communication, energy, finance and banking sectors, etc. Final decision to define 5 sectors is subject to the prior approval of the Operation Beneficiary. Each sector analysis will be carried out in the perspective of the prominent professions of the future, the qualifications of the labour force that will be needed, the lost professions, the policy proposals that are compatible with the works of the future, etc. The research will be carried out as desk study in the light of current social and technological developments and academic and scientific studies. The research will include also 750 indicative face to face interviews (30 people from each sector and from each city) with representatives of institutions/organisations, employers, employees, etc. in Ankara, Adana, Bursa, İstanbul and İzmir. A detailed report will be drafted in English with executive Turkish summary by including each sector and it will be used to update relevant strategy plans and/or policies. It will be published on the official web site of the Operation Beneficiary.*

# 2. RESEARCH METHODOLOGY AND APPROACH

## 2.1 Outline Methodology

The Project Technical Assistance Team, together with the research expert, carried out 6 levels of research into the issues affecting 5 selected sectors with regard to present and future needs for skills, together with other policy-related issues which were impacting or could impact these sectors now and into the future:

* Extensive desk research into international and Turkish approaches;
* A series of 5 online SWOT Analysis Workshops (1 for each selected sector) at which a total of 64 sectoral representatives from 5 provinces provided their opinions about the current and future situation within their areas of interest;
* A Pre-Study Stakeholder Workshop at which 77 representatives of the public and third sectors formulated their views on how Mobbing policies could be improved.
* Quantitative Research involving 870 face-to-face interviews with employers, employees and sectoral experts in 5 provinces;
* A Post-Study Workshop at which 96 relevant stakeholders provided feedback to the draft Recommendations;
* Data analysis.

Each element is the summarised within its own sub-Section below, each is supported by an Annex containing a detailed report which provides all necessary information to support the 108 evidence-based recommendations which conclude this Report.

### 2.1.2 Desk Research (see Annex 1)

Desk research was conducted as a first step, in April-June 2021. It covered the following areas through a careful examination of official websites and research reports, and also presented a range of case studies from various EU member states to illustrate how different countries were attempting to tackle their own incidences of mobbing. The full Desk Research Report may be seen at Annex 1.

### 2.1.3 Structure of Desk Research Report

The Desk Research Report is in 5 parts, with each part dedicated to one of the 5 selected sectors. The structure differs slightly, report by report, as the issues related to the sectors differ themselves. Each report, however, contains a thorough analysis of the sector, in a Turkish and international context, and focuses on employment issues relevant to the sector. A gender perspective is also included.

### 2.1.5 References Consulted for Desk Research

Please see the Bibliography in Section 5 of this Report.

## 2.2 SWOT Analysis Workshop (see Annex 2)

2.2.1. Timetable and Participation

A series of 5 online Workshops were conducted, each dedicated to one of the sectors in line with the following timetable;

|  |  |  |  |
| --- | --- | --- | --- |
| **Sector** | **Workshop Date** | **Overall Participation** | **Provincial Breakdown** |
| **Education** | 18 January 2022 | 11 | Ankara (9); Adana (1); Bursa (1) |
| **Energy** | 18 January 2022 | 12 | Ankara (10); Izmir (1); Istanbul (1) |
| **Banking/Finance** | 19 January 2022 | 12 | Ankara (6); Istanbul (6) |
| **ICT** | 19 January 2022 | 9 | Ankara (6); Istanbul (1); Izmir (1) |
| **Health** | 20 January 2022  (2 sessions) | 20 | Ankara (14); Istanbul (3); Izmir (1); Bursa (1); Izmir (1) |
|  |  | 64 |  |

2.2.2. Purpose

* To ensure synergies and complementarity with the Desk Research, analysing and presenting enough information in concise form on each sector/province;
* To understand the main sectoral strengths, weaknesses, opportunities and threats perceived by interested stakeholders with regard to their sectors, and in the context of technological advancements, labour regulations, skilled labour force, cultural changes, global impacts, etc., as a preparatory step before embarking on a major field study into each sector.

### 2.2.3 Main Findings

The findings from the Workshop were extensive, and are summarised in full in the Evaluation Report attached at Annex 2.

## 2.3 Pre-Study Workshop (see Annex 3)

### 2.3.1 Workshop Structure

A Pre-Study Workshop on Mobbing Complaints was held on 8 February 2022 online: 77 stakeholders participated, drawn from the public, private and third sectors. An Evaluation Report may be seen at Annex 3.

The 1-day Workshop was, broadly, divided into 2 halves: the morning session comprised a series presentations from MoLSS, TAT and TAT’s experts aimed at establishing a Turkish and international context for subsequent stakeholder discussions on the issue of mobbing; the afternoon session was focused on stakeholder discussions, held in 5 ‘break-out rooms’, with each room discussing a specific sector in line with the Agenda - feedback from each room was delivered immediately prior to the final wrap-up session.

## 2.4 Field Research (see Annex 4)

### 2.4.1 Methodology

The field study was based on a set of semi-structured questionnaire, divided between employees, employers and sector experts (the number of questions varying according to the target – 29 for employees; 46 for employers; and 37 for sector experts) which had been prepared and piloted in Ankara in February 2022 (the questionnaires are included as Annexes to the Field Study Report which may be seen at Annex 4). The field study itself took place in 5 provinces (Adana, Ankara, Bursa, Istanbul and Izmir) in March/April 2022. 870 people from the 3 target groups were interviewed, face-to-face109 employees and 39 employers from sectors such as manufacturing and services were interviewed, face-to-face. Before distributing the questionnaires, respondents were given a brief explanation about the confidentiality and the procedure of the study, and were guaranteed anonymity. For each participant the procedure took approximately 20-25 minutes in average.

### 2.4.2 Focus of Questioning

Questions put to employers and employees were similar and conformed to the following main themes:

* What is the level of knowledge and perceptions both decision makers/sector expert, employer and employees about the decent work concept and emerging work types such as remote work?
* Which of the provisions are most widely used by the employees?
* What are the opinions of decision makers, employers, and employees about adaptation to new and digital technologies?
* What are the chances of a woman reaching managerial levels in the sector?
* What are the needed skills/competences in the sector?
* What are the future skills to be required in the sector?
* What are the chances of a woman reaching managerial levels in the sector?

### 2.4.3 Data Analysis

The data derived from the responses was subjected to detailed analysis, using the SPSS package program. Dues to the relatively small sampling size, data analysis was limited to descriptive analysis (i.e. frequency distribution and summary statistics (mean, standard deviation or proportion). In order to assess the impact of socio-demographic and project variables, stratified analyses were performed (gender, age, education level). High-rated responses were then discussed in the text. The full analysis may be seen at Annex 4.

## 2.5 Post-Study Workshop (see Annex 5)

### 2.5.1 Workshop Structure

A Post-Study Workshop on Mobbing Complaints was held on 20 June 2022 in hybrid format: a total of 96 participants were involved (71 online and 25 in-person) drawn from the public, private, and third sectors. An Evaluation Report may be seen at Annex 5.

The 1-day workshop was focused on outlining the field study methodology and presenting the main (draft) recommendations which the Technical Assistance Team had developed, based on all the preceding elements in this Report. Participants were invited to comment, amend, or reject any of the recommendations, and their views would be taken into account before formulating the final recommendations (which may be seen in Section 3 of this Report

### 2.5.2 Summary of Key Findings

In fact, the recommendations listed in Section 4 have all taken account of the views expressed during the Post-Study Workshop. Suffice to say that, while there were animated discussions during the workshop, very little was suggested which required any major changes to the original draft recommendations.

# 3. SECTORAL COMPARISONS

From all of the information gathered during this study, the following provides an overall overview and sectoral comparisons by the decent future of the work, new forms of employment, employment relations through the remote and flexible work concepts. Digital technologies and compliance, prominent, hard-to-fill and lost professions and positions, training, workforce development and upskilling for new technologies and digital adaptation and gender and people with disabilities perspective of the sectors are discussed overall and compared by specific sectors.

# The decent future of work

Decent work is defined as “productive work for women and men in conditions of freedom, equity, security and human dignity”.[[2]](#footnote-2) In general, work is considered “decent” when: it pays a fair income and guarantees a secure form of employment and safe working conditions. However, within this report, the decent work definition has been discussed along with the new forms of employment and employment relations. Since the sectoral study aimed to understand sectoral needs for future jobs and skills and make recommendations, during the fieldwork, questions were asked to understand the impact of technological transformations and digital technologies on the new forms of employment and employment relations.

“The (Decent) Future of Work” is an interdisciplinary topic that covers current and expected trends in the labour market of new and digital technologies in different sectors, including job automation and increasing skill and qualification requirements. New employment forms and relations emerging in this context require legal, business-oriented, and educational actions at all levels.

The awareness of the "decent work" concept was measured low amongst sectoral experts, employers, and employees in all five pre-selected sectors. According to the overall results of the survey, it was determined that approximately two-thirds of the sector experts/decision-makers (66.7%) and employers/managers (67.9%) heard the concept of "decent work". The percentage of managers who answered, "I heard, and I know the definition" (37.2) is slightly higher than industry experts (35.1%). Nearly half of the employees claimed they had never heard of the concept. About half of the employees (49.5%) have heard of this concept, but less than half (22.9%) know the definition. Generally, in most sectors, awareness of female employees about the decent work concept was measured as more significant than awareness of male employees regarding knowledge and understanding of the definition.

When the concept of "decent work" is analysed by sectors, it is seen that the participants who stated that they have not heard of this concept are primarily in the ICT (44.8%) and health (43.3%) sectors. Participants who say that they know the concept of "decent work" together with its definition are mostly in energy (35.1%), finance and banking (32.6%) and education (30.8%) sectors.

Working conditions associate new business models with the future of work. According to ILO, flexible and remote work is expected to become more prevalent soon with the help of the latest digital technologies and emerging business tools.[[3]](#footnote-3) These new business models will also allow marginalised workers to join the workforce, as well as workers with family responsibilities. However, without rules and regulations, such new business models may be abused by two sides of the labour market.

When flexible or remote working arrangements are analysed by sectors, it is seen that these regulations are mostly applied in the ICT sector without written rules. In the ICT sector, 60.8% of industry experts, 51% of managers and 50% of employees stated that flexible or remote working arrangements are implemented in their institutions or organisations, but there are no written rules.

The sectors in which flexible or remote working arrangements are implemented with written rules at the highest rate were the finance and banking, and education sectors. Almost half (47%) of sector experts and employees in the finance and banking sector say that flexible or remote working arrangements are implemented in their institutions or organisations with written rules. The managers who stated that these regulations are implemented with written rules in their institutions or organisations are in the education sector with the highest rate (37.8%).

**Most decision-makers and sector experts (86.6%) indicate that regulations related to the new forms of employment and employment relations created by means the new and digital technologies in working life are insufficient.**

The health sector participants expressed the highest rate that flexible or remote working arrangements were not implemented at all. While approximately 9 out of 10 employees in the health sector stated that they do not have flexible or remote working arrangements in their institutions or organisations, this rate was calculated as 75.6% for health sector experts and 60.5% for managers.

Respondents in the education sector are generally agreed and happy that flexible and remote working arrangements allow employees to fulfil family responsibilities and participate in family and social activities. All three groups (decision-makers, employers, and employees) of respondents think that highly flexible or remote working arrangements allow employees to fulfil their family responsibilities. According to two-thirds (61.4%) of the employees, flexible or remote working arrangements help employees participate in family and social activities. Sector experts (59%) and employers (56.1%) agreed with this proposition less.

Remote or flexible work is often preferred by women for work, as women believe that by working remote, they have more freedom and, therefore, more possibility to reconcile their professional life with their family life, and to use remote work as an instrument of conciliation, work, and family life.

Almost two-thirds of the respondents from each group think that institutions/organisations/workplaces can monitor their employees' flexible working hours or remote work. However, most sector experts (60%), employers and managers (70%) claim that employees could not focus more on their tasks with flexible or remote working arrangements. Nearly half of the employees claim to focus more on their job while working with flexible or remote employment arrangements. Nevertheless, according to 9 out of 10 managers and 8 out of 10 industry experts, flexible or remote working arrangements do not negatively affect performance.

Sector experts were also asked for their opinions on whether flexible or remote working arrangements in institutions/organisations affect sector workers' rights. When analysed by sectors, the sector experts who say that flexible or remote working arrangements in institutions/organisations will affect the rights of sector employees "positively" are in the health (48.8%), ICT (48.1%) and energy (41.9%) sectors, respectively. Especially the health and energy sectors are where flexible, and remote working practices are the least. It is seen that sector experts in these sectors have a favourable view of flexible and remote working arrangements, although they are not applied much.

Only a quarter of sector experts and employers indicates that work-related expenses are covered if the employee works flexible or remotely. A quarter of employees stated that they feel like they constantly work because of such work modality.

# Digital technologies and compliance

Digital technologies are increasingly being recognised as critical innovations to strengthen health, education, finance and banking services, and energy service delivery systems. Sector experts and decision-makers believe digital transformation is a crucial factor. Digital Transformation and emerging technologies in the form of artificial intelligence, deep learning, virtual reality, augmented reality, robotics, autonomous vehicles, fintech, facial recognition technology, big data analytics and, the Internet of Things (IoT) create immense and exciting opportunities but also present challenging risks. Especially, Artificial Intelligence (AI), cloud computing, 5G, and the Internet of Things (IoT) are some technologies businesses invest in to transform digitally.[[4]](#footnote-4)

According to sector experts and decision-makers, when the technologies used in the industry are compared with the new and digital technologies used in developed countries, the highest rate (36.9%) is the answer "The technologies used in the industry are at the same level as similar technologies in developed countries". Half of the respondents stated that the digital technologies used in sectors are behind similar technologies in developed countries.

According to sector experts, these five sectors can be ranked as the ICT, health, finance and banking, energy, and education, according to the use of digital technologies. In parallel to ranking, the sectors with the most difficulty adapting to digital and new technologies are the education, energy, and health sectors. According to the employers and managers, the most critical challenges in accessing the institution's technological/digital infrastructure to the latest technical/digital infrastructure in the industry are the cost-effectiveness factor (43%), lack of trained human resources (39.9%) and lack of budget (32.7%).

According to employers and managers, the effect of the technological/digital infrastructure of the institution on the quality of the services produced is relatively high (8.1 out of 10). In the ICT, finance and banking, and health sectors, it is seen that the technological/digital infrastructure of the institutions has a higher impact on the quality of the services produced.

According to the employers and managers, institutions should invest in digital transformation within the framework of their current situation and sector demands in the next three years. While the highest need to invest in digital transformation is expressed in the finance and banking sector, with a score of 9 out of 10, this sector is followed by the ICT and education sectors.

Only a quarter (25.4%) of sector experts state that institutions and organisations can make enough investments in new or digital technologies. Nearly half of them indicate (46%) that they invest, but this is insufficient with sectoral requirements. According to 21% of industry experts, institutions/organisations in all sectors cannot invest in new and digital technologies.

According to industry experts and employers, the factors that affect the investment decisions of institutions in digital technologies or transformation are expressed as the cost-benefit factor of the conversion, the obsolescence rate of the technology, and the general economy's uncertainties. According to the employers and managers, the availability of qualified personnel in the sector, the quality of academic education, the informatics skills of qualified personnel and their experience in the sector are also seen as influential in the decision to invest in digital technologies or transformation. According to industry experts, the most critical obstacles to adapting new and digital technology in the industry are the lack of technical infrastructure, high implementation costs, lack of technical knowledge of the existing personnel and difficulties in integration into the system.

Approximately 73.6% of the managers said there is an IT staff/digital works technician in their institution. About 80% of those working in their institutions' IT personnel/digital departments or, if these departments do not exist, as digital works technicians are male. The sectors with the highest rate of female IT personnel are the education, finance and banking sectors, respectively.

# Prominent professions, hard-to-fill positions, and lost professions in sectors

The impact of digitization on employment can have different dimensions. From an employment-level perspective, automation-related job loss is widely discussed when digital technologies or robots replace human input. At the same time, the emergence of new occupational profiles suitable for the use of new technologies and the increase in demand for technology-based products and services due to low prices or new markets, customer groups or demand areas trigger employment creation. There will be a loss of jobs of those currently performed by humans that can also be done through automation. However, there is no consensus on how many jobs will be lost.

According to sector experts and employers, artificial intelligence, robotic process automation, and data science and analytics come first among digital technologies that will come to the fore in their sectors in the future. They indicated that these technologies are followed by virtual, augmented reality, cloud computing and advanced human-machine interfaces. According to the employers, cloud computing, programming, web and application development, advanced human-machine interfaces and wearable technologies follow the top three rankings.

**Education sector experts and decision-makers stated** that software specialists and technical personnel are most needed within the scope of information technology personnel in their institutions or the sector due to technological innovations and developments. Managers stated that there are difficulties obtaining information technology personnel, software personnel and technical personnel positions in the education sector.

**According to the health sector managers**, there is a need to employ technical personnel, data science personnel and health personnel in the field of informatics and health.

**In the finance and banking sector**, it has been stated that most personnel are needed in the field of informatics. It has been stated that most software specialists, interface designers, mobile software developers and technical support personnel are required. In addition, it was stated that there is a need for personnel with data analysis expertise, artificial data expertise, marketing, and information security. This ranking is followed by personnel working in the technical field, personnel working in the operational field, branch employees and positions requiring a foreign language.

**The employers and managers in the IT sector** stated that computer engineers, software engineers, game designers, business analysts and data scientists are needed due to technical developments and innovations in the sector or their institutions. They stated that the most difficult profession to obtain is software engineers. In addition, it is thought that creative industries and design-oriented business lines will come to the fore in the sector.

According to sector experts and decision-makers, the most critical difficulties in employing qualified personnel are listed as the difficulty of retaining qualified personnel (52%), insufficient wages and social opportunities (44.5%), and inability to pay for performance (41%).

The sector that retains qualified personnel the hardest is the ICT sector. This sector is followed by the energy and education sectors. The problem of insufficient wages and social opportunities is one of the most frequently mentioned issues in the ICT, finance and banking and education sectors. The problem of not being rewarded for performance has emerged mainly in the health, education, finance, and banking sectors. The issue of brain drains in the professions that are needed by the sectors has been most intense in the education, ICT, and health sectors. The inability to discover talents due to weaknesses in recruitment systems, informatics, failure to persuade talented personnel, finance and banking, and the unsuitability of applicants' qualifications came to the fore in the energy sectors.

The most common coping strategy with the hard-to-fill positions is a providing training to existing personnel and renewal of business processes or work definitions. Training existing personnel as a coping strategy is the highest in the finance, banking, health, and ICT sectors. Besides, they increase the wages or provide more social opportunities to retain the existing staff. In the health sector, which is the only exception, it is stated that less qualified people are employed as technical personnel, and training packages are provided as coping strategies.

The development of new recruitment strategies in finance and banking, the redefinition of existing business processes or tasks in the education sector, and the active use of internships are used in the ICT sector as coping strategies. The renewal of business processes is another coping strategy and is mostly seen in the energy sector. This strategy is also used in the finance, banking, education, and ICT sectors.

The skills that will come to the fore in the sector in the future were asked separately from sector experts, managers, and employees. Sector experts indicate skills in using artificial intelligence, analytical thinking, reasoning and innovation, and data science/data analytics. Ranking of managers for skills is analytical thinking, reasoning and innovation, communication skills, and using artificial intelligence. On the other hand, employees think that analytical thinking, reasoning and innovation, communication skills, and using artificial intelligence skills will come to the fore in all sectors in the future.

**In the education sector, administrators generally think that crafts, art design or occupations that require intense labour/physical power will disappear**. It has been added that desk jobs will lose their existence, and support or ancillary staff may not be needed. On the other hand, some managers think that there will be no professions that will disappear in the education sector and that it will change its form in line with digitalisation. On the other hand, sector experts think that occupational groups that do intermediate-level jobs will disappear. It is widely believed that there will not be a need for personnel performing desk jobs such as school/department/faculty secretariat, student affairs, and archive recording.

**According to the managers in the health sector, it is thought that occupational groups such as patient counselling, assistant, secretarial, data entry/registration officer, administrative department officer, laboratory and X-ray technician will disappear with the technological transformation that is advancing in the health sector in the future.** On the other hand, industry experts think that desk jobs such as operational services and data entry in the health sector will disappear. In addition, according to industry experts, pharmacy is among the professions that are thought to disappear in the future. Additionally, according to the managers, it is challenging to supply technical personnel in the network and informatics, personnel working as operating room technicians and personnel who will work in the field of health in general.

**According to energy sector experts and managers, the occupations that are thought to be lost in the sector in the future are mostly, field staff, production technicians and energy data analysts.** While white-collar workers can be obtained more quickly in the energy sector, it has been stated that there is a shortage of technicians and workers. According to the managers, it is stated that the most challenging personnel are also sector-based software developers and qualified engineers. Since the software can now perform the task of the data analyst, it is thought that automation systems that make these calculations can replace the data analyst.

**Sector experts and managers in the finance and banking sector claimed that “All professions in classical finance and banking will disappear”**. According to sector experts in the finance and banking sector, the jobs that are thought to be lost in the sector in the future will be operations-oriented and robotised, requiring the physical presence of personnel and workforce. In this context, it is thought that paperwork/box office/office transactions and simple software transactions will be lost in the branch. When asked about the professions that are thought to be lost in the sector in the future, according to managers in the finance and banking sector, the most common answer was box office workers. In general, managers who think there will be a decrease in the number of employees for the bank or that there will be no personnel left stated that there will be a decrease in the number of officers working in the operations department. It is thought that since digital currencies are out, physical money business may be removed, and operational service may decrease. According to the managers who think there will be a general decrease in the number of physical employees, the idea is that artificial intelligence can come to the fore while the number of employees in the bank decreases. Additionally, managers in the finance and banking sector emphasized that it was most difficult to recruit personnel in the field of informatics. Finance and banking related software expertise was the most highlighted area within the scope of informatics. It is understood that there are also difficulties in recruiting mobile software developers and information and cyber security personnel.

**The IT sector is a sector that is thought to be one of the most popular sectors of the future**. It has been stated that although there will be no loss in a profession in this sector, the lagging or unqualified personnel may be eliminated. The IT sector stands out as one of the sectors most prone to working remotely. It has been stated that supportive professions such as services used for transportation to the workplace and food and cleaning workers may disappear when remote work increases. It has been stated that software other than artificial intelligence in the industry may disappear in the future.

# Training, workforce development and upskilling for new technologies and digital adaptation

Technological and digital transformation affects the concepts of work and employment. Digital transformation requires employees to have digital knowledge, skills, and education. To stay in employment and the labour market requires the ability to work with machines, robots, and algorithms. Therefore, digital skills need to be developed.

According to employers and managers, approximately 75% of the current qualified personnel can competently do what their job requires. This rate was found to be highest in the IT sector (79.7%) among the five sectors and the lowest in the energy sector (69.2%). According to them, the most important reasons for some of the personnel in the institution being incompetent are the use of new technologies (37.2%), the emergence of new products or services (36.7%) and the low motivation of the employees (33%).

The employees see their compliance with the industry's requirements at an average of 8.3 out of 10. In contrast, sector experts give the employees comply with the digital and technological transformation an average of 6.7.

Overall, only 22.6% of the employers and managers stated that they use indicators to measure the performance of the employees in the institution/organization/workplace. The sectors where indicators are used most intensively to measure the performance of employees are the finance and banking, health, and energy sectors. The sector in which performance indicators are used the least was determined as the education sector. They listed these indicators as manager observation, effective work, feedback, and positive feedback from service recipients. The first four rankings in the ICT and education sectors are the same. The number of faulty services and average work completion time in the energy sector, profit, number of customers per employee in the finance and banking sector, and the number of services provided in the health sector are also seen as important indicators.

According to the managers in all sectors, the most important reasons that reduce the competence of the personnel in the institution are the use of new technologies (37.2%), the emergence of new products or services (36.7%) and the low motivation of the employees (33%). The effect of the employees' skill deficiencies on the organisation's performance (1 = absolutely ineffective - 10 = very effective) is measured as 6.3. This score is highest in the health (6.8) and lowest in the energy (5.2) sectors.

About 7 out of 10 employers and managers said that they allocate a budget to fill the skill gaps of their employees. While 16.7% of the executives stated that they did not allocate a budget, 13.8% stated that they had plans in this direction even though they did not allocate a budget. The sectors that say they allocate a budget to fill the skill gaps of the employees the most are the energy, finance and banking and informatics sectors.

Approximately 70% of the managers stated that they conduct training needs analysis in their institutions. A training needs analysis was most pronounced in the health, banking and finance and energy sectors.

**According to the ICT sector managers,** the employees of any institution need training on adaptation to new technological developments to keep the personnel up to date, especially on digital technology, graphic software, communication techniques, new information and systems. Employees stated that they need more practical training instead of a theoretical one. Since time is an essential parameter for IT sector employees, they said they need more efficient training, which takes less time with more practical aspects. In addition, online education and courses were also mentioned as a source of professional development.

**According to the managers in the education sector**, employees in the education institution need training on the technology used in the education sector and new digital infrastructures supporting education processes. While vocational training is emphasized, communication, analytical thinking, and reasoning skills are also listed as areas where training is needed. In terms of employees, the training needs to focus on promoting and using new and digital technologies. The need for continuous training on software, the use of Microsoft Office programs, and innovations in the digital field were emphasized. It has been stated that applied vocational training and personal development training are within the scope of need.

**According to the energy sector managers and employees**, it is stated that the need for technical training is a priority for the employees in energy institutions. It is thought that training on orientation and the use of new and digital technologies are also critical. There is also a need for a specialized training program in the sector where production managers have an essential place.

**Managers stated that the employees of institutions/organisations/workplaces in the finance and banking sector need job-related and sector-oriented training**. In this context, within the scope of technical and technological training, it has been stated that there is a need for developing and changing digital applications, new products and applications, and training for digitalisation. In addition, it was stated that there is a need for communication, legislation, and sales marketing training. On the other hand, considering soft skills, there is a necessity for training in psychology, motivation, stress/time management, problem-solving and taking the initiative was expressed. Managers emphasized that each unit should receive training within itself.

Identified skills needs are:

* + Analytical thinking, reasoning, and innovation
  + Active learning skills
  + Communication skills
  + Being able to teach and transfer knowledge
  + Creativity and originality
  + Ability to adapt knowledge and experience to work
  + Teamwork through digital channels
  + Ability to serve through digital channels
  + Taking initiatives
  + Stress tolerance and flexibility
  + Foreign language
  + Artificial intelligence
  + Data science and data analytics
  + Ability to use VR (virtual reality)
  + 3D printing capability
  + Use of wearable technologies

Most (81.6%) employers and managers stated that they have carried out any training activity in the last year, while 17.9% of them stated that they have carried out any training activities outside the institution. The rate of employees who say that they have participated in any training activity in the last year is 78%.

Half (49.2%) of the sector experts and decision-makers stated that trainings were provided to increase the adaptation of new and digital technology in the sector, 39.4% stated that the training needs of the sector were well analysed, and 33.1% stated that digital strategies and action plans were developed.

The employers and managers reported that job-specific trainings (66.6%), onboarding/orientation trainings (62.5%), occupational health and safety trainings (62%) were provided. Software training has been ranked fourth with 38% to increase the skills of their employees.

Majority of employers and managers (76.7%) indicated that the performances of the employees who receive training are evaluated. It is seen that performance evaluation is mostly done in the health, ICT, and energy sectors. It is observed that the employees are mostly satisfied with the training provided by the institution/organization/workplace.

Half of male employees (53.4%) and of female employees (48.1%) stated that there was no change in their professional career expectations after the training. For approximately 25% of women and 35% of men reported an expectation of a wage increase after the training. Approximately 36.3% of women and 32.1% of men stated that they expect to promote within the company/institutions after the training.

According to the employers and managers, the effect of the trainings received by the employees to increase their competencies on the performance of the organization is 7.8 on the scale (1 = absolutely ineffective - 10 = very effective). This effect was highest in the ICT sector (8.1) and the lowest in the energy sector (7.8).

Participating in in-house training (75%) ranks first among the activities carried out by the employees to increase their skills within the framework of individual professional development. This activity is followed by following the relevant portals, blogs and forums on the internet (60.2%), getting help from friends (46.4%), benefiting from online or distance education programs (45.3%).

Employees stated that they spent an average of 16 hours in the last month for the activities they carried out to increase their skills. It has been determined that female employees spend 2 hours less time than their male counterparts for these activities last month. Approximately 3 out of 4 employees stated that they would like to devote more time to the activities they carry out in order to increase their skills. It is seen that male employees want to devote more time to these activities at a lower rate than females. Employees who expressed that they want to devote more time to the activities they carry out to increase their qualifications and skills are mostly in the education, ICT, and health sectors.

Most female employees indicated intensive and long working hours prevent them spending more time on activities to increase their qualifications and skills. Male employees mentioned that they do not have spare time outside of the working hours for increasing their skills and qualifications. Male employees chose the options of social environment and family obligations and financial inadequacies at a higher rate than female employees.

# Gender and disability perspective

The gender distribution of the employees in the five sectors was calculated as 45% female and 55% male. The ratio of female managers is listed as health, education, finance and banking, ICT, and energy, respectively.

When the percentage distribution of managers (including mid-level managers) in the sector is examined in terms of gender, both sector experts and managers, employers reported a female to two male managers in 3 managers. The ratio of female managers is listed as finance and banking, health, education, ICT, and energy, respectively.

The most important reasons for the low number of female managers in the sectors compared to the number of male managers were reported as the male-dominated culture in working life at 50.3%, the few female role models in the sector at 36.7% and long working hours at 27.6%.

In order to increase the number of female managers in the sector, it is necessary to increase nursery opportunities (46.4%), introduce role models (44.4%) and support postpartum part-time work opportunities (37.2%).

According to all employees who responded to the survey, the probability of being a female manager in all sectors is 53.9%. The sectors with the highest likelihood of being a manager for women are the health sector (69.5%), the education sector (55.7%), and the finance and banking sector (52.7%), while the ICT sector (42.9%) is the lowest.

According to 54.2% of industry experts, the development and increase in the use of new technologies will positively affect the employment of women in the industry.

The majority of sector experts, decision-makers, employers and managers indicated that developing new, digital and assistive technologies would increase the employment of people with disabilities in all sectors. About 8 out of 10 industry experts and managers expressed their opinion.

According to sector experts, decision-makers, employers and managers, assistive technologies are at the forefront of the most important facilitators in the participation of disabled people in the workforce. Technological transformation and facilitating the involvement of the disabled in education took second place. In addition, the change in society's perspective on disabled people and artificial intelligence applications are also emerging as important factors.

# 4. RECOMMENDATIONS

These recommendations are based on the qualitative and quantitative information derived from the Desk Research, the SWOT Analysis Workshop, the Pre/Post-Study Workshops, and the Field Study’s face-to-face interviews.

# 4.1. All sectors (Common)

|  |  |  |
| --- | --- | --- |
| **RECOMMENDATIONS** | | |
| **Category** | **Sub-Category** | **Recommendations** |
| **The decent future of work** | **Awareness-Raising** | * Continue with the Awareness-Raising campaigns and events for “decent future work”. * Continue strengthening the unions’ capacity. * Increase social dialogue at sector and company level. * Use specific days such as Labour Day for awareness raising events about decent work. Develop and broadcast audio-visual guides for all cohorts. |
| **Occupational Safety and Health** | * Promote “Remote Work Regulation” and elaborate for Occupational Safety and Health for remote work. |
| **Remote and flexible working** | * Ensure that remote workers receive appropriate information on their employment and working conditions, in a language that they understand, is crucial for raising their awareness of their labour rights. * Facilitate the transition of remote workers and economic units from the informal to the formal economy, while respecting workers’ fundamental rights and ensuring opportunities for income security, livelihoods, and entrepreneurship. * Take measures to prevent the informalization of formal economy jobs by means of emerging technologies. * Facilitate registration of informal remote workers to the social security systems. * Ensure that remote workers, including those considered as self-employed and those in the informal economy, effectively enjoy freedom of association and the right to collective bargain. * Contribute to awareness-raising efforts among employers and provide them with support to help implement best practices in the employment of remote workers and increase decent work. * Adopt measures to monitor remote workers and work modalities and identify remote workers and sectors. * Collaborate with Labour Ministries of other countries to prevent informal work from Turkey. |
| **Digital technologies and compliance** | **New technologies and transformation** | * Conduct a large scale and representative qualification and skill survey covering all economic activities. |
| **Compliance with the new technologies** | * Accessible sectoral digital transformation platforms for available staff and new curricula in schools (including universities) can be introduced. Occupation specific skills shall be compatible and complementary to new technologies. |
| **Investment in the new technologies** | * Cooperate with the Ministry of Industry and Technology and Digital Transformation Office of Presidency to support employers for cost-effective technology adaptation. |
| **Lost professions** | **Obsolete occupations** | * Conduct gap analysis between existing competences and future competences for future jobs on the base of specific occupation. * Support upskilling mechanism in workplaces. Cooperate with sectoral committees of the chambers. * Provide innovative solutions for educational and vocational training systems. * Define indicators, monitor, and evaluate upskilling efforts for industries and obsolete occupations. |
| **Prominent professions** | **Data-related jobs** | * Data science; * Artificial intelligence; * Machine learning; * Cloud computing; * Block chain; * Programming; * Web and Application Development |
|  | **Skill gaps and shortages** | * Innovative funding opportunities or incentives can be provided to businesses for reskilling or upskilling:   + Wage subsidies;   + Funding online learning;   + Supporting free education portals such as “bilgeis platform” – <https://bilgeis.net> );   + Funding or incentives can be given against performance evaluation criteria. |
| **Future skills needed** | **Soft skills** | * Sectoral experts shall work on qualification for developing easily transferable cross-cutting skills across many occupations and roles. * Identified skills needs: * Analytical thinking, reasoning, and innovation * Active learning skills * Communication skills * Being able to teach and transfer knowledge * Creativity and originality * Ability to adapt knowledge and experience to work * Teamwork through digital channels * Ability to serve through digital channels * Taking initiatives * Stress tolerance and flexibility * Foreign language * Artificial intelligence * Data science and data analytics * Ability to use VR (virtual reality) * 3D printing capability * Use of wearable technologies |
| **Training, work force development and upskilling** | **Training needs** | * A general and sectoral training needs assessment is important to identify performance requirements and the knowledge, skills, and abilities needed by sectoral workforce to achieve the requirements. The training needs analysis can be conducted through a representative skill survey. |
|  | **Training to existing staff** | * Providing in-service digital trainings to increase the skills of experienced workers regarding the use of new technologies especially digital technologies. * Partnership of industry and TVET institutions (experts to contribute to the curriculum as well as deliver training digitally) + industry financing of TVET programmes. * Public-private partnerships for meeting sectoral labour requirements, promoting national skill standards, providing on-the-job training, and improving the quality of training overall. |
| **Gender perspective** | **Role modelling** | * Continue supporting women full and effective participation in the labour market with equal opportunities. * Increase nursery facilities and support postpartum part-time / flexible and remote work possibilities. * Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women. * Arrange working hours in some sectors if there is no flexible or remote work possibilities. * Promote the visibility of role model female managers by supporting women managers working groups or networking events. * Adopt measures to ensure and monitor that women employees’ participating in-house training equally. * Support businesses for gender-equality training. * Provide psychological support for work-life balance. |
| **Disability perspective** | **PwDs participation in Labour Force** | * Continue supporting PwDs through the development plans, national education and labour market strategies, especially through sectoral strategies. * Regulate remote work for PwDs, adopt specific measures to promote the employment of PwDs in different sectors. * Support the use of assistive technologies and applications for PwDs to take their places in the labour market. * Support developers of assistive technologies and applications for PwDs. * Strengthen statistics for disaggregating PwDs in labour force, develop indicators. * Monitor the implementation of disability inclusive labour policies by setting indicators, milestones, and targets. * Adopt measures to ensure and monitor that PwDs access equal pay for equal work. |
|  | **Increasing participation in education and renewing curricula for education** | * Renew curricula and training modes and modalities to include more PwDs in education. * Monitor and support the professional development of PwDs. * Develop modalities for PwDs adaptation to digital technologies and new business processes. |

# 4.2. Sector-Specific Recommendations

|  |  |  |
| --- | --- | --- |
| **SECTOR-SPECIFIC RECOMMENDATIONS** | | |
| **Category** | **Sub-Category** | **Recommendations** |
| **The decent future of work** | **Action Planning** | Make sector-specific action plans or update existing ones |
|  | **Awareness-Raising** | * Action Pans should focus more on «awareness raising» campaigns at employers and managers level in the Information and Communication Technologies (ICT) and Health sectors. * The education sector has duties to increase the awareness of those who use the services of the sectors and to train the users. It is recommended that the education sector take this into account. |
|  | **Occupational Health and Safety** | * Action planning should also consider the working conditions of health workers (wages, workload and time, and violence against health workers). |
|  | **Remote and Flexible Working** | * Take measures to prevent the unregistered work through new technologies, especially in the Information and Communication Technologies sector and popular jobs in all sectors (project writing, management, reporting, etc.). * Especially for the education sector, develop and expand new remote and flexible working practices and employment relations with rules and regulations. * Focus primarily on ICT and Finance and Banking sectors for remote working arrangements. It is recommended to discuss the good practices in the Finance and Banking sector, to carry out studies on regulations within the sector and adaptation to other sectors. * Detail the legal regulations regarding job descriptions, flexible and remote working and rights in the education sector. detail the legal regulations regarding job descriptions, flexible and remote working and rights in the education sector. |
| **Training, workforce development and upskilling** |  | * Give priority to the intersecting ICT and education sectors in terms of skills needed in the future and gaining these skills. * Support online training and teaching materials for all levels of education, vocational education and training, adult education and professional development. |
| **Gender Perspective** |  | * Encourage women's empowerment, it is recommended to increase and expand the use of facilitating technologies, especially information and communication technologies. * Focus more on the education of girls and women in the renewable energy sector, science, technology, engineering, mathematics. * Regulate the working hours of female employees in sectors where flexible or remote working opportunities are not available (especially in the health sector). * Increase the involvement of women in the renewable energy sector through improved workplace conditions, mentoring and professional development. |

# Recommendations by Sector Experts

# Education

The education sector experts stated that the new employment forms and employment relations that arise with the use of new and digital technologies in working life. According to them, legal regulations regarding job definitions, flexible-remote working and rights should be elaborated more. They indicated that all kinds of needs analyses should be carried out on a continuous and regular basis. Sector experts also noted that the arrangements for the training needs that would emerge because of this analysis should also be considered. It was stated that arrangements should be made for an employment model based on merit and constantly updating itself in the education sector.

# Health

Health sector experts stated that new employment forms and employment relations emerging with the use of digital technologies in working life should be organized for employers and employees related to education, budget, labour law and the scope of labour law. In addition, they stated that social regulations should be made, and business rules should be regulated according to the legislation.

# Energy

According to energy sector experts, the importance of education is stated in the first place in terms of new employment forms that emerge with the use of digital technologies in working life, employment relations and regulations that need to be made.

In the energy sector, it is recommended that the inspections be more stringent, especially in the field of automation. It was also stated that the problem of employment reduction that will occur after the automation should be well planned and that regulations should be made for people who will be unemployed for this reason.

# Finance and Banking

According to finance and banking sector experts, the answers to the new employment forms that arise with the use of new and digital technologies in working life and the regulations that need to be made regarding employment relations are mainly for training. Industry experts emphasized the necessity of focusing on in-sector training, digitalisation, and regulations regarding the protection of personal data. The necessity of legislative regulations and legal regulations for business processes, especially remote working, is seen among the answers.

# ICT

According to ICT sector experts, new employment forms and employment relations that emerge with the use of digital technologies in working life

1. Projecting state-supported trainings together with the private sector.
2. Take measures to prevent the informalization of formal economy jobs, especially in the ICT sector, by means of emerging technologies.
3. Facilitate registration of informal remote workers, especially in the ICT sector, to the social security systems.
4. Sharing the necessary employment data with universities in an up-to-date manner,
5. Continuing to give incentives to the ICT sector to increase qualified employment,
6. The evolution and transformation of human abilities into many measurable parameters with technology, the writing of decision mechanisms suitable for the parameters, and the implementation of this mechanism by determining the ethical framework
7. Carrying out studies that will adapt institutions to digitalisation.

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Attached to this Report:

Annex 1: Desk Research Report;

Annex 2: Evaluation Report on SWOT Analysis Workshops;

Annex 3: Evaluation Report on Pre-Study Workshop;

Annex 4: Field Study Report;

Annex 5: Evaluation Report on Post-Study Workshop.

**FoW TAT**

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1. [↑](#footnote-ref-1)
2. https://www.ilo.org/global/topics/decent-work/lang--en/index.htm [↑](#footnote-ref-2)
3. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms\_625866.pdf [↑](#footnote-ref-3)
4. https://www.pwc.com/us/en/library/pulse-survey/executive-views-2022.html [↑](#footnote-ref-4)