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ARMENIA

# THE LABOR MARKET MISMATCH AND THE SKILL GAPS IN ARMENIA

## MAPPING BASELINE STUDY



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## ABBREVIATIONS

Agri-food	Agriculture and Food Processing (sector)
AI	Artificial Intelligence
CATI	Computer assisted telephone interview
DK/RA	Do not know/Refuse to answer
DVV	Institute for International Cooperation of the Deutscher Volkshochschul-Verband e.V. (DVV), the German Adult Education Association
FGD	Focus Group Discussion
IDI	In depth interview
IoT	Internet of Things
ICT&HT	Information-Communication and High Technology (sector)
HEI	Higher Education Institution
HORECA	Hospitality, Restaurants and Cafes
LM	Labor Market
TVET	Technical and Vocational Education and Training
RA	Republic of Armenia
RTD	Round Table Discussion
USAID	United States Agency for International Development
VET	Vocational education and training

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# INTRODUCTION

The labor market (LM) mismatch and the skills gap is manifested in high levels of unemployment in parallel with a lack of qualified labor in certain industries and occupations, in mismatch in skills supplied by labor force and demanded by employers, in lack of adequate income opportunities especially for the youth and women, particularly in the regions. The result of these is increasing socio-economic frustration, apathy, loss of self-esteem among young adults, migration from rural areas and poverty. Major causes of these problems are the lack of needs-based and demand-driven education and training opportunities for young adults, a lack of accurate information about existing income opportunities and labor market trends, and challenged social norms and behaviors - especially in the area of gender equity.

This study is an attempt to shed light on the issues listed above. The study is conducted within the USAID Funded "Armenia Workforce Development Activity" (Activity) five-year long project that is being implemented by the Enterprise Incubator Foundation, Armenian National Agrarian University, Fund of Armenian Relief and CIVITTA Armenia. The Goal of the Activity is to improve the soft and technical skills of youth and women and increase their linkages to occupations in three target sectors: Information-Communication and High Technologies (ICT/HT); Agriculture and food processing (agri-food), and Hospitality, Restaurants and Cafes (HoReCA) by reducing barriers to entry in the labor market.

**The main objective** of the study "Mapping the Labor Market Mismatch and the Skill Gaps" is to collect and analyze information on the attitudes/perceptions, experiences and expectations of labor market current and future participants so that to facilitate achieving the goal of the Activity "to reduce the gap between the skills of the workforce and the needs of employers" and inform the consortia on proposed activities.

The CIVITTA Armenia team collected information on attitudes/perceptions, experiences and expectations among employers and their associations, employees, students and administration of high schools, higher and middle education institutions, public bodies, parents of the students, in order to help in designing better support systems for young people with educational and job needs, for their families and communities.

Coupled with the end-line study this baseline study will also lay the foundation for assessment of achievements of the Activity. In particular, the study will measure the level of the following outcomes related to the specific objectives of Activity:

- Number of individuals with improved soft skills following participation in USG-assisted Activity;
- Share of target sector employers who reported satisfaction with skills, knowledge and qualifications of the employees as a result of USG assisted workforce development intervention;
- Share of targeted population reporting improved perception on Technical and Vocational Education and Training (TVET) and non-formal education.

Findings from this study will be used to raise awareness of the challenges faced by youth with career needs and their families, and to advocate for policies that can support them.

While recognizing that the skills mismatch is a multidimensional phenomenon the measurement of which is quite complicated, the study attempted to assess primarily:

- the existing gap of theoretical and practical knowledge and skills from employers' and employees' perspective, as well as main challenges in hiring specialists (employers) and finding a job (graduates);
- skilling up needs of businesses and employees, and the ways of addressing the skills gaps and increasing employability of graduates;
- career aspirations and attitudes of school children, their values and role models;
- the role of parents and communities in professional orientation of the new generation.

# EXECUTIVE SUMMARY

This report presents major findings of the study conducted within the USAID funded "Armenia Workforce Development Activity" (Activity) five-year project implemented by the Enterprise Incubator Foundation, Armenian National Agrarian University, Fund of Armenian Relief, and CIVITTA Armenia.

The report discusses global trends in the labor market, industries and education ecosystem; development trends in Armenia's agriculture, ICT/High-Tech, and hospitality sectors; demographic context and workforce supply; and the most important findings of surveys conducted in January-February, 2022 among businesses, graduates, school children and their parents.

The surveys aim to identify major challenges in hiring specialists and finding a job; skills mismatches/gaps; perceptions of career opportunities, current state and attitudes towards business-educational institutions collaboration, and other issues related to labor market imbalances.

## GLOBAL TRENDS: DEVELOPMENTS IN LABOR MARKET, INDUSTRIES AND EDUCATION ECOSYSTEM

**Automation leads to widening skills gaps.** Machines may potentially take over the entire set of tasks, causing job displacement. At the same time, technological advancements may lead to an increase in job opportunities and emergence of new occupations. World Economic Forum forecasts, that technology will disrupt 85 million jobs globally by 2025, but 97 million new jobs will emerge.

Thus, technology will have transformative rather than destructive impact on the number of jobs globally. At the same time, these shifts pose the risk of widening skills gaps and unemployment.

**The COVID-19 pandemic has led to a surge in remote work.** Flexible work arrangements can improve employee recruitment and retention, at the same time, location flexibility has a potential to save costs, increase productivity and employee engagement.

The transition to remote workforce is easier in the ICT/High-Tech sector, meanwhile remote work opportunities are limited in Agriculture and Food Processing.

**The upsurge of collaborative economy and digital labor market platforms** allows to reduce transaction costs and information asymmetries, thereby improving the matching process between labor demand and supply.

Migration of work to collaborative platforms is particularly evident in ICT sector. In addition, digital marketplace platforms foster the export of ICT services.

**Job polarization has led to wage inequality.** Technology is replacing "routine" tasks that are easier to codify, due to which the share of mid-skill jobs is declining. In OECD countries, the share of mid-skill jobs has fallen by almost 12 percentage points over the past two decades.

The polarization of job structure, with an increase in the share of jobs earning either a high pay or a low pay, has led to a further increase in inequality and a shrinking middle class.

**Global trends in agriculture:** Agriculture is experiencing data and connectivity transformation, as advances in technology have expanded the scale, speed, productivity and yields in the agriculture.

Precision agriculture relies on IoT smart farming solutions to ensure efficient use of resources, achieve high crop yields and reduce operational costs. However, skill gaps, shortage of investment and inability to attract talent remain the main barriers to adoption of new technologies.

As a result of adoption of high-tech solutions, the demand for manual labor is declining. According to the World Economic Forum, average share of workers at risk of displacement due to automation in agriculture is 11.2% through 2025.

Male out-migration from rural areas, which is specific to many low-income countries, results in feminization of agriculture, as women remain engaged in the sector. This “feminization” of agriculture has widespread implications for women’s agency, household welfare, and agricultural productivity.

**Global trends in ICT/High-Tech:** The rapid adoption of new technologies is set to drive growth in the ICT/High-Tech industry. World Economic Forum forecasts that about 51% of all job tasks in digital communications and IT sector will be performed by machines by 2024.

The share of workers at risk of displacement in ICT sector by 2025 is estimated about 17.5%. At the same time, ICT/High-tech industry is challenged by skill shortages.

To prepare specialists with the necessary qualifications, employers actively invest in upskilling and reskilling of their workers, which creates additional opportunities for career mobility.

**Global trends in Hospitality:** As a result of COVID-19 and imposed restrictions, the global hospitality sector suffered huge losses, due to which 62 million jobs were lost across the sector globally. The decrease has particularly had negative impact on SMEs, women, youth, and minorities.

Adoption of new technologies is changing the landscape of travel and service delivery. Job tasks conducted by humans are being taken over by robots or automated systems.

Among the emerging trends are online travel agents and accommodation platforms, which have transformed the industry by connecting global demand and supply.

**Transformation of the educational ecosystem.** The demand for soft skills is continually increasing, while the importance of manual skills is declining.

Global trends require educational institutions to be more responsive to the needs of the labor market. Overall, the future of the educational system is going to be shaped by the following trends:

- Learner-driven approach on education
- Inclusiveness of education
- Lifelong and experimental learning
- Modularity of education and adaptability to digital technologies

## **DEVELOPMENT TRENDS IN TARGET SECTORS IN ARMENIA: AGRI-FOOD, ICT/HIGH-TECH, HOSPITALITY**

The Armenian labour market is characterized by low participation and high unemployment rates, which lead to constrained use of human resources. Specific groups, such as youth, women and PWD are particularly vulnerable.

**Agri-food:** One-fifth of Armenia’s employed population is engaged in primary agriculture. Meanwhile, the sector’s contribution in GDP is 11.3%.

The turnover in primary agriculture and food processing has shown increasing trend over the past five years, however the number of employees in primary agriculture has declined by 87 thousand people during 2017-2020.

The informality rate is high in the agriculture, as only 11% of turnover generated by primary agriculture is formally registered and only 5.3% of the employed are formally registered.

Food processing sector in Armenia is undergoing rapid automation. According to National Competitiveness Report of Armenia, employment reduction is expected to increase labour productivity and drive growth in wages by up to 20% by 2030.

**ICT/High-Tech:** The ICT/High-tech sector is one of the fastest growing industries in the Armenian economy. In 2021, the sector employed about 40 thousand people, of which 42.6% were female.

IT specialists in Armenia earn one of the highest salaries, averaging 645 thousand AMD (or about 1,320 USD) per month, while the average monthly salary in the country is about three times lower.

The industry faces shortage of highly qualified specialists. Thus, companies widely offer internship opportunities to recruit talent and support the upskilling and reskilling of their workforce.

**Hospitality:** The accommodation and hospitality sector has demonstrated dynamic growth over the past few years; however, the sector has been hit hard by the COVID-19 pandemic.

In 2021, the sector employed around 61.7 thousand people, more than half of them female.

As a result of digitization, the demand for reservation agents and receptionists is declining. Meanwhile, employers prioritize knowledge and skills in customer service and administration, social media management, digital marketing, food preparation and food safety, event and conference organization.

## **DEMOGRAPHIC CONTEXT AND WORKFORCE SUPPLY**

Armenia's demographic decline and population aging will further exacerbate labor shortages, slowing down Armenia's economic growth.

In 2020, only 58.5% of the working age population of Armenia were economically active. At the same time, in 2020, informal employment accounted for 36.9% of total employment.

The share of young people in neither education nor employment or training (NEET) continues to be high. In 2018-2020, the share of 15-29-year-olds NEET was 31.6%.

In vocational education, over the past decade, the number of students had decreased only marginally, while in higher education, the number of students had fallen sharply - by one-third.

**The number of agricultural students** decreased by one-quarter in 2017-2020, while the number of both newly enrolled and graduates declined by two-fifths.

**The popularity of ICT and high-tech** majors remained high in 2017-2020, with an 80% increase in entrants and a 56.5% increase in graduates.

**The number of hospitality students** and new entrants increased by one-half in 2017-2020, while the number of graduates increased by one-fifth.

## **GENERAL FINDINGS FROM THE SURVEYS WITHIN THE BASELINE STUDY**

Employers in three target sectors, stating that the quality of the workforce is the most critical factor hindering the growth of the sector, reported having difficulties in recruiting specialists and filling emerging vacancies. This phenomenon seems to be more serious for the ICT/High-Tech and Agri-food sectors: 76% of employers from the first and 72% from the second sector faced difficulties in finding qualified workforce for their company. The reasons vary by industry: while recruitment in the hospitality industry is difficult mainly due to existing socio-cultural stereotypes and the seasonal nature of the work, in the agri-food sector, low salaries also play a significant role in recruiting qualified specialists.

Graduates experience difficulties in getting employment, lack of skills acquired at the HEI/VET, and sometimes they need to receive trainings to improve their chances of employment.

Within the mapping study the employers were asked to assess the level of preparedness of their current employees with tertiary and middle vocational for the job at the time of being hired.

The knowledge and skills of HEI and VET graduates in Armenia are noticeably far from the expectations and needs of businesses, thus most of them provide on-the-job or other types of training to skill-up the staff.

Significant proportion of recent HEI and VET graduates are either unemployed (about 37% of those who completed their formal education in the previous 3 years are unemployed) or have a job that does not match their specialty (half of employed graduates who majored in agriculture) or educational level. To get a job or promotion, a significant proportion of recent graduates take various courses (21% with major in agriculture, 45% - in IT/High-Tech and 14% - in HORECA) quite often - at their own expense.

The assessment of the demand for various skills by businesses and the level of proficiency in these skills by current employees revealed a significant disbalance. Along with the theoretical and practical knowledge, businesses demand/value soft skills, especially social skills such as ability to work in a team, diligence and willingness to learn, accountability and responsibility, ability to work independently, organizational and time management skills, etc.

Employed graduates also reported a lack of soft skills needed for career advancement. As the most necessary skills, they named the emotion management and self-control (46.7% of graduates). Among other missing skills, graduates mentioned the ability to work in a team (36.8%), accountability and responsibility (35.8%), willingness to learn (30.8%), ability to work independently, computer skills and knowledge of languages (about 18% each).

Many businesses in the three target sectors identify an inadequately educated workforce as a major constraint. While graduates reported that curricula did not meet the requirements of the labor market with a prevalence of theoretical knowledge and a lack of practical skills, employers also expressed believe that the preparedness of HEIs and VET graduates has deteriorated over the past 5 years.

Closer cooperation between businesses and educational institutions can be beneficial for both demand and supply sides of the labor market. However, the current state of the cooperation is assessed as insufficiently effective (only 22% of employers in the ICT/High-Tech sector, 24% in the hospitality sector and 46% in the agriculture sector found it sufficiently effective). Despite the pressing need for cooperation between businesses and educational institutions, the most common form of cooperation remains internship (the exception is employers in the field of ICT and high technology, 76.9% of which also reported their participation in the educational process and 34.6% - in curricula development).

Albeit the international experience shows that one of the most effective ways to train specialists ready to work is the dual education approach, the awareness of employers about dual education is quite low - 11-12% of employers in agriculture and hospitality sector and 46% -in ICT/High-Tech sector. Meanwhile, part of employers is willing/ready to adopt a dual education (or work-based learning) approach.

The role of intermediary institutions involved in facilitating supply and demand in the labor market, such as public and private employment services and career centers of educational institutions, is not significant. To recruit new staff, only a tiny proportion of businesses uses public (5.9%) and private (3.3%) employment services, as well as career centers of educational institutions (5.5%). Instead, they prefer social media platforms (34.6% of all cases mentioned), their own websites (18.8%), and local job advertisement platforms (17.8%).

The generation of current school children (IGen or GenZ) and their parents appreciate the importance of education (especially of higher education) in career growth and are quite oriented in the choice of their future profession (62% of 11th graders and 80% of 12th graders). Among the main factors of professional orientation, school children mentioned demand driven factors – the attractiveness of a career (37%) and large demand (14-15%) in the respective field, and high salary expectations. The declared level of the latter is more than twice as high as the current average salary in the economy. The most preferred profession for school boys is ICT/High-Tech (16%), and for girls - art and humanities (14%). Only 0.4% “voted” for agricultural specialties and 2.9% for specialties related to the hospitality sector.

# CHAPTER 1: METHODOLOGY: DESIGN AND IMPLEMENTATION

The interdependency between the economic development and the quality of human capital, labor market systems and education/training in Armenia recently became more vital and challenging due to various global and local factors such as digital transformation, COVID-19 pandemic, demographic change, etc. that while manifesting in higher turnover and continuous education of employed, requires new approaches towards narrowing the LM mismatch and skills gap to possible extent. It is commonly recognized that highly skilled workforce and its proper utilization is critical to innovation and productivity, i.e. to business success and national prosperity. The development of technology, especially ICT, has accelerated economic globalization and opened new opportunities for people, but also new risks.

The term LM and skills mismatch is very broad and relates to many forms of labor market resistance, including vertical (under/over qualification) and horizontal (discrepancy between the occupation principal field of study) mismatch, skill gaps (the extent to which workers lack the skills necessary to perform their current job), skill shortages (unfilled or hard-to-fill vacancies) and skill uselessness. This study attempts to assess different forms of mismatch from the perspective of major actors of the labor market in Armenia.

The study used a mixed methodology that included desk research, quantitative and qualitative studies.

## SECTION 1: DESK RESEARCH

The desk research involved literature review to highlight the labor market mismatch and the skill gaps, main trends of the future jobs/occupations globally, in Armenia while focusing the three target sectors: Agriculture/Food processing, Hospitality and ICT/high-tech (including engineering, software development, creative tech). Review of documents from different sources (government offices, international organizations, NGOs, etc.), as well as analysis of secondary data related to LM and youth development in Armenia, as well as sectoral development strategies, etc. was another element of the desk study.

## SECTION 2: QUANTITATIVE AND QUALITATIVE DATA COLLECTION

The designed and implemented quantitative study was to collect primary up to date data among employers, HEI and VET graduates (employed and unemployed), school children (9, 11-12 grades), as well as their parents to assess the skills mismatch, perceptions, expectations, attitudes and behavior of respective groups. The survey among high school children also enabled to reveal the pattern of their career orientation, professional choices and values.

The qualitative study included in-depth interviews (IDI), key informant interviews (KII) focus group (FG) and round table (RT) discussions, as well as brainstorming sessions among the representatives of major stakeholders - representatives of the target industries; HEI/VETs that prepare specialists for the target sectors; employment agencies and recruiting companies, public officials and experts.

Some details of the primary data collection activities are presented in the Figure 1 below.

**FIGURE 1: SOME DETAILS ON QUANTITATIVE AND QUALITATIVE STUDY**

Quantitative			Qualitative
<b>Sample size</b>	<b>1,041 GRADUATES</b> <ul style="list-style-type: none"> <li>• Employed: 660</li> <li>• Unemployed: 381</li> <li>• Female: 42%</li> </ul>	<b>269 EMPLOYERS</b> <ul style="list-style-type: none"> <li>• Agri-food: 68</li> <li>• IT&amp;HT: 58</li> <li>• HORECA: 143</li> <li>• Female: 44%</li> </ul>	<b>IN DEPTH INTERVIEWS</b> Among employers (CEOs and HRs of leading companies, HEI and VET representatives).
<b>Data collection</b>	<b>Period:</b> February-April 2022 <b>Method:</b> on-line and via phone (CATI) <b>Sample error:</b> +/- 3%	January-March 2022 on-line and via phone (CATI)	<b>KEY INFORMANT INTERVIEWS</b> Among representatives of public agencies (national and regional), international organizations, implementing agencies, NGOs, and experts.
<b>Sample size</b>	<b>2,358 SCHOOL CHILDREN</b> <ul style="list-style-type: none"> <li>• Yerevan: 779</li> <li>• Other urban areas: 913</li> <li>• Rural areas: 666</li> <li>• Female: 75%</li> </ul>	<b>2,048 PARENTS</b> <ul style="list-style-type: none"> <li>• Yerevan: 828</li> <li>• Other urban areas: 789</li> <li>• Rural areas: 431</li> <li>• Female: 94%</li> </ul>	<b>FOCUS GROUP DISCUSSIONS</b> Among employers, students, representatives of educational institutions, NGOs and LSGs.
<b>Data collection</b>	<b>Period:</b> February-April 2022 <b>Method:</b> on-line (via Dasaran platform) <b>Sample error:</b> +/- 2%		<b>BRAINSTORMING SESSIONS</b> With industry and academia leaders on the expected global and local developments in the LM of respective sphere.

The developed, pretested and employed questionnaires were structured in a way that enables exploring the labor market mismatch and the skill gaps in the target sectors of Armenia. For example, the structured questionnaire designed for the survey among employers contained the following main sections:

- general questions/profile of the business,
- perceptions of the past and future developments of the business and job creation perspectives;
- staff recruiting practices and major challenges in filling vacancies;
- major gaps in theoretical and practical knowledge and skills (including soft ones) of employees and recent graduates;
- experience and mechanisms of cooperation with educational sector;
- policies and practices of skilling up the employee; etc.

The questionnaire for the survey among graduates (employed and unemployed) included sections on their employment status, its matching with the field of their specialization and qualification, main challenges finding a job, major gaps in knowledge and skills at work places, needs and opportunities of additional schooling, etc.

School children and their parents were asked on the factors (including socio-cultural, socio-economic, etc.) and that major influencers of their future professional orientation, career aspirations, perceptions and awareness of career future job opportunities in target sectors, satisfaction of their learning experiences (environment, methods of teaching knowledge and skills they acquire, etc.), general values and role models, etc.

**Limitations of the study:** While reading this report it should be taken into account that the study was a pilot one. Thus, while employing rapid assessment of the labor market imbalances and skills mismatch the

team of researchers dealt with some limitations, which lead to searching and finding innovative solutions, such as experimenting quasi proportionate-to-population sampling, developing on-line tools suitable for self-administration of surveys via existing platforms (dasaran.am) to collect information from school students and parents. Some limitations came because of the diversity of target sectors and complexity of the subject that required looking for global, country and sectoral developments, as well the trends in demography and education. Along with analyzing the official data at the country level, to get sense on supply side of the labor market the recent graduates of only public universities and middle VET graduates were approached. With all these limitations the study is relevant to Activity proposed interventions at the sectoral and country levels. The research team believes that the findings are appropriate for describing the attitudes and perceptions of the target groups, including youth, women and PWD.

The following chapters highlight the major findings of the study. The Chapter two turns to the recent and upcoming global trends and developments in labor market, industries and education ecosystem. The third chapter highlights the development trends in target sectors in Armenia, while the fourth chapter attempts to show the demographic context of the country as a vital factor of workforce supply. The fifth chapter presents the most important findings based on primary data collected within the baseline study. Chapter six comes up with conclusions and a few action-type recommendations.

# CHAPTER 2: GLOBAL TRENDS: DEVELOPMENTS IN LABOR MARKET, INDUSTRIES AND EDUCATION ECOSYSTEM

## SECTION 2-1: GLOBAL LABOR MARKET DEVELOPMENT TRENDS

The global labor market is undergoing transformation in several dimensions. Technological advancement and digitalization along with other drivers are shifting employment globally. The job transformations pertain to the content of the occupation, as well as the working methods, tools and technologies. Global labor market shifts lead to changes in employment structure and content on regional and national level. The analysis of global development trends is crucial, as they will shape the future of Armenian labor market.

### **The destruction of some jobs owing to automation**

Digitalization accelerates the performance of some technical tasks carried out by humans. Thus, machines might potentially take over the entire bundle of tasks comprising an occupation, causing job displacement. On the other hand, technological advancements

Technology adoption results in disruption of some occupations, whilst driving increase in remote work and online platforms globally.

might lead to an increase in job opportunities and emergence of new occupations. According to the World Economic Forum, technology will disrupt 85 million jobs globally by 2025, but 97 million new roles will potentially emerge (World Economic Forum, 2020) Thus, technological advancement is expected to have transformative rather than destructive influence on the number of jobs globally.

In addition, routine tasks are at higher risk of automation, while non-routine tasks are becoming more intensive. Thus, a number of occupations are becoming redundant (cashier, clerks, etc.) (European Training Foundation, 2021)

If leveraged right, these shifts could lead to socio-economic development. However, on the other side, they pose the risk of widening skills gaps and unemployment.

### **The remote and hybrid workforce**

COVID-19 pandemic resulted in large-scale surge in remote work. Work-from-home arrangements allow workers to perform tasks in ways that best suit their abilities due to new and more flexible working conditions in terms of time and place of work. Changes in traditional work patterns, such as shorter working days and flexibility, can help employees achieve a better work-life balance.

The transition to remote workforce is relatively easier in the Information and Communication Technologies sector, where majority of tasks can be performed online. Meanwhile, remote work opportunities are limited in Food Processing and Agriculture.

### **The rise of online platforms and the collaborative economy**

The upsurge of collaborative economy and digital labor market platforms allows to reduce transaction costs and information asymmetries, thereby improving the matching process between labor demand and supply. Instead of long-term job contracts and pursuit of stable career, employment is shifting towards agreements between employers and workers on completing certain tasks (European Training Foundation, 2021)

Migration of work to collaborative platforms is particularly evident in ICT sector. Platforms allow for increased flexibility and expanded opportunities of just-in-time labor. In addition, digital marketplace platforms foster the export of ICT services.

### **Job polarization and inequality**

Job polarization pertains to the ‘hollowing-out’ phenomenon which implies that the share of medium-skilled jobs is declining, while the shares of both higher- and lower-skilled jobs is increasing (known as the ‘hollowing-out’ phenomenon). According to the OECD, the share of medium-skilled jobs fell by almost 12 percentage points in OECD countries between the mid-1990s and the mid-2010s. Over the same period, the share of high-skilled jobs increased by 9 percentage points and low-skilled jobs rose by 3 percentage points. (OECD, 2020)

Job polarization leads to inequalities in wage and working conditions, as medium-skilled workers have higher chance of working in low-skilled positions with lower wages and instable working conditions.

## **SECTION 2-2: GLOBAL TRENDS OF LABOR MARKET TRANSFORMATION IN AGRICULTURE, ICT/HIGH-TECH AND HOSPITALITY SECTORS**

Global shifts in the labor market result in changing task content of existing occupations/jobs. The transformations vary across different sectors of the global economy. The tendencies already happening globally in the sectors of interest very soon will become more articulated in Armenia, too. The text below highlights the major changes in the labor market in agri-food, ICT&HT and hospitality sectors.

### **AGRICULTURE AND FOOD PROCESSING**

The exponential growth of the world’s population results in increased global demand for food. Meanwhile, the supply side is constrained by the depletion of agricultural lands and resources. According to the UN Food and Agriculture Organization (FAO), the production of food will need to increase by 70% globally in 2050 compared to 2005/2007 (FAO, 2009). Thus, achieving increased productivity in the agriculture and food processing sector has become critical.

#### **Adoption of new technologies**

Advances in machinery have expanded the scale, speed, productivity and yields in the sector. Currently, agriculture is experiencing data and connectivity transformation. The emerging technologies in agronomy, food science and processing include Internet of Things (IoT) and connected devices, big data analytics, e-commerce and digital trade, cloud computing, artificial intelligence (AI), 3D and 4D printing and modelling, biotechnology, etc.

**Global trends in agriculture are driven by technology adoption, decline in manual labor demand and high migration rates.**

Precision agriculture relies on IoT smart farming solutions to ensure efficient use of resources, achieve high crop yields and reduce operational costs. IoT technologies use sensors to monitor crop field (light, humidity, temperature, soil moisture, crop health, etc.) and automate the irrigation system. Upsurge of IoT solutions in agriculture might possibly lead to decrease in manual labor demand (IOT Solutions World Congress, 2022) However, technology transformation is challenged by the lack of connectivity infrastructure and slow deployment of digital tools (McKinsey and Co., 2020). Skill gaps and shortage of investment and inability to attract talent remain the main barriers to adoption of new technologies (Figure 2).

**FIGURE 2: BARRIERS TO ADOPTION OF NEW TECHNOLOGIES (SHARE OF COMPANIES SURVEYED)**



Source: World Economic Forum, 2020

### Structural change and employment

About 27% of the world's employed population (one billion people) was employed in agricultural sector in 2019 (World Bank, 2022). However, as a result of adoption of high-tech solutions, the demand for manual labor is declining.

Data analysts and scientists, digital marketing, strategy and big data specialists are among the top emerging occupations in the agriculture and food processing sector, while the demand for data entry, administrative or trade job tasks is declining. According to the World Economic Forum, average share of workers at risk of displacement due to automation in this sector is 11.2%. (World Economic Forum, 2020)

Over the past 50 years, the share of agriculture in GDP and employment have decreased in almost all economies. Micro farmers and members of their families gradually diversify their sources of income by expanding into another sector or exiting agriculture entirely. A common way to increase income for those who remain in agriculture is integrating into food-processing value chains and employing advanced technologies.

### Migration and feminization of agriculture

Migration is a global phenomenon with an increasing trend. Around 40% of international remittances are sent to rural areas, which reflects that a significant proportion of migrants live in rural areas. According to FAO, agriculture is a source of income for 86% of rural population, which indicates that a large share of migrants is involved in agriculture. Poverty, climate change and lack of natural resources will potentially increase migration (OECD/FAO, 2021; FAO, 2018).

Migration on one hand, and adoption of labor-saving technologies on the other hand, are expected to result in decline of agricultural employment, with both women and men moving into other sectors. However, male out-migration and exit from farming, which is specific to many low-income countries, results in feminization of agriculture, as women remain engaged in the sector. In addition, the globalization of agri-food value chains is creating employment opportunities for women beyond family farms (FAO, 2018).

### ICT/HIGH-TECH

The rapid adoption of new technologies is set to drive growth in the ICT industry, especially in engineering, software development and creative tech.

Currently, 56% of the global ICT industry comprises of hardware, software and service categories.

Telecommunication services account for 25%, while the remaining 19% is covered by various emerging technologies that don't fit into the traditional subsectors (e.g., IoT, drones, and other automating technologies). Increasing trend in software and services subsectors is observed, however ICT

**As a result of automation, ICT and High-tech sector is going to undergo considerable shifts in employment demand and structure.**

manufacturing and Telecommunications are expected to decline. Software production and services contribute to more than 80% of total ICT value added (CompTIA, 2021).

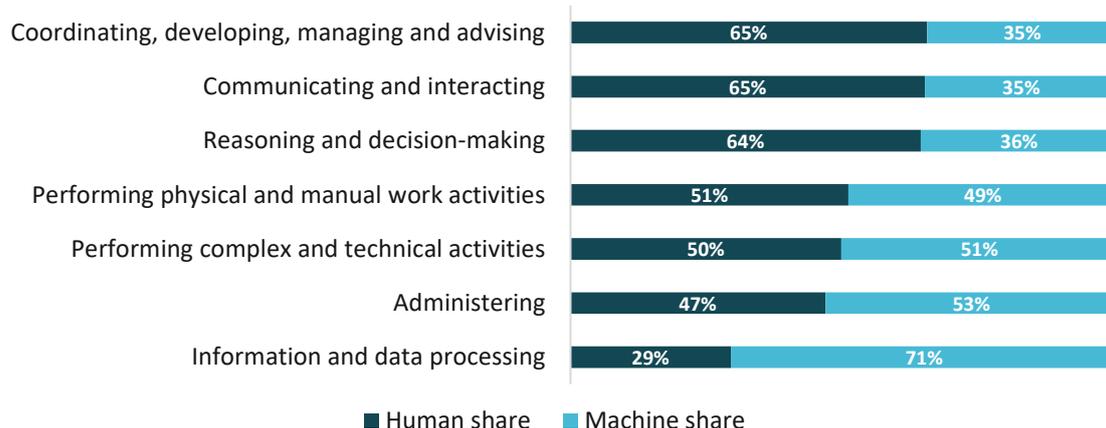
### Changes in job roles and automation

AI and machine learning specialists, data analysts and scientists, big data specialists, information security analysts, process automation specialists are among the emerging jobs in the sector. As a relatively new area within the IT industry, data science is one of the fastest growing job roles. Currently, there are less data scientists compared to other occupations in the sector. However, according to CompTIA, the number of data scientists is predicted to grow by 30% in 2030 (CompTIA, 2021).

The demand for data entry and bookkeeping clerks, administrative secretaries, customer service workers, accountants and auditors, electronics and telecommunications installers and repairers is declining as a result of automation. According to World Economic Forum forecast, about **51%** of all job tasks in digital communications and IT sector will be performed by machines by 2024.

In addition, average share of workers at risk of displacement in ICT sector is estimated about 17.5%. (World Economic Forum, 2020) It is predicted that by 2024 the majority of information and data processing, as well as administrative job tasks will be performed by machines, while humans will undertake coordination, communication, reasoning and decision-making responsibilities. (Figure 3)

**FIGURE 3: AUGMENTATION OF KEY JOB TASKS BY 2024**



Source: World Economic Forum, 2020

Nowadays, IT-oriented professionals are highly demanded both in tech and non-tech sectors such as retail, finance, manufacturing, healthcare, etc., which is a consequence of ubiquitous technology adoption.

### Emerging skills and skill gaps

Analytical thinking and innovation, technology design and programming, complex problem-solving, active learning, resilience, stress tolerance and flexibility are among the most demanded skills for ICT/High-tech industry workers (World Economic Forum, 2020). Programming has become one of the most common skills among ICT/High-tech industry workers, resulting in democratization of technology. However, initially software development used to be the domain of large companies.

At the moment, the ICT/High-tech industry is challenged by skill shortages: 60% of the ICT companies surveyed by World Economic Forum reported skill gaps in the local labor market as the main barrier to adoption of new technologies. (World Economic Forum, 2020)

To prepare specialists with the necessary qualifications, employers actively invest in upskilling and reskilling of their workers, which creates additional opportunities for career mobility. As a result, it is becoming more critical for ICT/High-tech companies to attract and retain skilled professional.

## TOURISM AND HOSPITALITY

The tourism and hospitality sector has been a major driver of global employment: between 2014-2019 the sector contributed to the creation of 1 in 4 of all the new net jobs across the world. It is estimated that around 272 million people are employed across the sector globally (WTTC, 2021).

### COVID-19 and shifts in consumer spending

As a result of COVID-19 and imposed restrictions, the sector suffered losses of about 4.5 trillion USD. The sector's global share in GDP declined by 49.1% in 2020 compared to 2019. Domestic visitor spending decreased by 45%, and international visitor spending fell by unprecedented 69.4%. 62 million jobs were lost across the sector globally. This decrease has particularly had negative impact on SMEs, women, youth, and minorities (WTTC, 2021).

Future growth in tourism and hospitality sector will be driven by the deployment of new technologies, resulting in high levels of job displacement by machines.

The pandemic has led to changes in consumer behaviour. As a result, consumers started to avoid spontaneous purchases relying more on pre-planning and online shopping. It is expected that this spending pattern will be increasingly common in the future

### Automation of job tasks

Automation and robotics are major emerging trends in the sector. Adoption of new technologies is changing the landscape of travel and service delivery. Job tasks conducted by humans are being taken over by robots or automated systems such as chatbots. Widespread use of chatbots or more sophisticated digital technologies makes it possible to find and book accommodation and restaurants online, which is transforming hotel and restaurant management.

Tasks performed by front desk officers and tour agents are now handled by sophisticated hardware and software, which is expected to result in disruption of such occupations in the future, leading to decreased demand for manual labor. According to the forecast of World Economic Forum, on average 16.8% of workers are at risk of displacement as a result of technology adaptation. By 2024, 49.3% of all tasks in the sector will be performed by machines. (World Economic Forum, 2020)

### Digital business platforms and sharing economy

Among the emerging trends are online travel agents and accommodation platforms, which have transformed the industry by connecting global demand and supply. Online travel agents (OTAs) eased the process of finding and booking hotels for travellers, and gave hotels the access to reach larger audiences. Nowadays, OTAs are a mandatory component in sales and marketing strategy of the hotels. Sharing economy (e.g., Airbnb) is another major trend, which disrupted the global accommodation industry and threatens hotels as the main competitive force. The value of the sharing accommodation sector is expected to reach USD 40 billion by the end of 2022. (OECD, 2020)

## SECTION 2-3: TRANSFORMATION OF THE EDUCATIONAL ECOSYSTEM

The global labor market trends have resulted in growing gap between skills demand and supply. Despite the increase in the education levels of population, the labor market is challenged by shortage of low-skilled and high-skilled workers. The demand for 'non-cognitive skills', or soft skills (e.g., open-mindedness, openness to learn and to change, flexibility, innovation, creativity, resilience, initiative, sociability, emotional intelligence, etc.) is continually increasing, meanwhile the importance of manual skills is declining. (European Training Foundation, 2021)

Overall, disruptive trends require educational institutions to be more responsive to the needs of the labor market and prepare professionals with a new mindset that enables them to be more flexible and efficiently

leverage new technologies for problem-solving. The future of educational system going to be shaped by the following trends.

### **Learner-driven approach on education**

The learner driven approach emphasizes on personalizing the learning process by adjusting it to the interests and needs of the learner. Educational institutions nowadays mostly offer elective subjects in order to give the learner the opportunity to choose assignments or topics they want to study. Teamwork and peer-learning is an important aspect of learner engagement, which can be promoted by cultivating an environment of dialogue and structured interaction among students. The learner-focused approach also implies adoption of efficient assessment methods and provision of informative feedback to monitor learner's progress and guide them on improvement. (European Training Foundation, 2022)

### **Inclusiveness of education**

Inclusiveness is a major trend driving the educational system. It supposes that all children should learn and grow together, regardless of their differences and capabilities.

Educational institutions worldwide focus on building inclusive learning environments. The goal is to make education and skill development affordable and accessible to everyone. Inclusive learning environment promotes diversity and acceptance of all learners regardless of their socio-economic, ethnical and cultural background. (European Training Foundation, 2022)

### **Lifelong and experimental learning**

Lifelong learning refers to the continuous professional education and skills development of workers. Due to existing skills mismatch in the labor market, reskilling and upskilling of employees has become a necessity worldwide. Consequently, the demand-side in educational system is driven not only by primary, but also continual and adult education.

Nowadays, countries are implementing nationwide programs to support lifelong learning. Singapore has invested 600 million USD per year over the last 5 years within the SkillsFuture program in order to develop continual education and training. The investments are directed at implementation of skills mastery programs which target students and employees in early and mid-stages of their career development. Aiming to support individual ownership of skills development and lifelong learning, the initiative uses credit, subsidy, advisory and fellowship mechanisms, as well as career transition and work-study degree opportunities. (Government of Singapore, 2022)

According to research conducted by McKinsey & Co., most organizations consider reskilling and upskilling of their employees a top priority in order to address skill gaps, however few understand how to cope with the disruptions caused by labor market trends.

As educational institutions adapt to the concept of lifelong learning, the urgency to introduce new teaching methods and tools arises. Nowadays, valuable education consists of experimental learning or simply 'learning-by-doing' component, which helps create opportunities for learners to apply their theoretical knowledge in real-life settings. Various models of experimental learning include workshops, laboratory or studio work, apprenticeship, problem-based, case-based and project-based learning.

Case-based learning allows students to apply their prior knowledge and soft skills to analyze and give a solution to a real-life case. This method is commonly used in business, law and medical education. Project-based learning is another variation of experimental education in which students work on a project over an extended period of time to respond to a real-life question or solve a complex problem. As a result, students develop critical thinking, teamwork and communication skills.

### **Modularity of Education and Adaptability to Digital Technologies**

The wide adoption of experimental learning methods results in curriculum modularity. Educational institutions disaggregate degrees into smaller credit-based structures with different skills outcomes. Modular learning is associated with both opportunities, and challenges. This method offers mobility and flexibility for students, supports continual learning and allows higher educational institutions to better

respond to the needs of the labor market. However, modularity of education supposes the risk of fragmentation of the learning process and potential weakening of the learning outcomes.

Nowadays, digital tools and technologies are widely used in different aspects of the educational process. A number of gadgets and platforms are applied to enhance the teaching process, and generate data into learners' progress to identify ways of further improving learning practices. Digital tools are used for are used for revision and creation of Open Educational Resources (OER). Higher educational institutions are developing MOOCs as one of the mechanisms to deliver modular degrees and credentials. MOOCs are also widely spread among non-formal educational institutions.

As a result of the abovementioned trends, the role of educational institutions undergoes major transformations. Generally, VET institutions were disregarded as significant players in academic world and perceived as the 'second best option' for professional education. However, increasing skills mismatch in the labor market transforms VETs into main suppliers of skilled workforce. Imparting practical skills and work readiness, VET institutions have the potential to close skills gaps in the labor market. Governments of a number of countries are investing in rebranding and reconstructing the capacities of VETs to overcome negative social perceptions. For instance, the VET system in Finland is based on modular structure which gives it greater flexibility and supports continual learning. Finnish VETs appeal to all the age groups and career stages. As a result, around half of the VET students are adults. VETs give the opportunity to combine modules and design personal study plans based on career aspirations and job content. Active collaboration with the private sector lies at the core of the Finnish VET system success. Due to the joint efforts of employers and VET institutions, students are engaged in work-based learning and acquire applied knowledge. VETs support the upskilling and reskilling process of the workforce through specific modules. Thus, employees accumulate demanded skills and knowledge without full qualification requirement. To support lifelong learning and make the educational path more flexible, Finland introduced a new system that allows to enter higher educational institutions applying their VET qualification.

Higher educational institutions are also undergoing major transformations. A number of universities are introducing short certificate courses that address the increasing demand for high-skilled professionals in the labor market. As a result of COVID-19 restrictions, the popularity of MOOCs has escalated greatly: in 2020, the number of MOOCs has increased about 65 times compared to 2012 (Table 1).

**TABLE 1: MASSIVE OPEN ONLINE COURSES**

	2012	2020
Funding	~\$100 million	~\$900 million
Learners	2 million	180 million
University Partners	40	950
Courses	250	16.3K

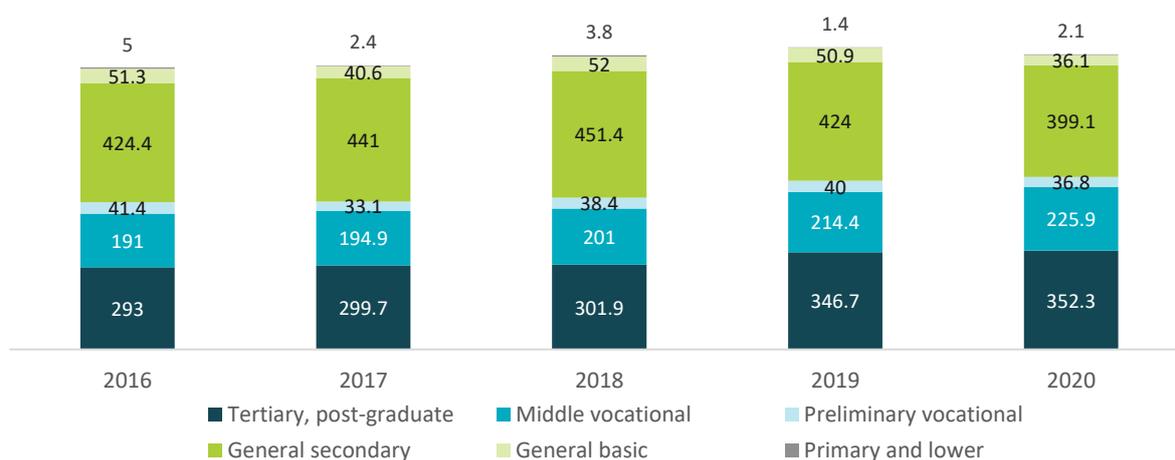
Source: Class Central, 2021

## CHAPTER 3: DEVELOPMENT TRENDS IN TARGET SECTORS IN ARMENIA: AGRI-FOOD, IT/HIGH-TECH, TOURISM AND HOSPITALITY

The Armenian labor market is characterized by low participation and high unemployment rates. The labor force participation rate has been declining since 2013, with the employment-to-population ratio at 35.5% and the unemployment rate at 18.2% for 2020. (Armstat, 2021b)

The employment rate is highest among people with higher education - 61.5% compared to 44.5% among those with general secondary education and 19.6% with general basic and lower education (Armstat, 2021b). Meanwhile, around 33% of the employed population in Armenia have a higher education, and 38% have a general secondary education (Figure 4).

FIGURE 4: THE COMPOSITION OF EMPLOYED BY EDUCATION LEVELS, THOUSAND PEOPLE



Source: Statistical Committee, 2017-2021

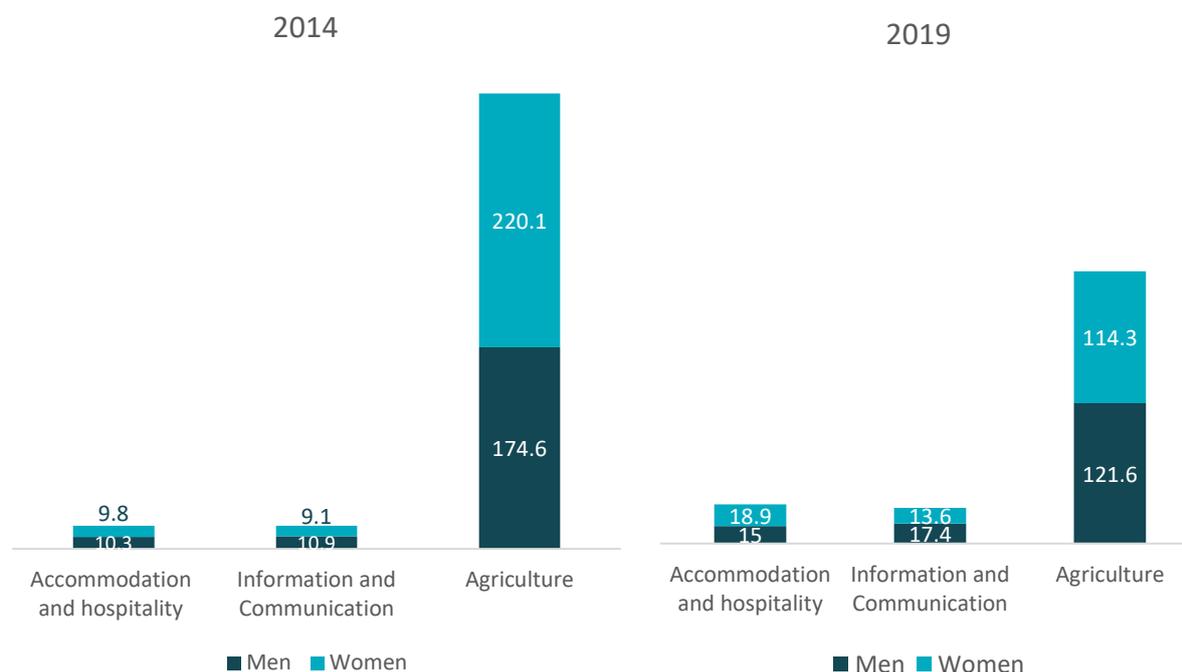
High unemployment and low participation lead to constrained use of human resources. Specific groups, such as youth, women and PWD are particularly vulnerable.

### Women employment

High levels of male out migration resulted in increasing share of women in the population- 90 men per each 100 women. Consequently, the share of women in labor resources is larger than that of men – 54% compared to 46%. However, women’s labor force participation rate is lower compared to men: only 49.4% of women are economically active (compared to 69.3% among men), comprising 47.6% of the employed population. Moreover, in 2020 around 34% of women with tertiary, post-graduate education did not participate in the labor market, and only 55.5% of them are employed. (Armstat, 2021b)

The share of female employed population is relatively high in accommodation and hospitality sector, while agriculture is dominated by men. (Figure 5)

**FIGURE 5: EMPLOYMENT OF MEN AND WOMEN IN TARGET SECTORS, THOUSAND PEOPLE**



Source: Statistical Committee, 2015-2020

The difference in earnings between male and female workers has declined significantly over the past decades; however, according to 2020 statistical data, the average monthly wage of men exceeds that of women around 1.54 times. (Armstat, 2021b) Possible explanations for this pattern are wage discrimination and dominance of men in higher positions.

### **Rural and youth employment**

Unemployment rate in rural areas (12.1%) is lower compared to urban areas (22.3%). This is due to the fact that the rural population is mainly involved in agriculture, which opens more opportunities for self-employment. In 2020, around a third of rural working age population was employed in agriculture. (Armstat, 2021)

A particularly concerning issue that the Armenian labor market faces is youth unemployment. In 2020 26.5% of youth (15-29-year-old) were unemployed, with the highest unemployment rate (41.7%) reported among 15-19 age group. According to Student Survey conducted by EV Consulting, less than half of HEI students work in parallel with studies. Moreover, only 29% of surveyed female students worked, compared to 41% for male students. (UNDP/EV Consulting, 2019)

### **Persons with disabilities**

Persons with disabilities comprise around 8% of working age population in Armenia. The labor market participation rate is 30.6%, while the unemployment rate among PWD is 13.7%. In 2020, the number of employed people with disabilities was 45.7 thousand, of which around 20.8% with higher educational level. In addition, the majority of employed PWD (30.3 thousand people) are involved in non-agricultural sector. (Armstat, 2021)

## SECTION 3-1: AGRICULTURE AND FOOD PROCESSING

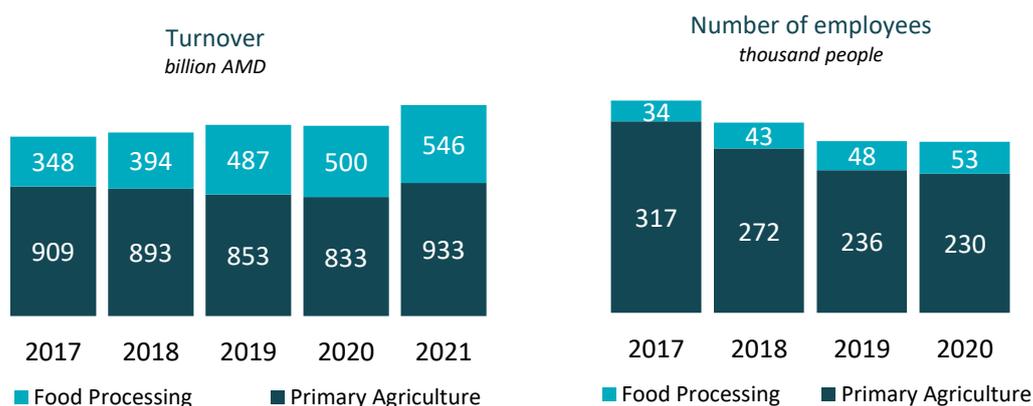
The agricultural sector is an important source of employment in Armenia. 21.8% of Armenia’s employed population (around 230 thousand people in 2020) is engaged in primary agriculture. Meanwhile, the sector’s contribution in GDP is 11.3%. This is a result of low labor productivity – about 6.2 thousand USD per employed person. (Armstat, 2021b)

The turnover in agriculture and food processing has demonstrated increasing trend over recent years, while the number of employed is forecast to decrease significantly.

Primary agriculture is dominated by men, while women comprise only 34% of employed in the sector. Meanwhile, employment in food processing is of a relatively smaller scale with around 53 thousand wage-earners engaged in the sector, of which more than half (53%) are women.

The turnover in both primary agriculture and food processing has shown increasing trend over the past 5 years, however the number of employees in primary agriculture has declined by 87 thousand people during 2017-2020. (Figure 6) Civitta AM estimates that by 2030 the number of employed in primary agricultural sector is expected to decrease by around 50 thousand people depending on growth pace of the economy.

**FIGURE 6: TURNOVER AND EMPLOYMENT IN PRIMARY AGRICULTURE AND FOOD PROCESSING**



Source: State Revenue Committee, 2017-2021; Statistical Committee, 2017-2021

As primary agriculture is generally exempt from taxes in Armenia, formally registered volume of turnover and number of employed are under-represented. According to our estimates based on tax authority data, only 11% of turnover generated by primary agriculture is formally registered by State Revenue Committee. The same pattern is observed in employment indicators, with only 5.3% of the employed - formally registered. Nevertheless, share of registered data had an increasing trend over the past 5 years, due to reduction of informal economy.

Food processing sector in Armenia is undergoing rapid automation trend which is resulting in replacement of manual labor. According to National Competitiveness Report of Armenia, employment reduction is expected to increase labor productivity and drive growth in wages by up to 20% by 2030. The emerging job roles in the sector include production line operators, mechanical controllers, and engineers. However, as a result of experience and skill gaps, employers face complications in filling those occupations. (EV Consulting, 2019)

## SECTION 3-2: ICT/HIGH-TECH

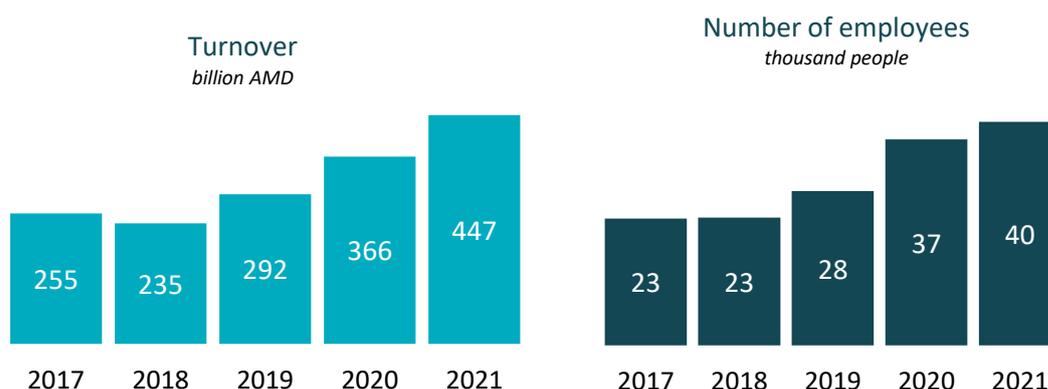
The ICT/High-tech sector is one of the fastest growing industries in the Armenian economy. The sector is characterized by high labor productivity – around 18 thousand USD in 2020, however its contribution in GDP is relatively small (3.8%).

ICT and High-tech sector in Armenia have demonstrated solid growth in terms of turnover and employment over the past 5 years

Both employment and turnover in the sector have shown an increasing trend over the past 5 years. (Figure 7) In 2021, the sector employed about 40 thousand people, of which 42.6% were female. The majority of specialists are employed in software development and services (59%), while the rest are mainly engaged in provision of information and internet access services (SRC, 2021).

IT specialists in Armenia earn the highest salaries, an average of 645 thousand AMD (or about 1,320 USD) monthly, while the average monthly salary in the country comprises about 182 thousand AMD (374 USD). (Armstat, 2021b)

**FIGURE 7: TURNOVER AND EMPLOYMENT IN ICT/HIGH-TECH SECTOR**



Source: State Revenue Committee, 2017-2021

The IT sector shows large export potential driving growth in the economy. ICT service exports cover around 57% of the sector's turnover (SRC, 2021). In 2020, ICT service exports comprised around one third of total service exports. Explained by Covid-19 restrictions, service exports declined (particularly, in tourism sector), contributing 18.9 percentage points increase in this figure compared to 2019. (World Development Indicators, 2019-2020)

Study conducted by Enterprise Incubator Foundation (EIF) shows that just in a year (2017-2018) more than 4,200 new jobs were created in the sector. However, the industry faces shortage of highly qualified senior specialists, as the latter prefer to work for foreign companies due to competitive wages and career growth opportunities. (Enterprise Incubator Foundation, 2018) Thus, local IT companies sometimes hire specialists from other countries, particularly from India and Iran. In addition, significant influx of Russian IT specialists was observed during the Russian-Ukrainian war in 2022.

Considerable part of the ICT workforce in Armenia has higher education, however, employers are still challenged by skills mismatch. Nowadays, companies offer internship options for students or new graduates in order to prepare them for performing certain job tasks. Employees engaged in IT sphere are

exposed to broader opportunities for professional development as companies centralize their efforts to support upskilling and reskilling of their workforce.

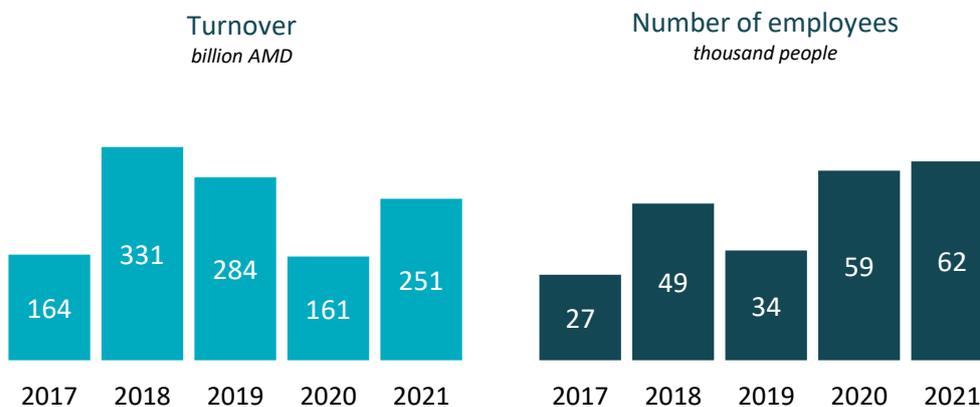
### SECTION 3-3: HOSPITALITY

Accommodation and hospitality sector has demonstrated dynamic growth over the past few years. However, the sector suffered greatly from the COVID-19 pandemic, which resulted in about 32% decline of turnover in 2020 compared to 2019.

Tourism and hospitality is the hardest hit sector by the COVID pandemic in Armenia, however its full recovery has not been achieved yet.

In 2021 the sector's share in GDP was 1.7%, while the total turnover of companies in the sector was about 250 billion AMD. The sector employed around 61.7 thousand people, more than half of them female (56%). (Figure 8)

**FIGURE 8: TURNOVER AND EMPLOYMENT IN ACCOMMODATION AND HOSPITALITY SECTOR**



Source: State Revenue Committee, 2017-2021

Catering services have larger scale in terms of employment compared to accommodation, although both are characterized by high employee turnover. In 2021 temporary employees comprised over 15% of the sector's workforce. (State Revenue Committee, 2021)

Overall, Armenia follows the global trends driving transformation in tourism and hospitality sector. As a result of digitization, the demand for reservation agents and receptionists is declining. Meanwhile, employers prioritize knowledge and skills in specific areas, including customer service and administration, social media management, digital marketing, food preparation and food safety, event and conference organization.

## CHAPTER 4: DEMOGRAPHIC CONTEXT AND WORKFORCE SUPPLY

Armenia’s demographic decline, which is expected to continue well into the next decade, will have profound implications for workforce supply. A shrinking working-age population and an aging population will further exacerbate labor shortages, slowing down Armenia’s economic growth.

**TRENDS IN POPULATION, LABOR FORCE AND EMPLOYMENT** | Over the past decade, the permanent population hovered just below 3 million people, with the total number in 2020 being 1.8% lower than in 2010 (Armstat, 2022b).

The Armenian labor market is characterized by a low level of labor force participation<sup>1</sup>. In 2020, only 58.5% of the working age population of Armenia (from 15 to 74 years old) were economically active (the labor force comprised 1.3 million, while labor resources accounted for 2.2 million people). According to Armstat data, in 2018-2020, the labor force participation rate had declined by about four percentage points compared to 2013-2015 (Table 2).

In 2018-2020, the employment rate among people with higher education was 62.1%, while with general secondary education - 45.4%.

Among those outside the labor force (about 0.9 million in 2020) 17% were students and pupils, 25% - housekeepers, 27% - pensioners and 31% other jobless people.

In 2018-2020, 36.8% of 20-24-year-olds and 43.7% of 25-29-year-olds were NEET.

A significant majority of the Armenian employed population (1.06 million in 2020) is engaged in the services sector – 57%, while agriculture accounts for 22%, industry - 14%, and construction - 7% of the employed population. Among services, the hospitality and ICT subsectors each accounted for 3% of the employed population.

At the same time, informal employment, especially in agriculture, remains high. In 2020, informal employment (376.6 thousand jobs) accounted for 36.9% of total formal and informal employment. In 2020, the informal employment rate in the agricultural sector was 95.7%, while in non-agricultural sectors it was 15.3%.

As for the unemployment rate, it was 18.2% in 2020, with the rate being 17.2% for women and 19.1% for men.

The official data show that the higher the education level, the lower the unemployment rate. In 2018-2020, the employment rate among people with higher education was 62.1%, with middle vocational education - 47.1%, with general secondary education - 45.4%.

At the same time, the share of young people in neither education nor employment or training (NEET) continued to be high. In 2018-2020, the share of 15-29-year-olds NEET was 31.6%.

Thus, the data point to significant weaknesses in the current labor market in Armenia. As for the future, the demographic factors discussed below, are among the main forces that determine future developments in the labor market.

The largest decline in 2010-2020 was recorded for the 0-3 and 14-17 age groups, whose numbers<sup>2</sup> had fallen by 13.5%. Meanwhile, the population aged 4 to 13 had increased by 15.7% (Figure 9).

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<sup>1</sup> All data in this subsection on the labor force are taken from the Armstat publications “Labor market in Armenia” for the relevant years.

<sup>2</sup> All demographic data in this section is as of the end of the year

**TABLE 2: LABOR MARKET INDICATORS, 2008-2020**

INDICATOR	2008-2010	2013-2015	2018-2020*
Labor force participation rate	60.0%	63.0%	59.1%
Employment rate, total	49.2%	52.0%	51.8%
15-19 age group	6.9%	9.9%	7.5%
20-24 age group	33.1%	36.5%	38.2%
Tertiary	60.2%	62.6%	62.1%
Middle vocational	50.1%	53.6%	47.1%
General secondary	47.9%	48.9%	45.4%
Unemployment rate	18.0%	17.4%	18.5%
NEET, 15-19 age group	24.0%	14.9%	9.8%
NEET, 20-24 age group	50.1%	42.6%	36.8%
NEET, 25-29 age group	47.3%	45.5%	43.7%

\* Methodology changed in 2018 so before and after data cannot be directly compared

Over the same period, the number of 15-year-olds, the main age of entry into vocational schools, had decreased by 13.8%, while the number of 18-year-olds, the main entry age for higher education, had dropped by an astounding 33.4%.

The population aged 15 and 18, the main entry age for vocational and higher education, is projected to increase in the current decade.

Over the current decade, CIVITTA projects that the population under the age of 18 will decrease by 8.7% reaching 645.7K people in 2030. The decrease will affect all ages up to 13 years old, while the 14-17 age group will increase. As per the number of people of the main entry age for vocational and higher educational institutions, the population of 15-year-olds is projected to increase by 10.7%, whereas 18-year-olds is projected to increase by 22.7%. (Figure 9).

**FIGURE 9: TOTAL CHILD POPULATION UNDER 18\*, ACTUAL AND PROJECTED, 2010-2030**



\*Permanent population as of the end of the year

Source: Armstat, 2022. Population projections are made by CIVITTA AM

**TRENDS IN THE NUMBER OF STUDENTS** | Changes in the child population over the past decade have had mixed effects on the number of students at different levels of education.

In general education, the total number of students (grades 1-12) had increased by 7.7% in 2010-2020, nevertheless, the number of students enrolled in grades 10-12 had decreased by 11.7% (Armstat, 2022). The latter is associated with an increase in the share of basic school graduates who continue their education in vocational schools. A trend that is partly due to the fact that since 2017 upper secondary education has become compulsory.

In vocational education, therefore, over the past decade, the number of students had decreased only marginally - by only 2.9%<sup>3</sup>. Inter alia, this relatively mild decline reflects an improved perception of vocational schools as a viable career path. In higher education, meanwhile, the number of students had fallen sharply - by one-third (Figure 10).

The aggregate share of students in the specialties of ICT, hospitality and agriculture has increased at all levels of education

The number and proportion of basic school graduates entering vocational schools has increased since 2017. In 2017, 23.6% of basic school graduates entered vocational schools (either preliminary or middle), while in 2020 the share of those who continued their education in vocational schools increased to 30.4% (EMIS, 2022).

**FIGURE 10: TOTAL NUMBER OF STUDENTS IN VOCATIONAL AND TERTIARY INSTITUTIONS, 2010-2020**



Source: Armstat, Social Situation of the RA in 2010 and 2017-2020

Thus, in vocational schools, there has recently been a clear trend towards an increase in the total number of newly admitted students (of all ages); their number in 2020 amounted to 13,258 people, by 11.9% higher compared to 2017. This growth has been driven mainly by basic school graduates the share of which in newly admitted vocational students increased from 58.6% in 2017 to 72.9% in 2020.

In terms of gender, in 2017-2020, the share of women among newly enrolled students averaged 46.6% in vocational and 52.1% in higher education. Meanwhile, among graduates the share of women was 52.1% in vocational and 59.8% in higher education. The higher proportion of female students among graduates compared to new entrants probably reflects a disproportionately higher dropout rate among male students, which may also be due to the fact that some male students do not continue their education after military service.

In terms of specialties, in 2020, in preliminary vocational education, the most students (31.4%) were in hospitality. ICT and engineering accounted for 17.2% of all students. Whereas agriculture, with a share of 1.5%, was one of the least popular specialties (Annex 1).

<sup>3</sup> All data on the number of students in preliminary and middle vocational and higher educational institutions are taken from Armstat publication "Social Situation of the Republic of Armenia" of the corresponding year.

In middle vocational education, the most numerous specialties in terms of the number of students were business and management (25.7% of all students) and healthcare (20.5%). ICT and engineering accounted for 19.3% of all students. Meanwhile hospitality and agricultural specialties were in the middle position with a combined share of 5.0% (Annex 2).

In higher education, the top 6 specialties were business administration (16.3%), education (13.0%), social sciences (10.5%), healthcare (10.0%), law (7.6%), and ICT (6.9%). Agricultural specialties were among the least popular, with hospitality in the middle. The combined number of students in the hospitality and agricultural specialties in 2020 was approximately equal to the number of engineering students. The share of the latter was 4.3% (Annex 3).

Overall, in 2017-2020, the combined share of students in the specialties of the three target sectors: ICT & high-tech, agriculture and hospitality, amounted to 46.2% of all students of preliminary vocational, 12.7% of middle vocational, and 15.3% of higher educational institutions, with the shares rising at all levels of education, but most steeply in middle vocational education. Importantly, at each level of education, the combined share of new entrants was higher than the share of students, potentially indicating the growing popularity of the three target sectors.

**TRENDS IN AGRICULTURAL STUDENTS** | In 2020, only 1,603 students were studying in agricultural specialties in both vocational and higher education institutions, whereas the number of newly enrolled was 424, and that of graduates - 245. Among agricultural specialties were primary agriculture, fisheries, veterinary, and food processing. In 2017-2020, the number of agricultural students decreased by one-quarter, while the number of both newly enrolled and graduates declined by two-fifths.

The number of agricultural students in higher and preliminary vocational education has decreased, while their number in middle vocational education has increased significantly.

By levels of education, in 2020, about half of agricultural students were studying at higher educational institutions, while the rest mainly at middle vocational schools. In 2017-2020, the number of agricultural students declined in preliminary vocational and higher education, but increased significantly in middle vocational education (Figure 11).

**FIGURE 11: NUMBER OF AGRICULTURAL STUDENTS BY LEVELS OF EDUCATION, 2017-2020**



Source: Armstat, Social Situation of the RA in 2017-2020

By gender, in 2020, the share of women was 24.5% among agricultural students at all levels of education combined<sup>4</sup>, which represents a significant increase compared to 2017 (11.0%). At the same time, the share

<sup>4</sup> For brevity, the term “all levels of education” is used throughout this subsection to refer to primary vocational, middle vocational and higher education.

of women among new entrants was consistently lower than among graduates, potentially indicating a higher dropout rate among male students.

By specialties, the bulk of students was of primary agriculture, while there was a relatively significant supply of food processing (in preliminary vocational education in 2018) and veterinary (in higher education) specialists.

The share of agricultural students among all students in 2017-2020 was 4.5% in preliminary vocational, 2.2% in middle vocational, and 1.5% in higher education, reflecting the relative unattractiveness of agricultural specialties among the youth.

**TRENDS IN HOSPITALITY STUDENTS** | In 2020, 5,112 hospitality students were enrolled at all levels of education, with 1,844 new entrants and 1,232 graduates. The trend was upward: the number of students and new entrants increased by one-half in 2017-2020, while the number of graduates increased by one-fifth.

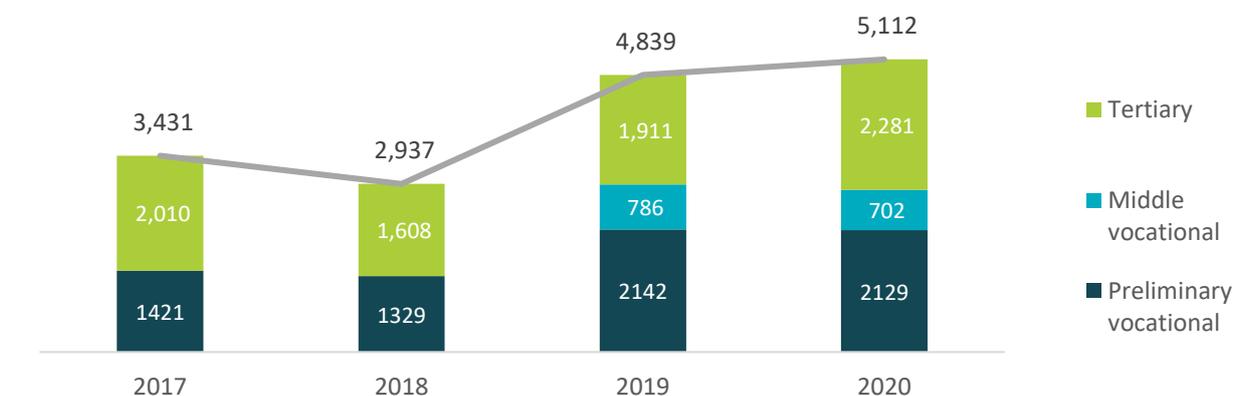
The number of hospitality students at all levels of education has increased.

In 2020, the share of new entrants among hospitality students (36.1%) was significantly higher compared to agricultural students (26.2%), indicating the growing popularity of hospitality majors.

By levels of education, in 2020, about 86% of hospitality students were studying in preliminary vocational and higher educational institutions with almost equal shares (Figure 12). The number of students has increased at all levels of education. Also, since 2019, hospitality specialties have been offered by middle vocational schools.

In terms of gender, the share of women was expectedly high: around 54% in 2020 among both new entrants and graduates of all levels of education combined. The share of women was even higher among the entrants and graduates of tertiary (about two-thirds) and middle vocational (about three-quarters) educational institutions.

**FIGURE 12: NUMBER OF HOSPITALITY STUDENTS BY LEVELS OF EDUCATION, 2017-2020**



Source: Armstat, Social Situation of the RA in 2017-2020

**TRENDS IN ICT & HIGH-TECH STUDENTS** | The number of students in ICT & high-tech specialties in 2020 amounted to 14,176 across all levels of education, while the number of new entrants was 4,326, and that of graduates - 2,738. The popularity of ICT and high-tech majors remained high in 2017-2020, with an 80% increase in entrants and a 56.5% increase in graduates.

By levels of education, in 2020, just over half of ICT & high-tech students were pursuing higher education (Figure 13). In 2017-2020, although the number of ICT & high-tech students in vocational education increased, the number of students in higher education remained steady.

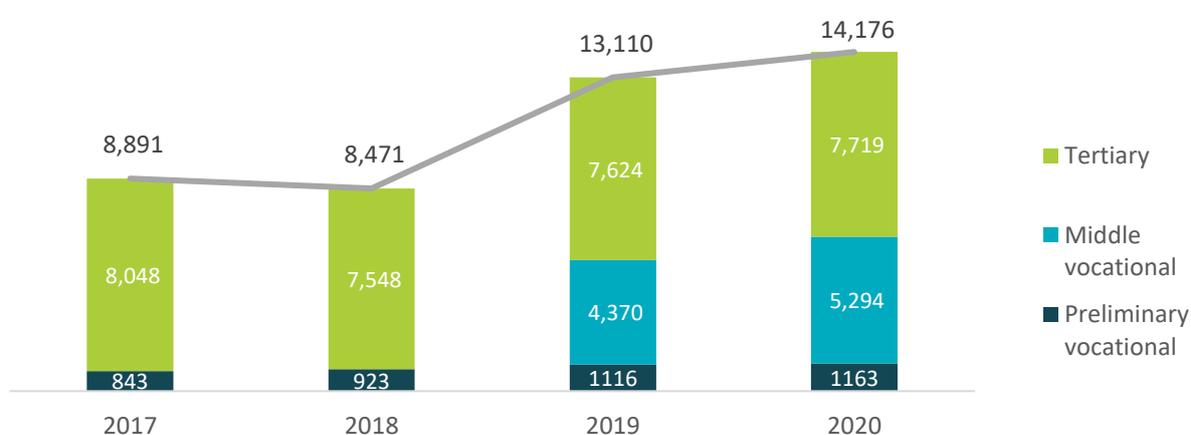
In terms of gender, in 2017-2020, the share of women among ICT & high-tech students at all levels of education combined remained stable at just over one-fifth. At the same time, the number of female students increased by more than one half.

Students of ICT & high-tech made up one tenth of students of higher and middle vocational schools and one seventh of students of preliminary vocational schools.

In terms of specialties in 2017-2020, engineering students accounted for about 28% of students of vocational and about 44% of higher educational institutions, with the rest being ICT students.

Overall, the share of ICT & high-tech graduates among all students in 2017-2020 was 15.2% in preliminary vocational, 9.1% in middle vocational and 11.0% in higher education.

**FIGURE 13: NUMBER OF ICT & HIGH-TECH STUDENTS BY LEVELS OF EDUCATION, 2017-2020**



Source: Armstat, Social Situation of the RA in 2017-2020

**GRADUATES VERSUS EMPLOYED** | In 2017-2020, vocational and higher education institutions produced a total of 14,357 graduates in specialties of the three target sectors, of which 60.7% in ICT & high-tech, and only 9.2% in agriculture & food processing specialties (Table 3).

**TABLE 3: TOTAL NUMBER OF GRADUATES AND JOBS ADDED IN 2017-2020 (CUMULATIVE)**

SECTOR	GRADUATES	JOBS ADDED*
ICT & High-tech	8,711	14,188
Agriculture & food processing	1,315	25,702
Hospitality	4,331	32,235
<b>Total</b>	<b>14,357</b>	<b>72,125</b>

\*Partly due to the job migration from the informal to the formal sector

Source: The number of graduates taken from Armstat, Social Situation of the RA in 2017-2020. The number of jobs provided by State Revenue Committee

Meanwhile, the three sectors together added 72,125 jobs in 2017-2020, of which 44.7% in hospitality, and 35.6% in agriculture & food processing industry.

# CHAPTER 5: GENERAL FINDINGS FROM THE BASELINE STUDY

## SECTION 5-1: LABOR MARKET AND SKILLS GAP ASSESSMENT: EMPLOYERS' AND EMPLOYEES'/GRADUATES' PERSPECTIVE BY SECTOR

This study used employers' and employees' self-assessment to reveal the major challenges in hiring specialists (employers) and finding a job (graduates), skills mismatch/gap, perceptions on career opportunities, the current state and attitudes towards cooperation between businesses and educational institutions, among other issues related to labor market imbalances.

Thus, a survey was conducted among the businesses of the target sectors and among the recent (during the last 3 years) graduates of HEI and VET that prepare specialists for the target sectors.

The mix mode (self-administered, face-to-face and CATI) survey among employers (269 in total, of which 68 representing the Agri-food, 58-ICT&HT and 143-the HORECA sectors) revealed that businesses face challenges in filling vacancies, experience deficiencies of various skills of employees required to do the job, and quite often perform activities to skill-up their staff.

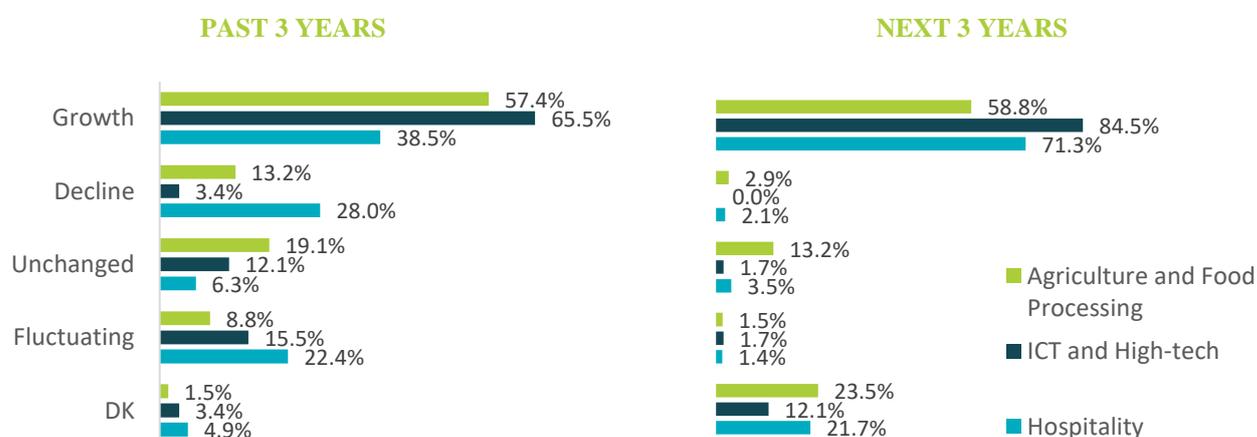
The survey among graduates (1041 in total, of which 211 employed in Agri-food, 303-IT&HT and 113-in HORECA sectors, and 381 unemployed) revealed that specialists in their turn experience difficulties in getting jobs, lack of skills acquired at HEI/VET, and sometimes need to get trainings to increase their employability.

Some major findings based on data from the above-mentioned surveys are presented below.

One of the most important signals that came from the employers' survey is the expectation of further growth of the three sectors during the upcoming three years: (Figure 14). The average share of employers expecting growth (71%) varies by sector being highest (84.5%) for ICT&HT and lowest (58.8%) for Agri-food sector.

Expected growth in observed sectors will lead to increase in skilled workforce demand, however employers face significant limitations on the supply side.

**FIGURE 14: DEVELOPMENT TRENDS IN THE PAST AND NEXT THREE YERS BY SECTOR, % OF TOTAL**

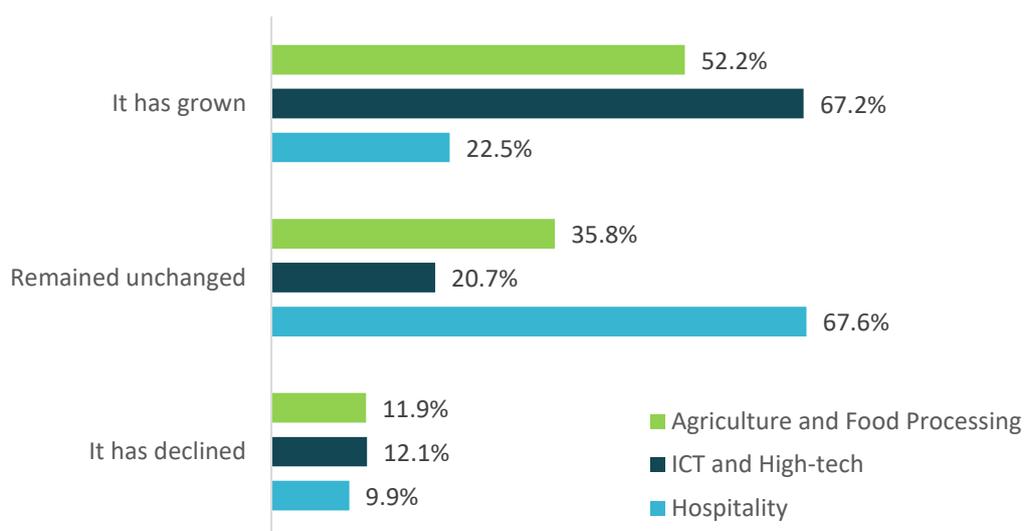


Source: Activity baseline survey, employers, 2022

It is worth mentioning that growth trends during the past three years that include COVID-19 pandemic period were reported by almost half (49%) of surveyed employers. Again, the share of those who reported growth was highest (65.5%) among employers of ICT&HT sector. Meantime 56.6% of employers of HORECA sector reported on decline, flatness or fluctuation dynamics in the past.

While the ICT&HT sector performed the best in terms of growth and job creation, the employers of the HORECA sector managed to keep the staff attached to their companies, perhaps also due to assistance provided by the government (Figure 15). Yet, the average annual turnover rate of the staff in HORECA sector comprised about 12% (compared to 5% in Agri-food sector and 7% in ICT&HT).

**FIGURE 15: HOW THE STAFF HAS CHANGED IN THE PAST 3 YEARS? EMPLOYERS, 2022 (N = 269)**



Source: Activity baseline survey, employers, 2022

The expected growth of the sectors, if materialized, coupled with the past turnover definitely will lead to job creation and rise in the demand of skilled staff. Technology adoption and large-scale emergence in transformation of skills will manifest in disruption of some occupations and driving new ones. Intentions of businesses to expand to the regions of Armenia (each third surveyed company in ICT&HT sector) is another factor to impact the LM developments in the country.

The list of jobs to be highly demanded by employers is presented in the Figure 16.

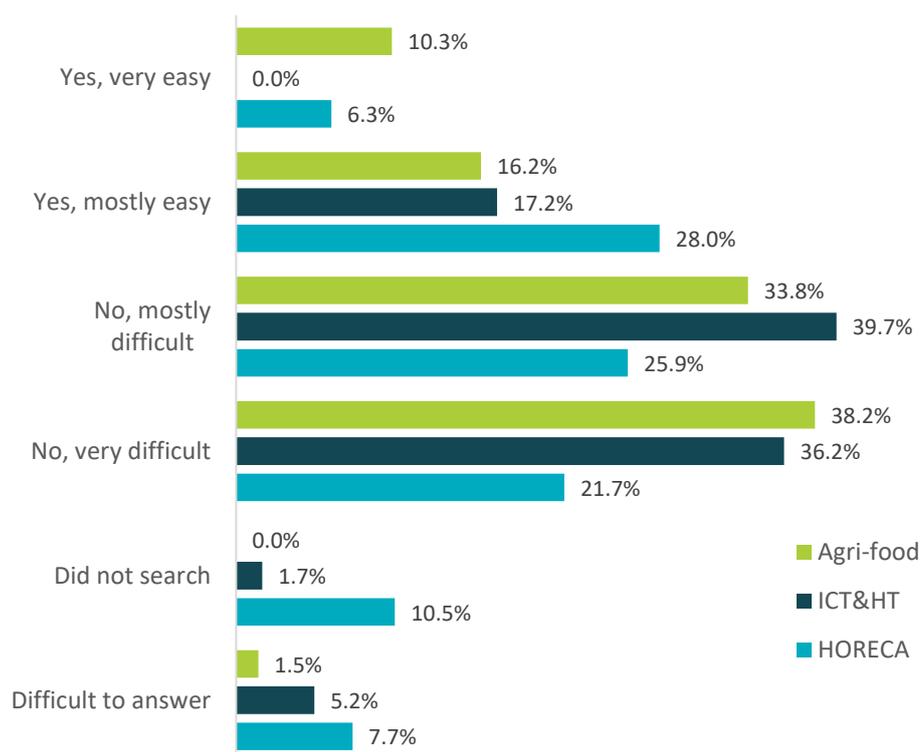
**FIGURE 16: HIGHLY DEMANDED JOBS ACCORDING TO SURVEYED EMPLOYERS, BY SECTOR**

Agriculture	Hospitality	ICT and High tech
↑ Technologist	↑ Marketing specialist	↑ Software architects
↑ Veterinarian	↑ HR specialist	↑ Cloud engineers
↑ Laboratory assistant	↑ Manager	↑ Software engineer
↑ Winemaker/brandy makers	↑ Waiter	↑ DevOps Engineer
↑ Sales manager	↑ Sales manager/specialist	↑ Sales manager/specialist
↑ Production specialists	↑ Administrator	↑ Business analyst
↑ Agronomist	↑ Cleaner	↑ Team lead
	↑ Accountant	↑ Data scientist
		↑ AI specialist
		↑ QA engineer
		↑ Project manager
		↑ Machine Learning Engineers

According to employers the demanded jobs by seniority level will not vary much by sector: about each third job will require senior level and about 40% -junior level.

The employers of all the sectors while stating that the quality of workforce is the most critical factor that hinders the growth of the sector reported experiencing difficulties in hiring specialists and filling emerging vacancies (Figure 17). This phenomenon seems more severe for ICT&HT and Agri-food sectors: 76% of employers from the first and 72% - from the second sector found it mostly or very difficult to find qualified workforce for their company. The reasons by sector are different: while the recruitment in the hospitality industry is difficult mainly due to existing socio-cultural stereotypes and the seasonal nature of the work, in agri-food sector the low salaries also play a significant role in lack of getting qualified specialists.

**FIGURE 17: IS IT EASY TO FIND QUALIFIED WORKFORCE? EMPLOYERS, 2022 (N = 269)**

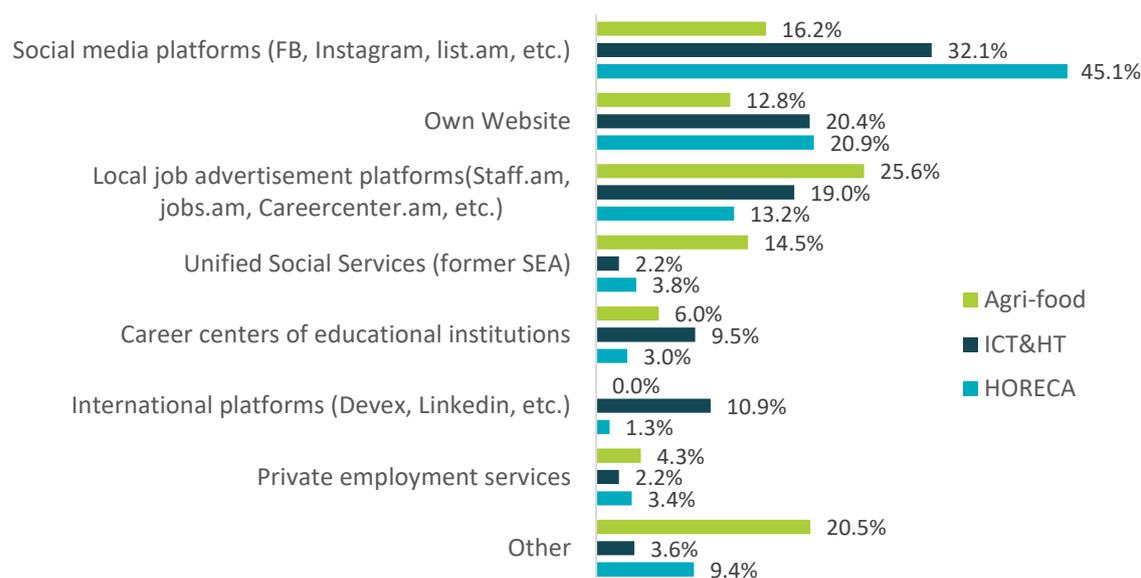


Source: Activity baseline survey, employers, 2022

It is worth mentioning that to recruit new staff the businesses use all the possible means starting with social media platforms (34.6% of all the cases mentioned), own websites (18.8%) and local job advertisement platforms (17.8%) and ending with public (5.9%) and private (3.3%) employment services, as well as career centers of educational institutions (5.5%). The international platforms, such as Devex, LinkedIn are used in 3.7% of cases mentioned by employers. As the Figure 18 shows, the most preferred/used channel for searching professionals by employers of HORECA sector is the social media (45%), while the employers of agri-food sector quite often (26%) also turn to the local job advertisement platforms. In any case it is obvious that the role of dedicated intermediary institutions and career centers of educational institutions is not as relevant as could be/expected to be.

The role of intermediary institutions dedicated to facilitate the LM supply and demand, such as public and private employment services and the career centers of educational institutions is not significant.

**FIGURE 18: HOW DO YOU RECRUIT STUFF FOR YOUR COMPANY? EMPLOYERS, 2022 (N = 269)**

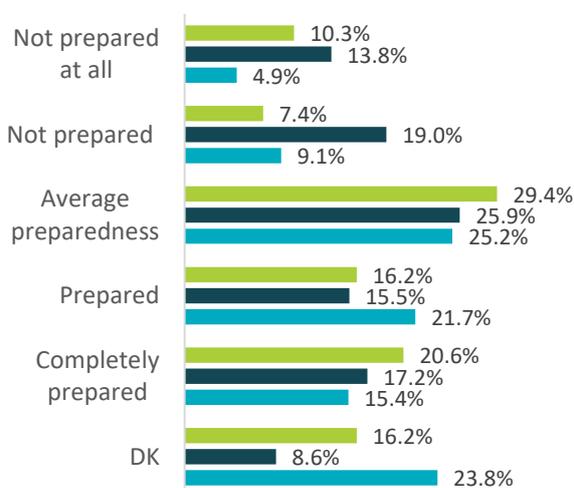


Source: Activity baseline survey, employers, 2022

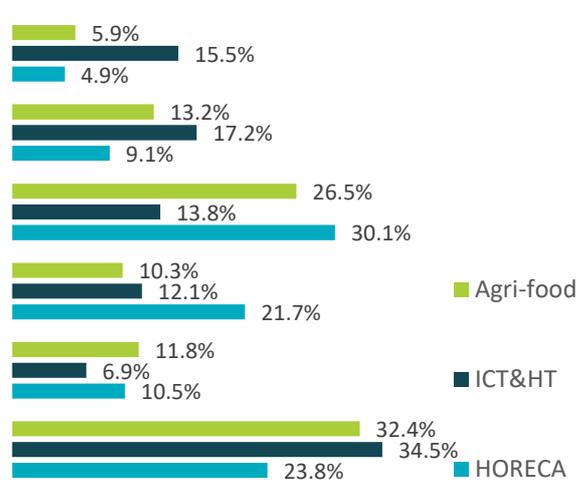
Within the mapping study the employers were also asked to assess the level of preparedness of their current employees with tertiary and middle vocational for the job at the time of being hired. The weighted average grade of the answers (in a scale 1-5, 5 being fully prepared) comprised 3.3 for the HEI graduates and 3.1 – for the VET graduates. The grades provided by employers of the ICT&HT sector were the lowest - 3.0 and 2.7, respectively. More details on employers’ assessment of preparedness of graduates to move from education to work are provided in the Figure 19. In case of eliminating the uncertain answers (DK/RA), the share of employers who reported that the graduates were prepared for work comprises only 44% for HEI and 37% for VET students.

**FIGURE 19: ASSESSMENT OF THE PROFESSIONAL TRAINING OF EMPLOYEES WITH HIGHER OR SECONDARY PROFESSIONAL EDUCATION AT THE TIME OF HIRING, EMPLOYERS, 2022 (N = 269)**

**How do you assess the vocational training level of employees with HIGHER EDUCATION?**



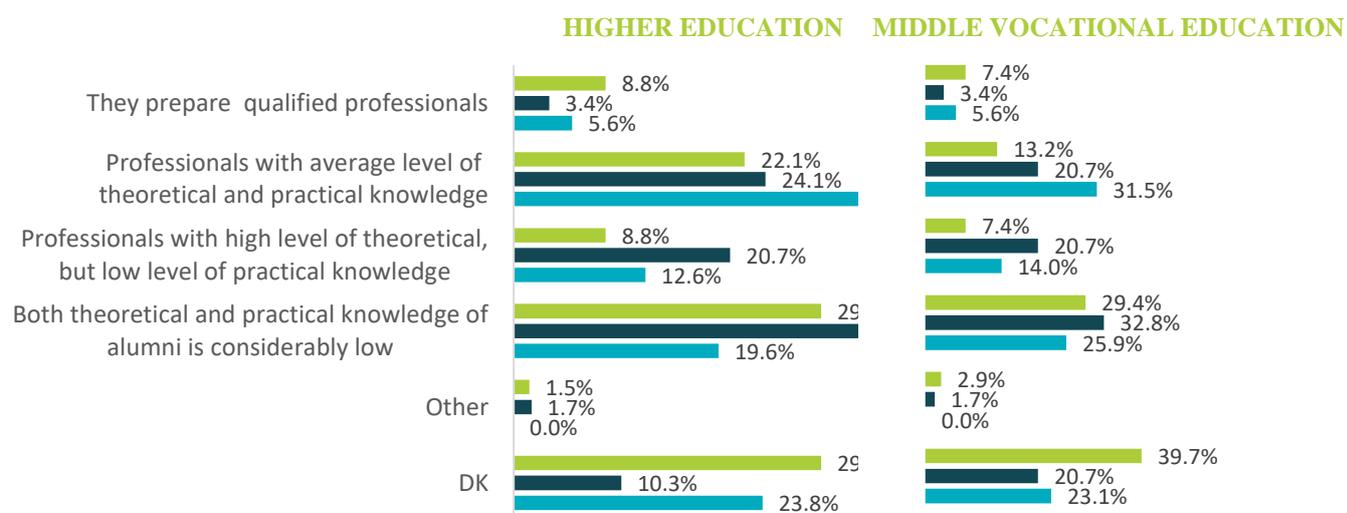
**How do you assess the vocational training level of employees with MIDDLE VOCATIONAL EDUCATION?**



Source: Activity baseline survey, employers, 2022

While assessing the educational system of Armenia in terms of various aspects of training specialists for businesses (by level of education), a relevant share of employers pointed out that both theoretical knowledge and practical skills of graduates are considerably low (Figure 20). Again, if the uncertain answers (other and difficult to answer) are eliminated, the share of employers who reported lack of both theoretical and practical knowledge of graduates was 42.6% for agri-food sector, 45.1% for ICT&HT sector, and 25.7% for HORECA sector. Moreover, each third employer in agriculture and hospitality, and each fourth of ICT and High-tech believes that the quality of professionals prepared by HEIs and VET has decreased in the past 5 years.

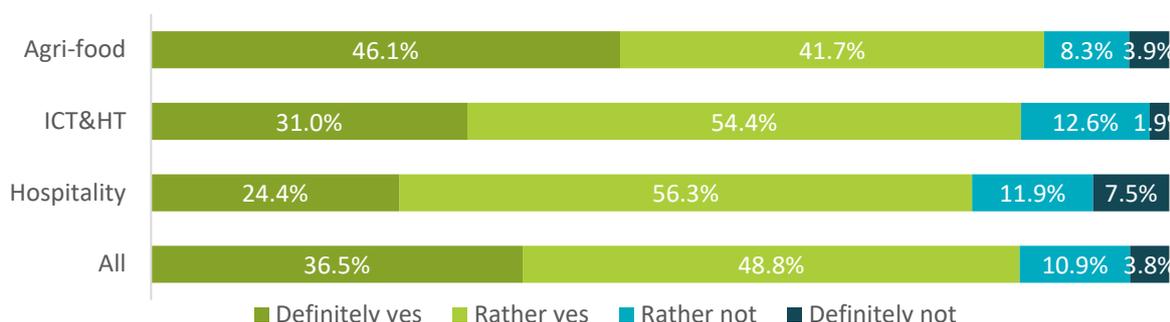
**FIGURE 20: HOW WOULD YOU ASSESS THE EDUCATIONAL SYSTEM IN TERMS OF PREPARING QUALIFIED PROFESSIONALS FOR YOUR SECTOR? EMPLOYERS, 2022 (N = 269)**



Source: Activity baseline survey, employers, 2022

Similar sentiments regarding the quality of education acquired - with much lower severity, are expressed by recent graduates: 83% of graduates with education for agri-food sector, 71% of those prepared for the ICT&HT sector and 64% of graduates for hospitality sector believes that the knowledge acquired during their education meets the requirements of the labor market. Just one quarter of all the graduates (260 out of total 1041) interviewed stated that the acquired knowledge does not meet the LM demands. Among the main reasons of mismatch, they mentioned education being based on theory (42% of mentions), mismatch of the curricula and LM requirements (36%), as well as the low level of education (15%). The largest gap between the demand of the LM and the acquired knowledge due to its being based on theory was pointed out by the graduates prepared for the hospitality sector (55.2%). Moreover, an immense share of graduates reported that the knowledge/skills provided by their educational institution worth the resources and time they have spent on education. Almost half of the graduates with agri-food specialties (46.1%) definitely share this opinion, while only each fourth graduate prepared for hospitality sector (24.4%) favors the idea (Figure 21).

**FIGURE 21: IS THE KNOWLEDGE / SKILLS PROVIDED BY YOUR EDUCATIONAL INSTITUTION WORTH THE RESOURCES AND TIME SPENT ON EDUCATION? GRADUATES, 2022 (N = 1041)**

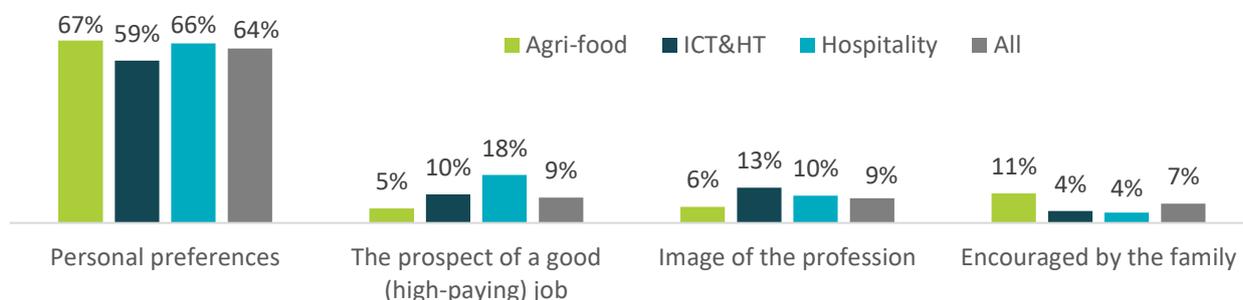


Source: Activity baseline survey, graduates, 2022

In case, there is an opportunity again, 75.5% of all the graduates would choose the same profession, and 72.3% - the same educational institution. The same educational institution would choose 56.3% of graduates with specialties for hospitality sector. As the main reason for choosing their profession the prevailing majority of graduates (63.7%) mentioned personal preferences. The prospects of a good job/career and image of the profession appeared to be secondary reasons (9% each, Figure 22).

The most of recent graduates while choosing their profession were guided primarily by their personal preferences, the career prospects remained secondary.

**FIGURE 22: WHAT WAS THE MAIN REASON FOR CHOOSING YOUR PROFESSION? TOP FOUR REASONS, GRADUATES 2022 (N = 1041)**



Source: Activity baseline survey, graduates, 2022

The mismatch of LM demand and supply is manifested in: a) unemployment, b) employment in jobs that do not match with the education (horizontal mismatch), and 3) employment in positions that do not correspond to educational level (vertical mismatch). The answerers of recent graduates to a cascade of questions revealed that about 37% of HEI and VET graduates do not have any job and their human capital remains unutilized. The share of those prepared for the agri-food sector and not being employed is much larger – about 54%. Moreover, half of the employed graduates with agricultural professions do not occupy jobs that are relevant to their profession. The situation with the graduates for ICT&HT and HORECA sectors appears much better (Table 4).

**TABLE 4: EMPLOYMENT STATUS AND JOB-PROFESSION MISMATCH, GRADUATES, 2022**

VARIABLES/SECTOR		AGRI-FOOD	ICT&HT	HORECA	OTHER	ALL
Current employment status (n=1041)	Yes	46.3%	83.2%	70.6%	54.1%	63.4%
	No	<b>53.7%</b>	16.8%	29.4%	45.9%	36.6%
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Current job and profession match (n=627)	Yes	49.3%	82.5%	69.0%	51.5%	68.0%
	No	<b>50.7%</b>	17.5%	31.0%	48.5%	32.0%
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

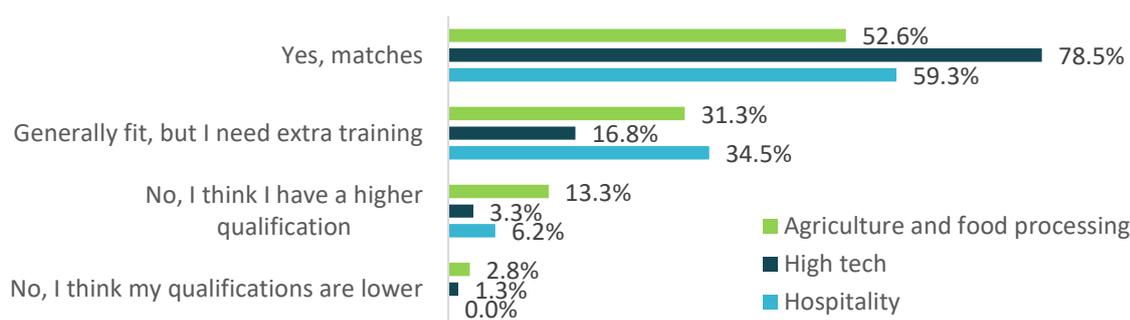
Source: Activity baseline survey, graduates, 2022

Those who stated that their employment/job does not match to their professional educational background, among the reasons pointed out low pays in the field of their profession (39% of mentions), lack of suitable jobs (20%), gap between their knowledge/skills and the LM requirements (18%).

The phenomena of vertical mismatch among employed graduates are also quite articulated. While waste majority of graduates having employment (66.5%) reported that their job matches their qualification, 24.7% selected the answer option “generally fits, but I need extra training”, and 7% believes that his/her qualification is higher, while 1.7% - lower. The feeling of a need in extra training is higher among those who were prepared for the agri-food and hospitality sectors (Figure 23). It is worth mentioning that almost half (48.7%) of that whit no job currently but being employed after graduation stated that their former job did not match to their qualification.

The mismatch between the demand and supply in the Armenian labor market, as well as the phenomena of horizontal and vertical mismatch are quite spread and articulated.

**FIGURE 23: DOES YOUR JOB MATCH YOUR QUALIFICATIONS? GRADUATES, 2022 (N = 627)**



Source: Activity baseline survey, graduates, 2022

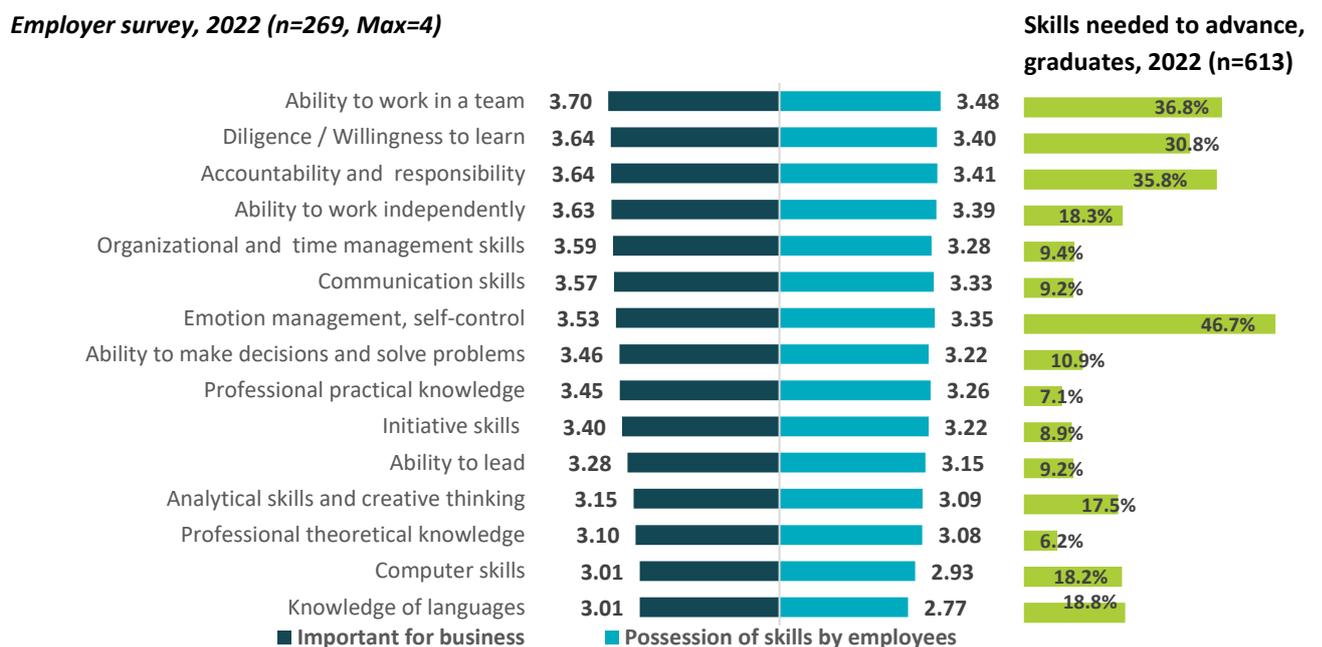
The labor market mismatch and the skills gaps mapping study also turned to the certain skills (especially the soft ones) that are the most demanded in the contemporary world. The employers were asked to evaluate (in a scale of 1-4, 4 being very important) the importance of certain knowledge/skills for their business and the level of possession of these knowledge/skills by their current employees. A mirroring question addressed to graduates was formulated as follows: “What knowledge / skills / abilities do you need to perform better in your current job, get paid better, or find a better job?” the latter were asked to mark all the options that are applicable. The Figure 24 below presents the results of the described exercise.

As the data from the figure show, the level of possession of all the listed skills by current employees is lower of grades of importance of the same skills for the business. Among the top five skills mentioned by employers are: ability to work in a team, diligence and willingness to learn, accountability and responsibility, ability to work independently, organizational and time management skills. Relatively less important (bottom three) are considered theoretical knowledge, computer skills and knowledge of languages.

According to employed graduates the most needed skill for advancing in their employment is emotion management and self-control: this skill was mentioned by almost half (46.7%) of graduates. Among the other important skills to acquire graduates mentioned ability to work in a team (36.8%), accountability and responsibility (35.8%), willingness to learn (30.8%), ability to work independently, computer skills and knowledge of languages (about 18% each).

At the same time the depictions by sector are quite different (see Annex 4, 5 and 6). For example, the employers in agriculture prioritize team working (average grade 3.79 vs. 3.51 of possession by employees), accountability and responsibility (3.68 vs. 3.44), employers in ICT&HT – computer skills (3.72 vs. 3.52) and willingness to learn (3.69 vs. 3.36), and employers in hospitality – teamwork ability (3.67 vs. 3.49) and communication skills (3.67 vs. 3.46). Interestingly, the computer skills and knowledge of languages possessed by employees of agri-food sector are evaluated higher of importance of these skills for the business (2.49 vs. 2.19 and 2.29 vs. 2.03, respectively).

**FIGURE 24: ASSESSMENT OF KNOWLEDGE/SKILLS IMPORTANT FOR THE BUSINESS AND THEIR POSSESSION BY EMPLOYEES (LEFT SIDE, AVERAGE SCORE) AND NEEDED FOR EMPLOYED GRADUATES TO ADVANCE**



Source: Activity baseline survey, employers and graduates, 2022

To summarize this section the study suggests that:

- the businesses experience difficulties in completing the vacancies and hiring/employing qualified staff,
- the graduates face challenges in getting jobs and advancing in their career,
- the HEI and VET need essential improvement and transformation to assure high quality and job placement of their graduates,
- the mismatch between the demand and supply in labor market, as well as the phenomena of horizontal and vertical mismatch are quite spread and articulated.

To cope with these challenges and narrow the gaps to possible extend a dialogue between the interested parties and coordination of efforts and resources are needed. The next section provides some highlights how the gaps are being addressed spontaneously and separately.

## SECTION 5-2: SKILLING UP NEEDS OF COMPANIES AND EMPLOYEES: ENCOUNTERING DIFFICULTIES IN FILLING VACANCIES/GETTING JOBS, TRAINING THE STAFF/GETTING TRAINED

To highlight the possible ways of felling the existing gaps in LM and outline the activities being undertaken by stakeholders, the study addressed series of questions first of all to employers and employees (graduates).

While assessing how serious are the major challenges for finding relevant professionals in their field the surveyed employers of all the sectors as one of primary reasons mentioned insufficient level of practical knowledge/skills of candidates/employees. The weighted average scores (in a scale of 1-5, where 1 means not serious at all and 5 means very

Employers invest intensively in upskilling/reskilling of their workforce, especially in the ICT/High-Tech sector. Majority of employers in the field of agriculture, ICT/High-Tech and hospitality have positive perceptions on the dual educational approach.

serious) for this and other reasons by sector presented in the Table 5 show that employers in ICT&HT sector also consider posture of values (average score 4.02 out of 5 max) as the most critical hindering factor for sector growth, followed by lack of soft skills (3.56), while the employers in hospitality - lack of workforce in regions at large (3.68). Interestingly, the employers of the agri-food sector unattractive salaries mentioned among the relatively least serious challenges (with a score of 2.42). The employers in ICT&HT sector are pretty sure that the field is attractive for young people: 69% of them believe that attracting youth to the sector is at all or rather not a serious issue (average score – 1.85). The same belief to lower extent is articulated by employers of HORECA sector (2.4).

**TABLE 5: REASONS COMPLICATING FINDING PROFESSIONALS. EMPLOYER SURVEY, 2022**

Challenges*	Agri-food	ICT&HT	HoReCA
Insufficient level of practical knowledge / skills	3.17	3.61	3.17
Lack of work experience	3.10	2.30	2.59
Lack of labor force in the regions	3.10	3.44	3.68
Values	3.09	4.02	3.61
The field is not attractive for young people	2.97	1.85	2.40
Lack of soft skills	2.95	3.56	3.14
Insufficient level of theoretical knowledge	2.80	3.15	2.74
Unattractive salaries	2.42	2.69	2.64

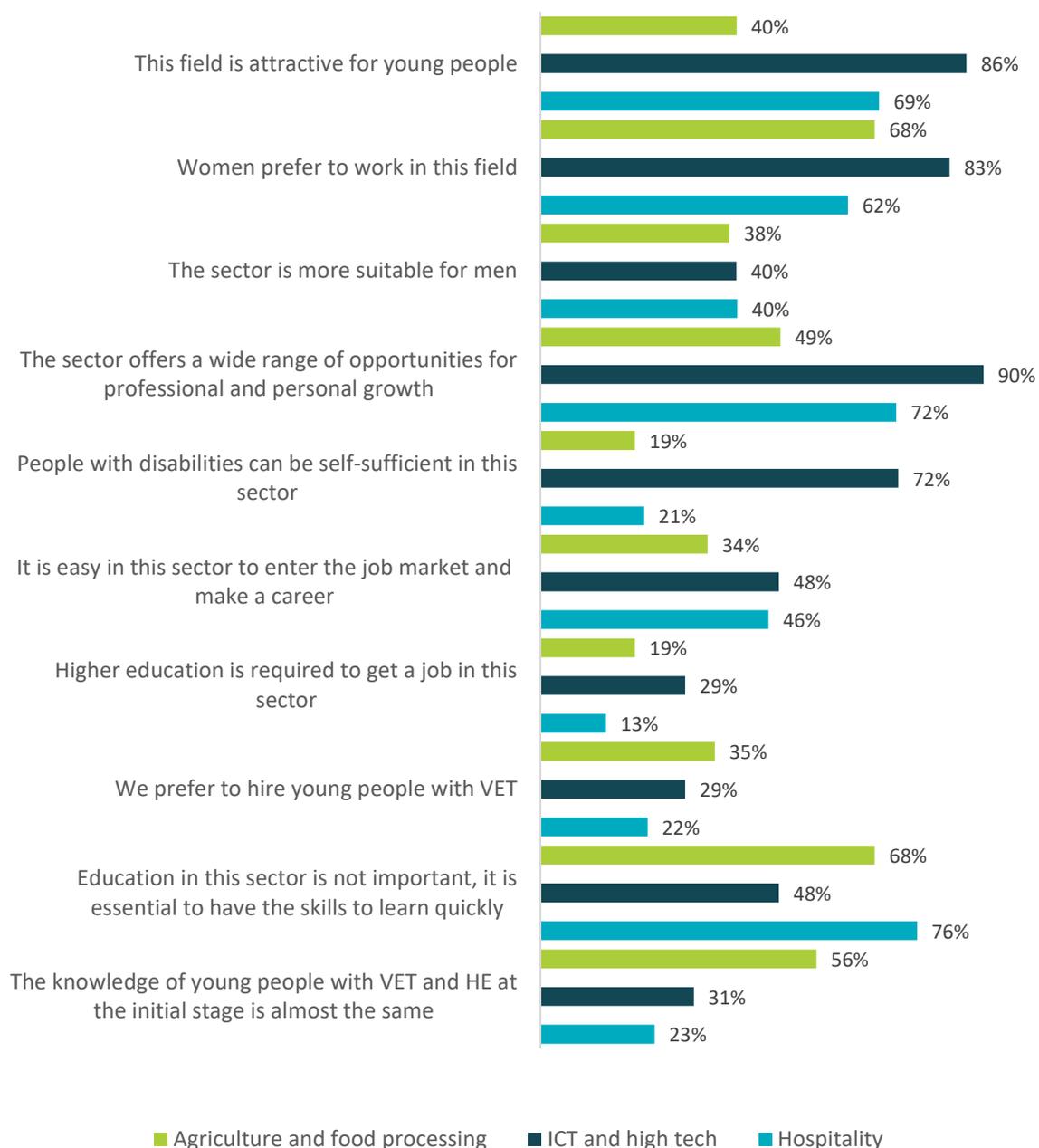
\*Please assess how serious the reasons listed below are for finding relevant professionals in your field. Use a scale of 1-5, where 1 means they are not serious at all and 5 means very serious

Source: Activity baseline survey, employers, 2022

To check the perceptions of employers of the target sectors and their attitudes regarding (un)attractiveness of these sectors from various perspectives and for various categories of people (e.g.

women, youth, PWD) a few statements were suggested while asking to agree or disagree with the statements. The Figure 25 below presents the net agreement (the difference of shares of those who fully and mostly agreed and those who mostly or fully did not agree) of employers with the statements. It is remarkable, that employers of all the sectors net disagreed with the statement that higher education is required for getting a job in the sector. Moreover, relevant majority of employers net agreed that “education in this sector is not important, it is essential to have the skills to learn quickly”.

**FIGURE 25: PLEASE RATE HOW MUCH YOU AGREE WITH THE FOLLOWING JUDGMENTS ABOUT YOUR FIELD (A 1-5 SCALE WAS USED, 1 BEING DO NOT AGREE AT ALL, AND 5 - COMPLETELY AGREE), % OF AGREE AND FULLY AGREE, EMPLOYERS 2022**

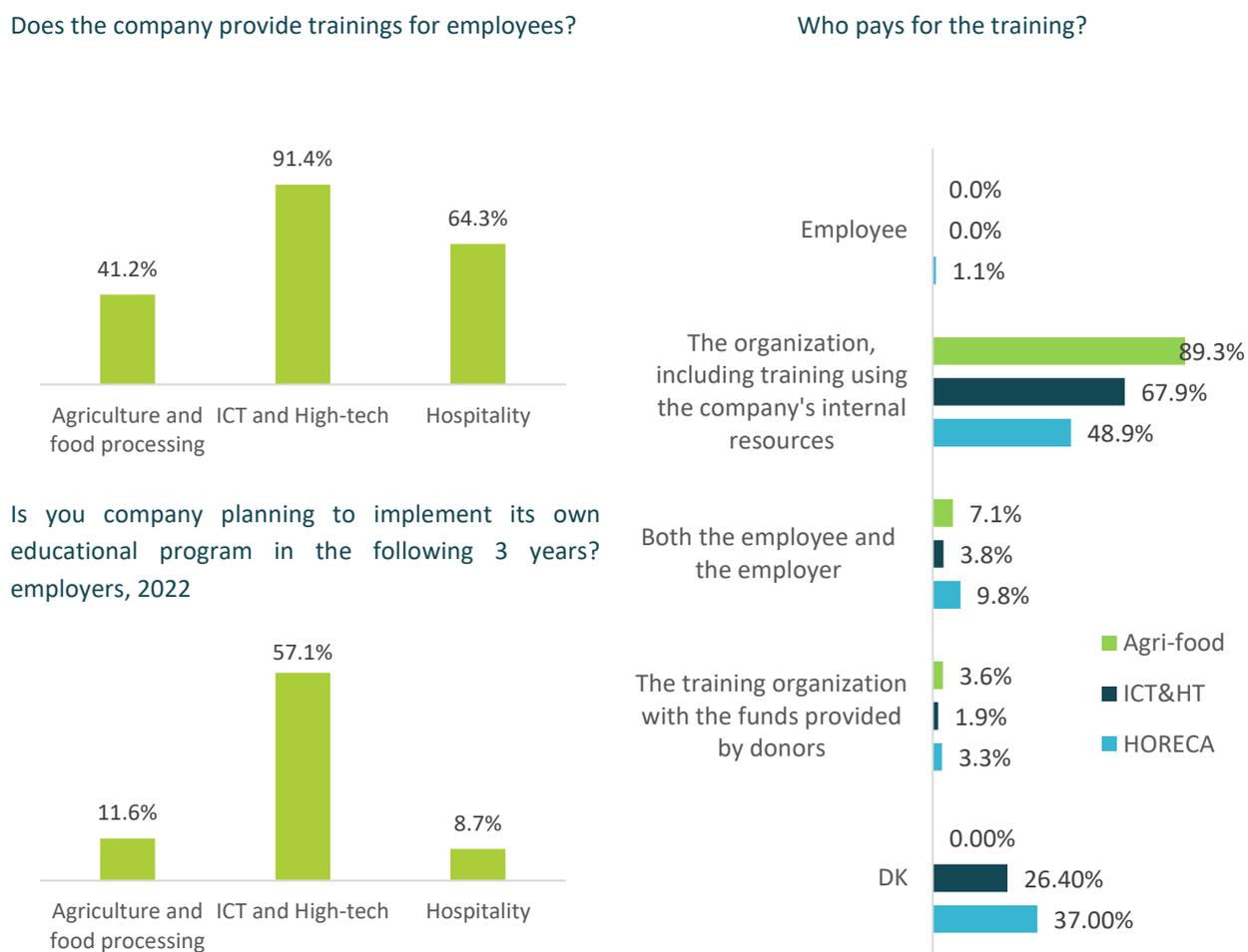


Source: Activity baseline survey, employers, 2022

Thus, it is important to see where and how the process of upskilling and reskilling takes place: is that workplace/on-job learning, self-paced and /or online learning? The study results show that 91% of

employers in ICT&HT sector provide trainings for their employees. Moreover, almost 68% of ICT&HT companies pay for these trainings (including organization’s internal resources). Even more, 57% of ICT&HT companies do plan to implement own educational programs in the upcoming three years (Figure 26). The employers in the agri-food sector while providing training to their employees to lesser extent (41%), do pay for that to larger extent (in 89% of cases).

**FIGURE 26: IS THE COMPANY TRYING TO FILL THE SKILLS GAPS BY TRAINING ITS EMPLOYEES?**

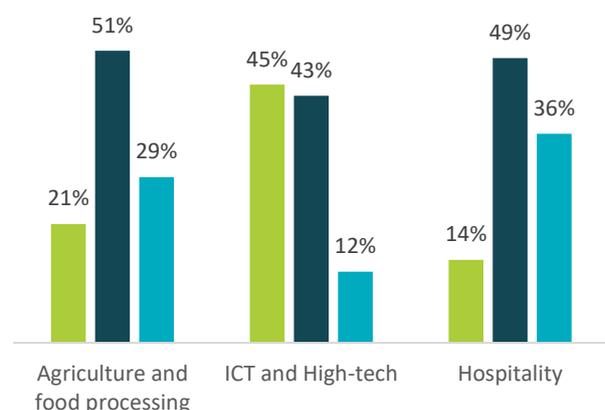


Source: Activity baseline survey, employers, 2022

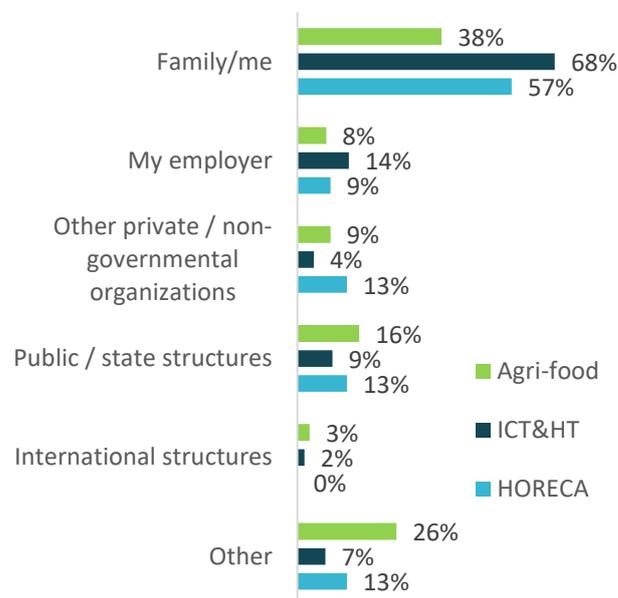
To meet the requirements of the labor market and qualify for demanded jobs, the recent graduates also take actions towards filling the gaps in their knowledge and skills. The results of the survey among recent graduates show that a relevant part of recent graduates already took various courses or plans to do so in a hope to get a job or to be promoted. As the data from the below Figure 27 evidence, each fifth graduate prepared for the agri-food sector by the time of the graduates’ survey already took any course and almost half of them was planning to do so. The share of those who already took courses after graduation was much larger (45%) among graduates prepared for ICT and High-tech sector. After-graduation learning experience of graduates was paid mainly by them and/or their family: on upskilling efforts being paid at their own expense reported 38% of graduates with specialization in agri-food, 68% - in ICT&HT and 57% - in hospitality.

**FIGURE 27: UPSKILLING AND RESKILLING EFFORTS OF RECENT GRADUATES BY SECTOR, GRADUATES SURVEY 2022**

**Do you take any courses to get a job after graduation (to find a better job) or to be promoted?**



**Who paid for the training?**



Source: Activity baseline survey, graduates, 2022

It is worth mentioning that the need of upskilling and reskilling of the labor force is confirmed by another – Adult education survey conducted in 2020-2021 by DVV Armenia and CRRC-Armenia with a large sample size of 2440. While being asked to assess the extent to which the knowledge and skills they acquired during their studies are utilized in their current job, only 37% of respondents (18-64 years old) of this survey stated that they completely (27%) or partially (10%) utilized their knowledge and skills. Meantime 45% of respondents said that they have not utilized the skills and knowledge acquired during studies<sup>5</sup>.

The majority of the respondents of the adult education survey reported that their non-formal educational activities were job related (67%), and took place outside working hours (45%). The most common reasons for participating in non-formal education were mentioned desire to improve job performance (44%), obtain skills and knowledge for use in everyday life (33%), and improve career prospects (32%). About 40% of non-formal educational activities were free, and the rest was paid for by the respondent or someone else (43%), most often an employer (76%).<sup>6</sup>

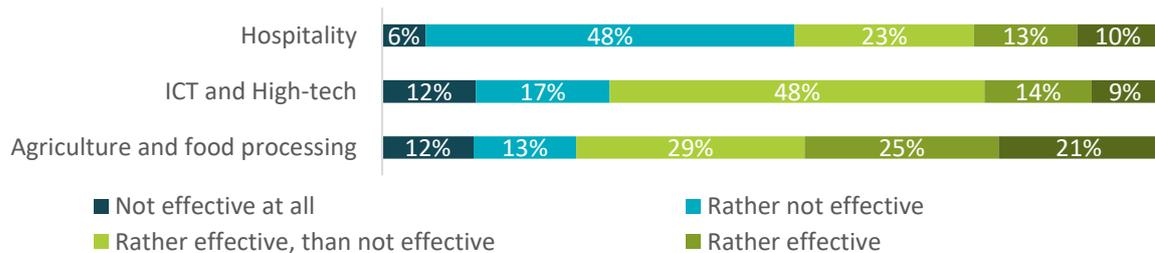
The need of continuous education is evident from the results of the World Values Survey (2021) as well: on the question “To what degree are you worried about losing job or not finding a job?” 48.5% of respondents selected the option very much (53.6% among 30-49 y.o.), 18.4% - a great deal, and only 22.5% - not at all. In many cases people need to enhance their digital literacy. Meanwhile, only two-thirds (68.4%) of the adult population in Armenia use the Internet on a daily basis, and the digital divide leaves behind many people of above middle age (51.4% among 50+ years).

<sup>5</sup> Adult Education Survey, Armenia, 2020-2021; [https://www.dvv-international.ge/fileadmin/files/caucasus-turkey/Armenia/Other/Survey\\_ENG\\_FINAL.pdf](https://www.dvv-international.ge/fileadmin/files/caucasus-turkey/Armenia/Other/Survey_ENG_FINAL.pdf), page 25

<sup>6</sup> Ibid, pages 10 and 45-47

The cooperation between the businesses and the educational institutions could be effective for both the demand and supply sides of labor market. While assessing the current state of such cooperation only 22% of employers in ICT&HT sector, 24% in hospitality sector and 46% in agri-food sector found it rather of fully effective (Figure 28). The current state of collaboration between the businesses and educational institutions is considered not effective by 54% of employers in HORECA, 29% in ICT&HT and 25% in Agri-food sectors.

**FIGURE 28: EVALUATE THE EFFECTIVENESS OF BUSINESS-EDUCATIONAL COLLABORATION, EMPLOYER, 2022 (N=269)**



Source: Activity baseline survey, employers, 2022

Here are a few sentiments the business representatives and representatives of educational institutions expressed during the focus group discussions regarding cooperation between employers and HEI/VET institutions:

#### Employers:

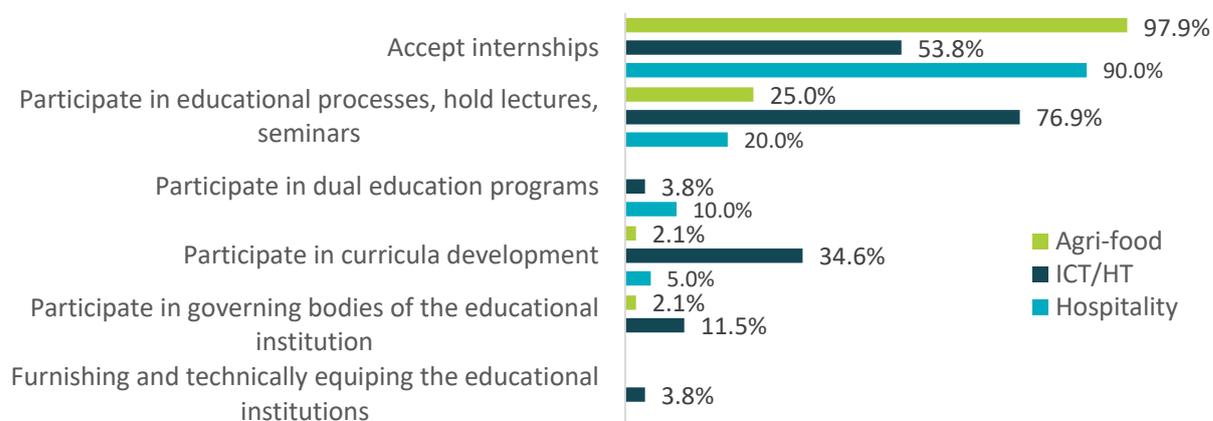
- educational institutions have been left out of the process, in practice they are not essential, we have not even paid attention, we only can rely on ourselves;
- educational institutions not only do not do their best, they do nothing, we train staff ourselves;
- there is a cooking school in Sevan, what they teach has nothing to do with cooking. If someone decides to become a cook, he/she has to come and participate in trainings for 6 months.

#### Representatives of educational institutions:

- the requirements of the employers are not specified, the employers have different requirements for the same specialist, often they do not know what exactly they want from the specialist;
- educational institutions are not materially equipped to be able to train competitive personnel for the market.

Despite the pressing need of cooperation between the businesses and the educational institutions, the most spread form of cooperation remains assigning/accepting internships. The only exception are the employers in the field of ICT and high technology, 76.9% of which reported on their participation in educational process and 34.6% - in curricula development (Figure 29).

**FIGURE 29: WHAT ARE THE FORMS OF COOPERATION WITH EDUCATIONAL INSTITUTIONS?**



Source: Activity baseline survey, employers, 2022

As the international and local experience shows, the most effective way of preparing specialists ready to work is the dual education approach, the study tried to check if employers are aware of dual education and most importantly willing/ready to apply it – i.e. to cooperate with educational institutions more closely. It came out that awareness of dual education among employers is quite low. However, the most of knowledgeable employers (63% in agri-food, 65% in IT&HT, and 53% in HORECA) are willing/ready to apply the dual (WBL-work based learning) education approach. Thus, closer cooperation between the businesses and the educational institutions, including effective implementation of dual/WBL will somehow take off the need for businesses do provide trainings for employees (91% in IT&HT, 64.3% in HORECA and 42% in agri-food currently), as well as graduates to take courses. Perhaps some policy actions are needed to promote the dual education in Armenia.

**In agri-food and hospitality sectors only each tenth employer is aware of dual education, while in the ICT/HT sector- each second.**

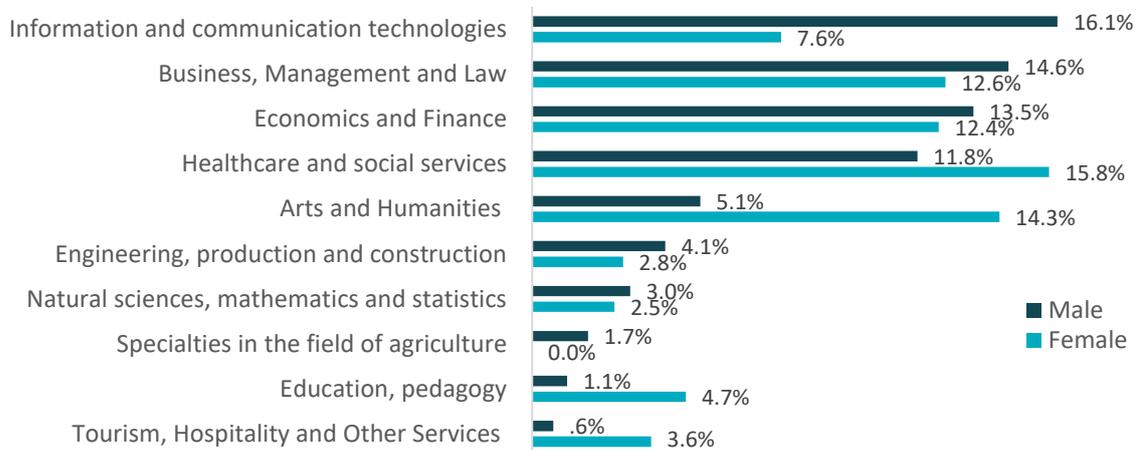
### SECTION 5-3: CAREER PREFERENCES AND ATTITUDES OF SCHOOL CHILDREN

According to labour market mapping study school children and their parents are widely aware of the importance of education for professional development and are quite oriented towards the future profession. Family members have a significant influence on child's career orientation: 48% of surveyed high school children reported so. Impact of social media and teachers on career choice are lower compared to family members, 12.3% and 7.3% respectively. Therefore, it is necessary to raise awareness not only of students but also parents regarding current and expected trends of change in labour market.

Information and communication technologies, business and law, economics and finance are popular career areas among high school children. The most preferred profession for school boys is IT, while school girls gave preference to healthcare and social services (16.1% and 15.8% of all the professions, respectively). Among the most preferred fields for girls are arts and humanities (14.3%) and business management, and law (12.6%). IT is in the top five professions most preferred by high school girls (7.6%). Specialities in fields of agriculture and tourism (HORECA) are among the less attractive industries for starting a career (FIGURE

30). As the main reasons of this attitude low salaries (31.4%) and lack of opportunities for career growth (21.7%) are mentioned.

**FIGURE 30: DISTRIBUTION OF PREFERRED PROFESSIONS, SCHOOL CHILDREN, 2022, BY SEX, (N=2358)**



Source: Activity baseline survey, school children, 2022

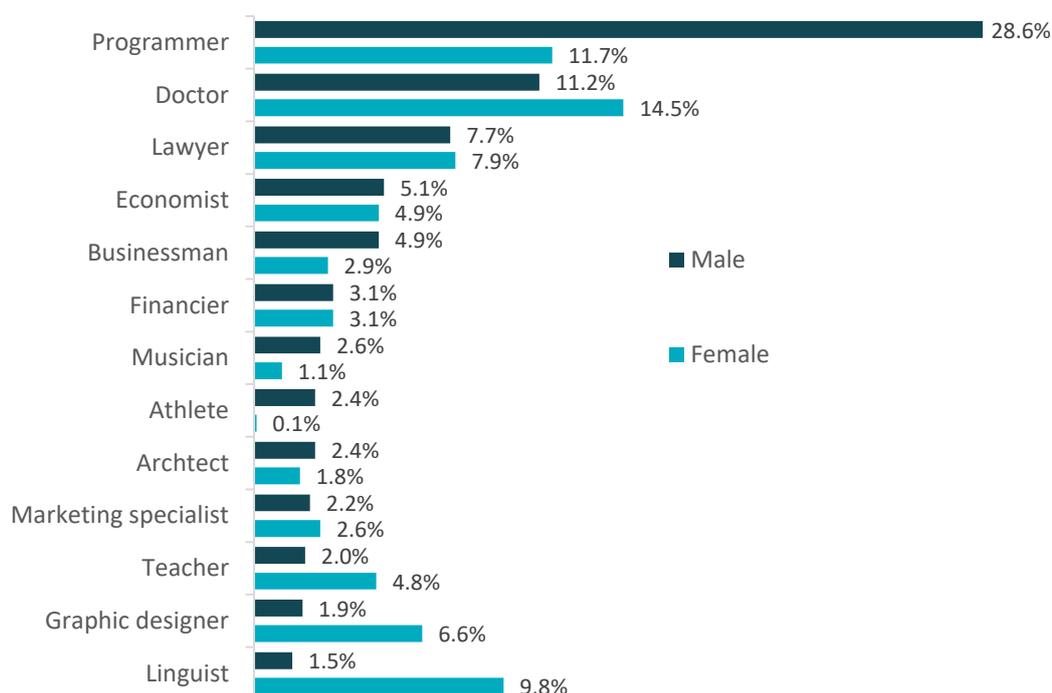
Thirty seven percent of high school girls and 28.0% of boys stated that the main reason for their choice was attractiveness of career in that field, while 23.1% of boys and 14.8% of girls cited high-paid salaries. The third most popular reason for choosing a profession appeared to be the large demand for specialities in that field (boys-14.9% and girls-14.3%).

High school children were also asked whether studying well is enough to be successful in life. 31.6% of high school children agreed with that statement, while 21.8 % stated that learning well does not play a role in achieving success. 40.1% of high school children in rural areas, 33.5% in urban areas and 28.1% in Yerevan believe that school education is sufficient for admission to university and secondary colleges.

Coming to the possible impact of availability of financial resources on decision to continue education at universities or VET institutions, 52% of parents and 32% of high school children agreed with the statement that shortage of financial resources for studying at a university makes youth to continue their education in VET institutions. Meantime, 72% of parents and 48.1% of high school children believe that without higher education it is impossible to find a good job. However, a remarkable share of high school children (39.2%) believe that VET education is enough to have a high-paying job.

According to the results of the last wave of the World Values Survey conducted in Armenia in 2021, 76% of population aged 18-29 stated that their job is very important in their life. Within this study high school children were asked to describe their dream job: profession, workplace, and salary. Nearly one-third of high school male students (28.6%) cited programming as their dream profession, while only 11.7% of school girls dream to become a programmer. The next dream professions selected by high school children are medical doctors' and lawyers' professions, with the first being the most popular among female (14.5%, Figure 31).

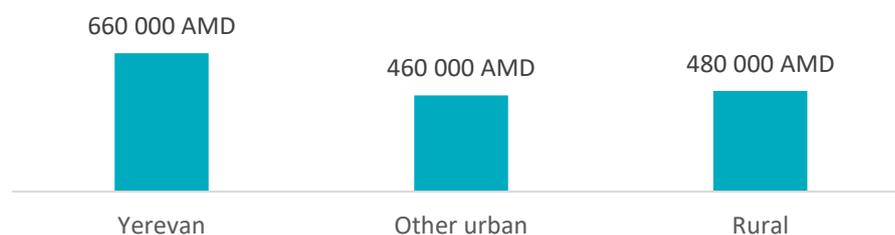
**FIGURE 31: DREAM PROFFESIONS, SCHOOL CHILDREN, 2022, (N=2358)**



Source: Activity baseline survey, school children, 2022

On average, male high school children would like to receive a salary of 590,000 drams, slightly higher of the desired by high school girls salary - 510,000<sup>7</sup>. Salary expectations differ significantly among high school children in regions and in the capital city (Figure 32). While comparing these data on salary expectations of school children with the actual average gross salaries in the country (about 256,000 AMD, of which 317,000 among male and 199,000 among female as of December 2021)<sup>8</sup>, one could anticipate their disappointment later on.

**FIGURE 32: SALARY EXPECTATIONS BY SETTLEMENT TYPE, SCHOOL CHILDREN, 2022, (N=2358)**



Source: Activity baseline survey, school children, 2022

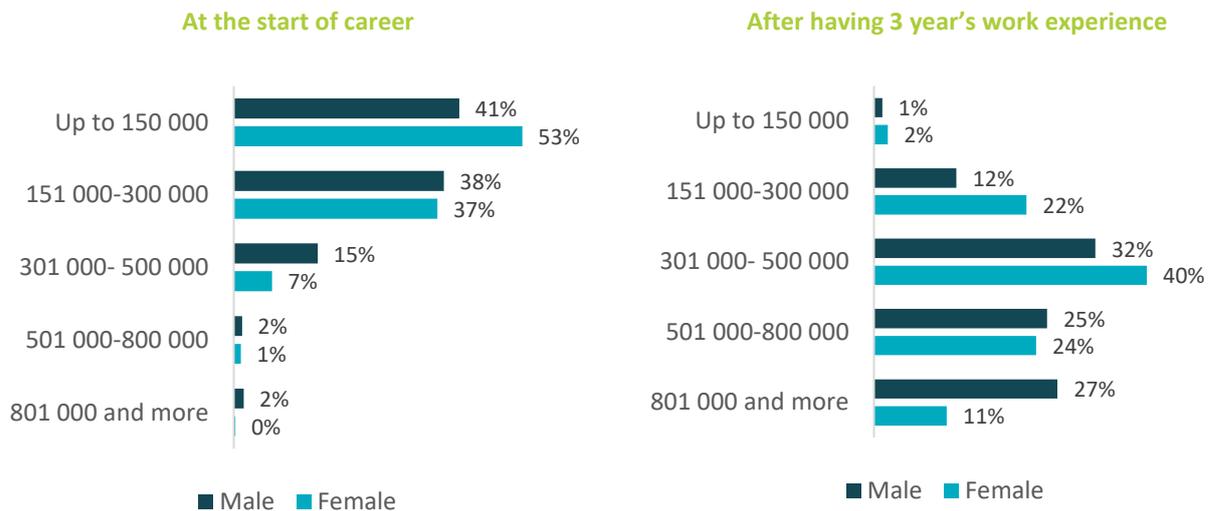
Moreover, as the other surveys show, the salary expectations at the beginning of career are being quite modest and change notably upon getting jobs and accumulation experience. According to Students survey

<sup>7</sup> It is worth mentioning that the average gross salaries in the country as of December 2021 was about 256 000 AMD (~317 000 among male and 199 000 among female). Source: Armstat, [Socio-Economic Situation of RA, January 2022](#), page 66

<sup>8</sup> Source: Armstat, [Socio-Economic Situation of RA, January 2022](#), page 66

conducted by EV consulting in 2019, 41% of male and 53% of female stand ready to start their career at a salary of AMD 150,000. However, after three years of work experience all, especially male come to have higher expectations for remuneration: around 52% of male and 35% of female expect to earn 500,000 AMD and above in their fourth year of work. (Figure 33). Again, students from marzes have more moderate expectations for remuneration.

**FIGURE 33: EXPECTED REMUNERATION, STUDENT SURVEY, 2019, (N=1100)**



Source: EV consulting, student survey, 2019

High school children’ parents were asked to mention the most important factors in finding a job for boys and girls. Education was pointed out as the most important factor for both male and female (64% for male and 67% for female).

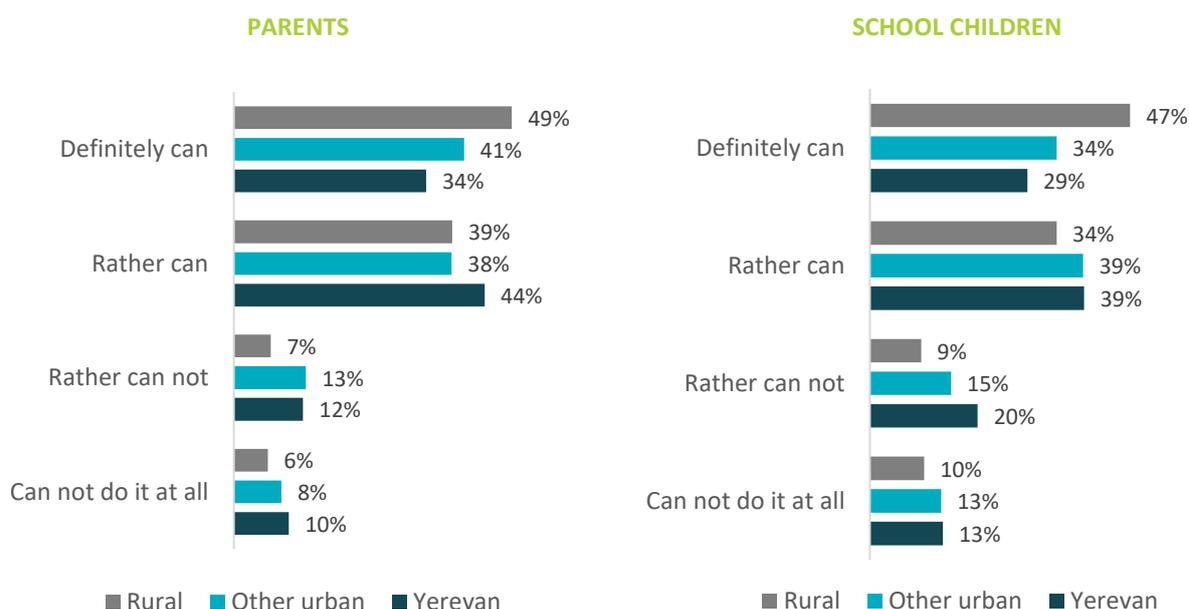
Among the other factors that are important in finding a job, parents quite frequently selected diligence/hardworking (54% for boys and 53% for girls), professional skills (53% for boys and 54% for girls) and good knowledge of foreign languages (43% for boys and 49% for girls). Over a quarter (26%) of parents stated that appearance is important factor for female in finding a job, while only 7% of parents believe that it’s also important for male. According to parents, age is more important factor for female than for male, 24% and 15% respectively. Parents are less likely to believe that having a good job requires success or talent (20%).

Again, these results coincide with the results of the denoted earlier adult education survey: the three most commonly named factors for getting a job in Armenia included education (58%), hard work (37%), and professional abilities and/or work experience (37%).<sup>9</sup>

Vast majority of parents (80.4%) and high school children (73.1%) believe that their children/they can realize their professional goals and dreams in Armenia. However, parents and high school children in Yerevan are slightly less optimistic (compared to rural communities) about their future in homeland (Figure 34).

<sup>9</sup> Adult Education Survey, Armenia, 2020-2021; [https://www.dvv-international.ge/fileadmin/files/caucasus-turkey/Armenia/Other/Survey\\_ENG\\_FINAL.pdf](https://www.dvv-international.ge/fileadmin/files/caucasus-turkey/Armenia/Other/Survey_ENG_FINAL.pdf), page 70

**FIGURE 34: TO WHAT EXTENT CAN YOUR CHILD/YOU REALIZE HIS/YOUR PROFESSIONAL GOALS AND DREAMS IN ARMENIA? (N=2048), (N=2358)**



Source: Activity baseline survey, parents and school children, 2022

## SECTION 5-4: VALUES AND ROLE MODELS OF THE NEW GENERATION

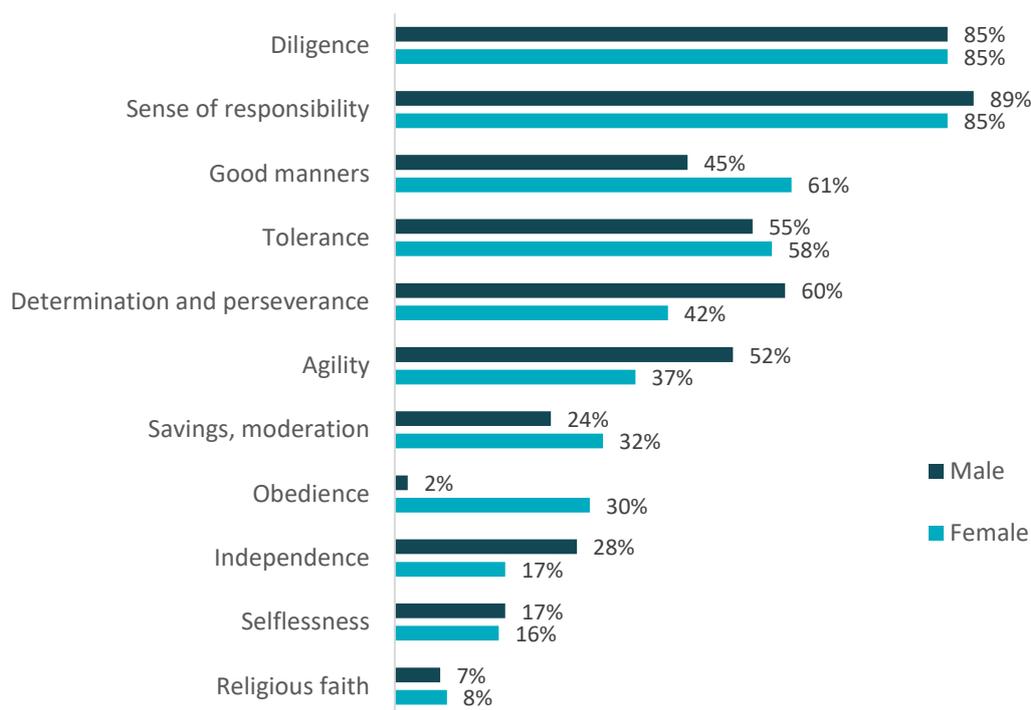
To assess the values of the new generation high school children were asked about the qualities of their “dream” person. Honesty (46.0%), diligence (41.6%), and purposefulness (41.1%) are top 3 characteristics of school children’s dream person. There are no significant differences between school boys’ and girls’ answers.

High school children’s parents listed up five features that they thought are most desirable for children. Vast majority of parents consider diligence and sense of responsibility as the most desirable characteristics for the children (Figure 35). According to parents, obedience is more desirable feature for girls (30%) than for boys (2%), while independence is desirable rather for boys (28%) than for girls (17%). 52% of parents think that agility is desirable for boys, and 37% find it desirable for girls. It is interesting that only 3% of high school children cited that agility is a quality of their dream person.

Coming to the role models worth to follow in their life, high school children mostly set an example of their parents and expressed willingness to be like them. Father is a role model for 24.2% of surveyed school boys and 9.7% of school girls. Mother is a role model for 5.3% of school boys and 15.0% of girls. 11.5% of school boys and 8.9% of girls stated that their role model is an entrepreneur. 5.9% of boys and 9.7% of girls want to be like a world star. There is no role model for 22.4% of school boys and 27.5% of school girls.

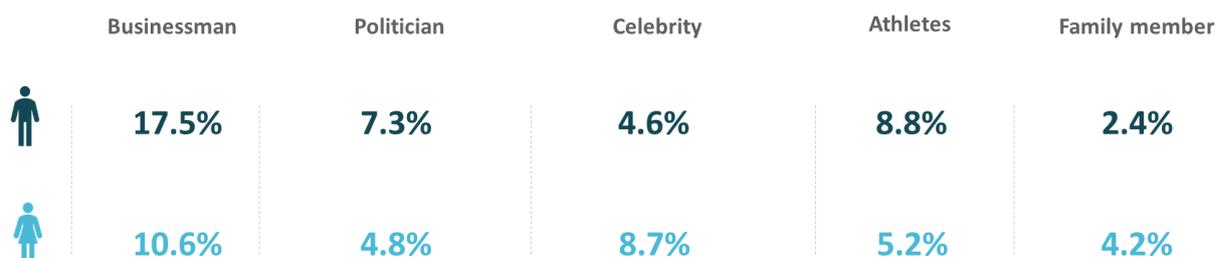
An open question was suggested to high school children in order to identify who they consider to be the most successful Armenian. The answers were categorized based on the occupations of the people whose names were mentioned. (Figure 36).

**FIGURE 35: PLEASE LIST UP TO FIVE FEATURES THAT YOU THINK ARE MOST DESIRABLE FOR CHILDREN, PARENTS, 2022, (N=2048)**



Source: Activity baseline survey, parents, 2022

**FIGURE 36: THE MOST SUCCESSFUL PEOPLE IN ARMENIA CATEGORIZED BY THEIR OCCUPATION, SCHOOL CHILDREN, 2022, (N=2358)**



Source: Activity baseline survey, school children, 2022

The majority of answers included names of Armenian businessmen. Politicians and athletes were largely considered successful by boys, while celebrities were chosen mostly by girls. Overall, the survey finds that there are no defined role models for today's high school children. 40% of high school children (33.7% boys and 42.2% girls) did not mention a name of any successful person in Armenia.

## SECTION 5-5: EXISTING STEREOTYPES, EMPLOYMENT OPPORTUNITIES AND CHALLENGES FOR PWD

- **Gender stereotypes**

Despite significant advances in relationships, gender and age discrimination, prejudice remains part of modern life. Unconscious prejudice is often an unintended stereotype based on age, gender, financial situation, and education level, and occurs in all sectors.

According to Baseline Study on Stereotypes in Eastern Partnership Countries conducted in 2022 by UN Women Regional Office for Europe and Central Asia and UNFPA Regional Office for Europe and Central Asia there are still some gender stereotypes reflecting on employment (UN Women, UNFPA, 2022). The study findings are mainly based on the data of a survey conducted among 1000 respondents in 2020. According to the study, 23% of surveyed men and 14% of surveyed women stated that male family member prevented a woman from working outside the home. Almost half of the respondents (49% of women and 53% of men) stated that career advancement is more important for men than it is for women. The majority of men and women in Armenia (75% and 66% respectively) agreed that it better for children to have unemployed mother. Women are more likely to have part-time job than men in Armenia (29% and 13% respectively for the period 2017-2020). For the same period gender pay gap in monthly earnings was 33%.

Single mothers face many difficulties in reconciling work and family life. When it comes to balancing job and family life, single women confront numerous challenges. They are mostly able to locate low-skilled occupations and blame their inability to adapt to flexible work arrangements on this. In 2019 Armenian women held only 26% of managerial positions. However, 54% of women and 35% of men feel comfortable working with female boss (UN Women, UNFPA, 2022).

To reveal the range of stereotypes that impact the development of target sectors, the Activity mapping study suggested a few statements to respondents. Below are listed some existing gender stereotypes in target sectors.

### **Hospitality**

- Although 52% of hospitality employees are women, they mainly work in this field because can't find job in other sectors. Women do not tend to work in this field because of local traditions, and that's why employers in regions prefer to hire mostly men who, for example, are able to work night shifts.
- Men rarely choose career in this field because of stereotype among population that salaries are low, and it's hard to cover family expenditures. Though employers state that good and experienced specialists can earn more than a half million dram.

### **Agriculture**

- Though women have played crucial roles throughout the history of Armenian agriculture and agri-food — from food production to processing and preparation, there is a stereotype that agriculture is a male-dominated industry in Armenia. According to official statistics almost half of agriculture employees are women (43%). In addition, due to the high migration of men from rural communities, agriculture has been becoming more female industry.

### **High-tech**

- According to the Armenian official statistics, the number of roles in the information and communication sector filled by women is 43%. Anyway, engineering continues to be considered a masculine field.

- **Employment opportunities and challenges for PWD**

According to official statistics, only 26% (45,700) of the people with disabilities (172,800 in total) are employed and the rest (119 900) are outside the labor force (Table 6 and Figure 37).

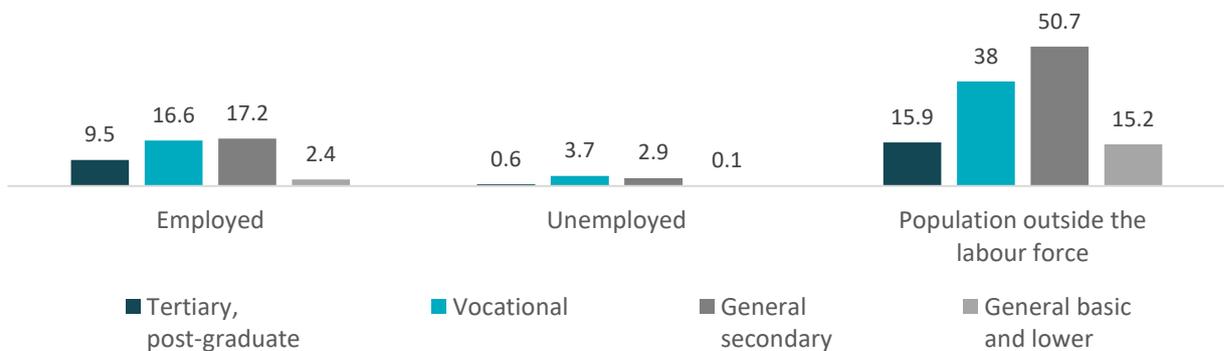
**TABLE 6: SCOPE OF LABOR RESOURCES WITH DISABILITIES, 2020, THOUSANDS**

	Total	Male	Female
<b>Labor resources, total in Armenia</b>	2 200.0	1 009.6	1 190.4
<b>of which: with disabilities</b>	172.8	89.5	83.3
<b>Employed PWD</b>	45.7	28.1	17.6
<b>Unemployed PWD</b>	7.3	5.0	2.3
<b>PWD outside the labor force</b>	119.9	56.4	63.5

Source: Armstat, Population with disabilities, 2019-2020

The distribution of the employed people with disabilities is as follows: 21% have tertiary/post graduate education, 36% - vocational, 38% - general secondary and 5% - general basic education. A relevant part of people with disabilities outside the labor force (42%) have general secondary education, almost a third (32%) - vocational, 13% - tertiary/post graduate education and another 13% - general basic education. Among the unemployed PWD the share of those with tertiary and VET education comprises 59%. All these figures evidence that the society has an issue of engaging better the PWD and gaining from their capacities. The low employment rates among PWD quite often are connected with lack of necessary infrastructures.

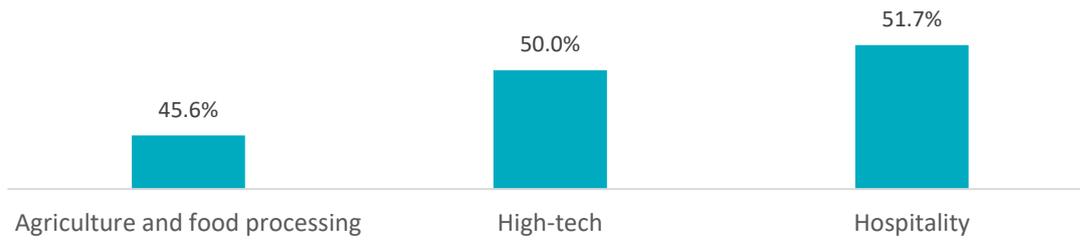
**FIGURE 37: LABOR RESOURCES WITH DISABILITIES BY EDUCATIONAL ATTAINMENT, 2020**



Source: Armstat, Population with disabilities, 2019-2020

According to the labour market mapping study results, the companies in agriculture and high-tech sectors on average have just one employee with disabilities and in hospitality sector – much less, only 0.1 employee. Meantime, almost half of the surveyed employers cited that their office/area is adapted for people with disabilities (Figure 38).

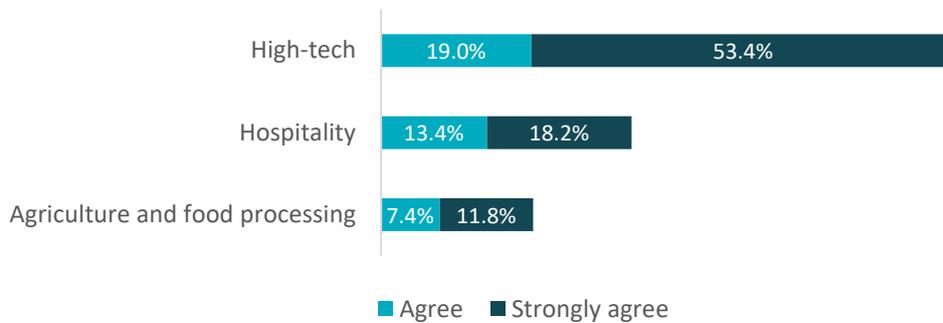
**FIGURE 38: IS YOUR OFFICE/AREA ADAPTED FOR PEOPLE WITH DISABILITIES? EMPLOYERS, 2022**



Source: Activity baseline survey, employers, 2022

Study results show that the most disability-inclusive sector, at least from the perception and attitudinal point of view is High-tech: 72.4% of high-tech employers and 31.6% of hospitality sector employers fully or strongly agreed with the suggested statement that people with disabilities are capable to fulfil themselves in the respective sectors. More than half of employers from agriculture and food processing sector cited that people with disabilities are not capable to fulfil themselves in this sector (Figure 39).

**FIGURE 39: PEOPLE WITH DISABILITIES CAN FULFIL THEMSELVES IN THIS AREA, EMPLOYERS, 2022, (N=269)**



Source: Activity baseline survey, employers, 2022

## CHAPTER 6: CONCLUSIONS AND IMPLICATIONS FOR THE FUTURE

This study is based on desk research and surveys among businesses in three sectors of the Armenian economy - agriculture and food processing, ICT and high technology, and hospitality - as well as among recent graduates, school children and parents. The study revealed substantial quantitative and qualitative mismatches between labor demand and supply, including mismatches with expectations in terms of skill requirements, capabilities of applicants, wages, etc.

Meanwhile, although all relevant actors (government, business, educational institutions) are making efforts to address the complex challenges of the labor market, their efforts are fragmented, reactive and not always sufficiently effective for moving forward with filling gaps in the skills of the workforce, and for systematic shifts in the labor productivity.

The workforce in Armenia is increasingly affected by global megatrends such as automation, changing educational ecosystem, widening skills gaps and skills mismatches, population aging, etc.:

- Technology adoption results in disruption of some occupations, while driving the increase in remote work and online platforms globally and locally. In addition, the COVID-19 pandemic has led to a large-scale surge in remote work and has speeded up the need in digital skills. Meanwhile, only two-thirds (68.4%) of the adult population in Armenia use the Internet on a daily basis, and the digital divide leaves behind many people of above middle age (51.4% among 50+ years). This may have played a role in that many people in Armenia are afraid of losing jobs or not finding one.<sup>10</sup> Another factor that fuels such fears is the possible reduction of many jobs due to automation, and the respective need in upskilling/reskilling of a significant part of currently employed so that to remain active in the labor market.
- Armenia's demographic decline, which is leading to a shrinking working-age population and an aging population (old-age dependency ratio in 2021 comprised [18% vs. 16% just a decade ago](#)), along with a low level of labor force participation rate (in 2020, only 58.5% of the working age population were economically active), create unprecedented tensions in the labor market.
- Imbalances in Armenia's labor market are articulated in high levels of unemployment and informal employment. In 2020, informal employment accounted for 36.9% of total employment, being the highest in the agricultural sector (95.7%), where the productivity is particularly low. Informality is prevalent among vulnerable groups. As for the unemployment rate, in 2020 it was 18.2%, while the rate [for youth](#) (15-29 years old) was much higher – 26.5% (41.7% among 15-19 years old, 30.5% - for 20-24 y.o. and 21.8 –for 25-29 y.o.).
- Educational ecosystem also undergoes transformation towards becoming more responsive to the needs of the labor market and preparing professionals with a new mindset that enables them to be more flexible and efficiently leverage new technologies. To close the growing gap between skills demand and supply the educational institutions adapt learner-driven and lifelong learning approaches, assure inclusiveness, introduce new teaching methods and tools, and practice widely modularity and digital technologies in education. Armenia, while following these global trends, needs to speed up the transformation of professional education.

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<sup>10</sup> To the question “To what degree are you worried about losing job or not finding a job?” asked within the World Values Survey in 2021, 48.5% of respondents in Armenia choose the option “very much” (53.6% among 30-49 y.o.), 18.4% - “a great deal”, and only 22.5% - “not at all”.

All of these and many other factors will have profound implications for the Armenian labor market on both the supply and demand sides, exacerbate labor shortages, and require more active interventions to support continued economic growth.

A deep understanding of these factors by major stakeholders is a prerequisite in policy-making and effective cooperation/joining efforts. Creating a productive and resilient workforce should be considered as an investment in long-term development and prosperity for all.

The surveys conducted among businesses, recent graduates, school children and parents made it possible to expand the understanding of the current situation in Armenia's labor market. Here are the main conclusions:

1. Businesses in all target sectors, while expecting to grow over the upcoming three years and considering the quality of the workforce as the most critical factor hindering the growth, experience difficulties in recruiting staff with in-demand skills. As the knowledge and skills of HEI and VET graduates in Armenia are noticeably far from the expectations and needs of businesses (only 44% of employers reported that students of HEI are prepared for jobs/work after graduation; 37% in the case of VET graduates), most of them provide on-the-job or other types of training to skill-up the staff.
2. Significant proportion of recent HEI and VET graduates are either unemployed (about 37% of those who completed their formal education in the previous 3 years are unemployed) or have a job that does not match their specialty (half of the employed graduates who majored in agriculture) or educational level. To get a job or promotion, a significant proportion of recent graduates take various courses (21% with a major in agriculture, 45% - in IT/High-Tech and 14% - in HORECA) quite often - at their own expense.
3. The assessment of the demand for various skills by businesses and the level of proficiency in these skills by current employees revealed a significant misbalance. Along with the theoretical and practical knowledge, businesses demand/value soft skills, especially social skills such as ability to work in a team, diligence and willingness to learn, accountability and responsibility, ability to work independently, organizational and time management skills, etc.
4. Employed graduates also reported a lack of soft skills needed for career advancement. As the most necessary skills, they named emotion management and self-control (46.7% of graduates). Among other missing skills, graduates mentioned the ability to work in a team (36.8%), accountability and responsibility (35.8%), willingness to learn (30.8%), ability to work independently, computer skills and knowledge of languages (about 18% each).
5. Many businesses in the three target sectors identify an inadequately educated workforce as a major constraint. While graduates reported that curricula did not meet the requirements of the labor market with a prevalence of theoretical knowledge and a lack of practical skills, employers also expressed believe that the preparedness of HEIs and VET graduates has deteriorated over the past 5 years.
6. Closer cooperation between businesses and educational institutions can be beneficial for both demand and supply sides of the labor market. However, the current state of the cooperation is assessed as insufficiently effective (only 22% of employers in the ICT/High-Tech sector, 24% in the hospitality sector and 46% in the agriculture sector found it sufficiently effective). Despite the pressing need for cooperation between businesses and educational institutions, the most common form of cooperation remains internship (the exception is employers in the field of ICT

and high technology, 76.9% of which also reported their participation in the educational process and 34.6% - in curricula development).

7. Albeit the international experience shows that one of the most effective ways to train specialists ready to work is the dual education approach, the awareness of employers about dual education is quite low – 11-12% of employers in agriculture and hospitality sectors and 46% -in ICT/High-Tech sector. Meanwhile, part of employers are willing/ready to adopt a dual education (or work-based learning) approach.
8. The role of intermediary institutions involved in facilitating supply and demand in the labor market, such as public and private employment services and career centers of educational institutions, is not significant. To recruit new staff, only a tiny proportion of businesses uses public (5.9%) and private (3.3%) employment services, as well as career centers of educational institutions (5.5%). Instead, they prefer social media platforms (34.6% of all cases mentioned), their own websites (18.8%), and local job advertisement platforms (17.8%).
9. The generation of current school children (IGen or GenZ) and their parents appreciate the importance of education (especially of higher education) in career growth and are quite oriented in the choice of their future profession (62% of 11th graders and 80% of 12th graders). Among the main factors of professional orientation, school children mentioned demand-driven factors – the attractiveness of a career (37%) and large demand (14-15%) in the respective field, and high salary expectations. The declared level of the latter is more than twice as high as the current average salary in the economy. The most preferred profession for school boys is ICT/High-Tech (16%), and for girls - art and humanities (14%). Only 0.4% “voted” for agricultural specialties and 2.9% for specialties related to the hospitality sector. Meantime, their professional choices are largely impacted by their family members (in 47.6% of cases), while the teachers and career advisers have modest influence (7.3% and 1.8%, respectively). Even more, a relevant share of school children believes that the school education is insufficient for continuing education (45.3%) and getting the dream job (66.4%), hence practice on-line courses outside of the school program to learn programming, languages, on career advancement, etc.

Coming to the role models worth to follow in their life, high school children mostly set an example of their parents and expressed willingness to be like them. There is no role model for 22.4% of school boys and 27.5% of school girls.

10. Albeit the reforms that were undertaken in Armenia in the field of the TVET system, its attractiveness and attitudes towards it remain low. According to the results of the survey among school students, only each seventh of those planning to continue education mentioned TVETs as target place to study. Moreover, 52% of school children disagreed with the statement that “TVET educational institutions provide quality education”.
11. Gender stereotypes regarding jobs are still notable in society: while assessing the importance of various factors for getting a decent job, surveyed parents mentioned being young and having a good appearance for girls (24% and 26%, respectively) more often than for boys (15% and 7%).

## Recommendations

The labor market actors should recognize that:

- a) megatrends are changing the future of jobs, and the lack of specialized skills can leave many without a decent job;

- b) access to decent and sustainable employment is important for raising living standards, reducing poverty and inequality, and protecting people from shocks;
- c) the workforce in Armenia is under pressure, as a large share of workers is either employed in the informal sector or in precarious jobs and thus, is not immune to work-related emergencies;
- d) a diverse workforce helps businesses innovate faster and increase productivity.

Based on the findings of the study and panel discussions during the Workforce Development Conference held on June 22, 2022 the authors have devised the following recommendations which can contribute to the formulation of the national agenda for workforce development and guide workforce development initiatives.

1. Investments in work-related education and the development/implementation of well-functioning active labor market policies (ALMP) are needed to reduce skills gaps and increase the supply of qualified labor for in-demand occupations. ALMPs, in combination with vocational training and re-training, are crucial to making the workforce more resilient to shocks caused by emergencies (such as Covid-19).
2. Improving data collection and analysis, as well as monitoring labor market developments and introducing preventive supply-side measures (training, re-skilling and job-matching) could be undertaken by the dedicated institutions (for example, the Integrated Social Services) to ensure the transition of workers to the formal economy, adaption to new skills that are relevant in the context of demographic transition, technological change and various emergencies. The ISS should be funded and equipped much better (with an appropriate e-platform) to facilitate employee and job searches with higher efficiency. The continuation of the current practice of intermediation in the process of hiring employees and getting jobs is not efficient. Substantial changes are needed and intermediary institutions should go digital and reach out to a broader audience.
3. Eventually, as a distinct career orientation tool for young people and first-time labor entrants, the career guidance platforms will be best positioned to host the career pathway guides developed for the main target sectors of the economy. The career pathways need to present the industry profile, development perspectives and job opportunities as well as illustrative examples of job roles presented by real workers by visualizing the horizontal and vertical career growth opportunities, required skills and educational programs (both formal and informal) for each job role and career ladder.
4. Creation/adjustment of legislative and regulatory environment that strengthens intersectoral and interagency collaboration, applies a rights-based approach to equality policies (PWD, women, and youth), provides more freedom for educational institutions to modify curricula and launch short-term courses. Accreditation of HEI/VET that is based primarily on job placement outcomes of these groups (and alumni employment rate in general) can help achieve better learning outcomes.
5. To cope with difficulties in recruiting ready-to-job staff, businesses should consider investing in facilities that provide various forms of work-based learning (WBL) for students of HEI/VET. The effective implementation of dual/WBL will reduce the need for businesses to provide additional training to employees. The Government, in its turn, may consider providing various fiscal and financial incentives for businesses to invest in the education sector.

6. The transition to the digital age and newly emerging jobs highlights the need for employers to come up with designated HR policies and assigning budgetary allocations to periodically assess and carry out the staff reskilling and upskilling. This will enable the businesses to retain the workforce and reduce staff turnover.
7. As soft skills (computer literacy, foreign language proficiency, etc.) and social skills (resilience, emotional intelligence, decision making, problem-solving, etc.) are gaining higher importance. Due to accelerated changes in job roles and continuously evolving demand for new knowledge and skills employers highly value the ability to learn among employees. The formal educational system needs to adjust educational programs to accommodate skill development to a larger extent.
8. More strategic collaboration between the private and public sectors could result in positive spillovers from innovation in curricula, teaching and learning. Educational institutions should further level up their cooperation with private employers, especially in the agriculture and food processing and hospitality. Piloting effective mechanisms of cooperation between the businesses and educational institutions, such as sector skills councils would serve as an instrumental platform to ensure demand-oriented and quality education, which is largely acknowledged by the private sector.
9. Strengthening career centers and alumni networks is a must for all the HEI and VETs. Better classifying the collaborating employers for one hand, and discussing the learning/development needs of students/future apprentices might have improved the overall effectiveness of career centers and increase the employment chances for students. Incentivizing the private sector to participate in apprenticeship programs and compensate for the resources/expenses made on the apprentice (provided the latter gets a job) is another idea for Active labour market program (ALMP).
10. In the long run, the duration of formal education and tuition fees should be revisited. The latter should be consistent with the return on investment in education. A possible reduction in the length of formal education could be complemented by the launch of short-term targeted extension courses that cover the immediate and emerging needs of the workforce.
11. Considering the demographic changes in Armenia (reduced number of students) the lifelong learning concept should be introduced in formal education. Educational institutions especially VET should intensively engage in reskilling and upskilling of the adult population after graduation from formal education.
12. Despite improvements towards inclusive education, HEIs/VET should find ways to further expand access to quality education for larger number of applicants, especially from/in rural areas. Also, it is worth conducting training courses on inclusive education for all the parties of educational process to raise the latter's awareness and knowledge to better integrate in and mainstream the topic of inclusive education throughout the educational process.
13. Focusing on youth and their families with regard to values and role models should be another priority for HEIs/VET and schools as part of developing values and navigating the young people through career choices. Awareness-raising campaigns and/or info sessions showcasing the learning path of successful local youth need to be implemented to present market demanded professions, the required skill set and the learning path to the youth, their parents and teachers. These campaigns will also allow to showcase the challenges they have faced and

overcome. The campaigns can be implemented through various channels and be based on the main target groups (age, regional and cultural context).

14. PWDs and their employers too will be widely presented to increase awareness on the issues, break stereotypes, help PWDs overcome inferiority complexes, and become role models for their peers to make firm steps towards a change in the quality of their lives and promote a culture of inclusivity.
15. More investment is needed to equip and adapt workplaces for vulnerable groups, especially for people with disabilities. The concept of reasonable adjustment should duly be elaborated in the legislation and awareness-raising among the employers carried out as various surveys and expert estimates show that in 50% of cases the reasonable accommodation doesn't require any budget for employers. Understandably, for bigger scales, payment/co-payment schemes for employers need to be introduced to further smoothen the reasonable adjustment at workplaces for various groups of disabled persons.
16. There is a need to implement targeted policy to change the gender stereotypes and ensure gender mainstreaming focusing on family, schools and the media. As to the gender aspect of career development it is recommended to avoid differentiating the skills of girls and boys by subjects, as well as avoid labeling professions as "feminine" and "masculine" equally encouraging both genders to participate in the labor market.

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## ANNEXES

### ANNEX 1: PRELIMINARY VOCATIONAL EDUCATION, NUMBER OF STUDENTS, 2020

SPECIALTY	STUDENTS	FREQUENCY
Hospitality	2,129	31.4%
Transport services	1,157	17.1%
Art	947	14.0%
Industry & production	784	11.6%
ICT	603	8.9%
Engineering	560	8.3%
Agriculture	102	1.5%
Other	498	7.3%
<b>Total</b>	<b>6,780</b>	<b>100%</b>

Armstat, Social Situation of the RA in 2020

### ANNEX 2: MIDDLE VOCATIONAL EDUCATION, NUMBER OF STUDENTS, 2020

SPECIALTY	STUDENTS	FREQUENCY
Business & Management	7,286	25.7%
Healthcare	5,808	20.5%
Art	4,151	14.6%
ICT	3,994	14.1%
Industry & Technology	1,463	5.2%
Engineering	1,300	4.6%
Hospitality	702	2.5%
Agriculture	681	2.4%
Fisheries	28	0.1%
Other	2,986	10.5%
<b>Total</b>	<b>28,399</b>	<b>100%</b>

Armstat, Social Situation of the RA in 2020

### ANNEX 3: HIGHER EDUCATION, NUMBER OF STUDENTS, 2020

SPECIALTY	STUDENTS	FREQUENCY
Business & administration	11,223	16.3%
Education	8,935	13.0%
Social & behavioral sciences	7,235	10.5%

Healthcare	6,898	10.0%
Law	5,242	7.6%
ICT	4,770	6.9%
Engineering	2,949	4.3%
Hospitality	2,281	3.3%
Agricultural Sciences	565	0.8%
Veterinary	227	0.3%
Other	18,662	27.1%
<b>Total</b>	<b>68,987</b>	<b>100%</b>

Armstat, Social Situation of the RA in 2020

**ANNEX 4: ASSESSMENT OF KNOWLEDGE/SKILLS IMPORTANT FOR THE BUSINESS AND THEIR POSSESSION BY EMPLOYEES (LEFT SIDE, AVERAGE SCORE) AND NEEDED FOR EMPLOYED GRADUATES TO ADVANCE (SHARE OF MENTIONS BY LINE, %)**

***Employer survey, Agriculture, 2022 (n=68, Max=4)***

SKILLS/ KNOWLEDGE	IMPORTANT FOR BUSINESS	POSSESSION OF SKILLS BY EMPLOYEES	SKILLS NEEDED TO ADVANCE, GRADUATES, 2022
Ability to work in a team	3.79	3.51	5.0%
Accountability and responsibility	3.68	3.44	8.0%
Willingness to learn	3.62	3.37	23.0%
Ability to work independently	3.60	3.38	17.0%
Organizational and time management skills	3.59	3.31	7.0%
Professional practical knowledge	3.47	3.49	2.0%
Communication skills	3.47	3.23	11.0%
Emotion management, self-control	3.44	3.15	2.0%
Professional theoretical knowledge	3.16	3.16	4.0%
Ability to make decisions and solve problems	3.13	3.12	27.0%
Initiative skills	3.07	2.97	49.0%
Ability to lead	2.91	3.00	5.0%
Analytical skills and creative thinking	2.28	2.73	31.0%
Computer skills	2.19	2.49	29.0%
Knowledge of languages	2.03	2.29	12.0%

Source: Activity baseline survey, employers and graduates, 2022

**ANNEX 5: ASSESSMENT OF KNOWLEDGE/SKILLS IMPORTANT FOR THE BUSINESS AND THEIR POSSESSION BY EMPLOYEES (LEFT SIDE, AVERAGE SCORE) AND NEEDED FOR EMPLOYED GRADUATES TO ADVANCE (SHARE OF MENTIONS BY LINE, %)**

***Employer survey, ICT and high tech, 2022 (n=58, Max=4)***

SKILLS/ KNOWLEDGE	IMPORTANT FOR BUSINESS	POSSESSION OF SKILLS BY EMPLOYEES	SKILLS NEEDED TO ADVANCE, GRADUATES, 2022
Computer skills	3.72	3.52	39.0%
Willingness to learn	3.69	3.36	9.0%
Accountability and responsibility	3.64	3.24	12.0%
Ability to work in a team	3.64	3.40	13.0%
Analytical skills and creative thinking	3.64	3.30	24.0%
Professional practical knowledge	3.63	3.33	24.0%
Ability to work independently	3.59	3.20	10.0%
Organizational and time management skills	3.58	3.06	23.0%
Ability to make decisions and solve problems	3.55	3.16	9.0%
Initiative skills	3.49	3.17	6.0%
Emotion management, self-control	3.46	3.31	47.0%
Communication skills	3.46	3.13	18.0%
Knowledge of languages	3.45	2.91	31.0%
Ability to lead	3.36	3.02	40.0%
Professional theoretical knowledge	3.31	3.11	6.0%

Source: Activity baseline survey, employers and graduates, 2022

**ANNEX 6: ASSESSMENT OF KNOWLEDGE/SKILLS IMPORTANT FOR THE BUSINESS AND THEIR POSSESSION BY EMPLOYEES (LEFT SIDE, AVERAGE SCORE) AND NEEDED FOR EMPLOYED GRADUATES TO ADVANCE (SHARE OF MENTIONS BY LINE, %)**

***Employer survey, Hospitality, 2022 (n=143, Max=4)***

SKILLS/ KNOWLEDGE	IMPORTANT FOR BUSINESS	POSSESSION OF SKILLS BY EMPLOYEES	SKILLS NEEDED TO ADVANCE, GRADUATES, 2022
Ability to work in a team	3.67	3.49	37.0%
Communication skills	3.67	3.46	13.0%
Ability to work independently	3.66	3.46	9.0%
Diligence / Willingness to learn	3.63	3.43	36.0%
Accountability and responsibility	3.62	3.46	26.0%

Organizational and time management skills	3.60	3.36	<b>11.0%</b>
Emotion management, self-control	3.60	3.46	<b>7.0%</b>
Ability to make decisions and solve problems	3.57	3.29	<b>11.0%</b>
Initiative skills	3.51	3.36	<b>13.0%</b>
Ability to lead	3.43	3.28	<b>12.0%</b>
Professional practical knowledge	3.37	3.13	<b>12.0%</b>
Analytical skills and creative thinking	3.36	3.17	<b>9.0%</b>
Knowledge of languages	3.31	2.95	<b>14.0%</b>
Computer skills	3.13	2.90	<b>10.0%</b>
Professional theoretical knowledge	2.99	3.04	<b>34.0%</b>

Source: Activity baseline survey, employers and graduates, 2022