



Co-funded by the  
Erasmus+ Programme  
of the European Union

## **NEED ANALYSIS REPORT**

**POLAND**

**CAREER GUIDE AND MOBILE APPLICATION FOR EMPLOYEES”**

**2017-1-TR01-KA204-046061**



**Funded by the Erasmus+ Program of the European Union. However, European Commission and Turkish National Agency cannot be held responsible for any use which may be made of the information contained therein**

## 1. General information about employees, enterprise and employees

In Poland, economic activity can be carried out in the various legal forms. In the case of individual economic activities and civil law partnerships, the place of registration of activities is the Central Register and Information on Business. In the case of other legal forms, the place of registration is the National Court Register.

At the end of June 2015, the Statistical Information Centre (GUS) estimated the number of entities of the national economy at 4 155 328, including **4 017 103 private companies**. This does not mean, however, that there are currently 4 million active companies in Poland. The GUS statistics include entities that suspended the economic activities, entities that ended their operations, but information about this fact did not reach the Statistical Information Centre and entities that are not entrepreneurs (foundations, associations). For **commercial companies**, the Statistical Information Centre gives the value of 434,523 entities, while only 313,000 are active. The Central Statistical Office includes entities registered in the Commercial Register B, which have not been transferred to the National Council Of The Judiciary and entities appearing in the National Council Of The Judiciary that are not active. From 2016, the process of automatic deletion of inactive entities from Commercial Register B and the National Council Of The Judiciary has started. A similar mechanism applies to **cooperatives**, which, according to the Statistical Information Centre of 17 590, only 9 900 realistically operate. In the case of **foundations and associations**, there are 131 460 entities in the GUS, but only 9 800 entities from this category of legal entities are entrepreneurs. The largest group of entities according to the Statistical Information Centre are **private individuals running a business activity** - there are 2,977,290. However, according to the official register of the Central Register and Information on Business there are only 2 529 000 of such entities, with over 20% of entities being entities with suspended economic activity. Taking into account Central Register and Information on Business statistics, active private individuals running a business activity in Poland is no more than 2 million. The last large group of entities in the national economy are **civil law partnerships** - according to GUS, there are 285 927.

To sum up the above data, we will receive an active number of entrepreneurs by adding up the values for the following legal forms:

- commercial partnerships 313,000
- cooperatives 9,900
- foundations and associations 9,800.
- private individuals running a business activity 2,000,000.

The value obtained is 2 332 700, although it is also slightly overstated. For verification, the value of 2.3 million active entrepreneurs, we can also use information from another state authority. Such a body is the Polish Social Insurance Institution (ZUS), which provides information on the number of entities paying ZUS contributions. There are 1.7 million of such entities. In this **number 120 thousand these are public sector entities** - offices, schools, orphanages, etc. Therefore, there are no more than 1.6 million Social Insurance Institution (ZUS) contribution payers per **entrepreneurs**.

Summing up: the number of active entrepreneurs ranges from 1.7 million to 2.3 million companies.

Number of companies basing on the employment rate <sup>1</sup>	
Rate of employment	Number of companies
over 1000	462
250-999	2 453
50-249	17 332
10-49	117 486
1-9	2 000 000

### **Rate of employment**

In the third quarter of 2017, the number of working people in Poland was **16 510 000** and it was the highest result in the history of the study. This number increased by 14 thousand (0.1%) compared to the second quarter of 2017 and by 244 thousand (1.5%) in relation to the third quarter of 2016 - informs the Statistical Information Centre. The historical minimum was recorded in the first quarter of 2003 (13,348,000), which was about 3.1 million employees (23.7%) lower.

---

<sup>1</sup> The list of Polish companies registered in the National Court Register is provided online by the Central Economic Information Center in the form of the INFODESK marketing service together with newly registered individual business activities registered in CEIDG

In Poland, 9.7% of people are employed by the state. Generally, the Polish State employs **1 896 340 people**. Salaries of this group absorb **88 257 470 000 PLN annually**.

According to GUS data on employment in public administration, in Poland last year there were over 5.6 thousand officials. It means that in total there are 444,000 of them, and more than 260,000 people are currently working in local government.

However, the largest professional group paid from taxpayers' money is not officials. The research conducted by the Republican Foundation shows that these are people employed in **the education system**. They were included in general, separate and higher education and kindergartens. The state pays the most jobs in general education - **366,800**. However, these are not the most expensive jobs. The highest wages are employed **in higher education - PLN 11,262,810,000 / year and in kindergartens - PLN 4,906,070,000 / year**.

Employees in education also generate, on average, the largest costs for the state budget. There are PLN 41 341 210 000 from the state budget for 589 770 people, which gives an average of PLN 70 097 per year per person. The second most expensive professional group are employed **in the justice system**. The average annual salary in this sector is PLN 68,848.

In turn, the second largest group are employed in administration. We spend PLN 21 092 730 000 annually on 415,000 people. What in terms of earnings gives third place.

The last place on the podium, in terms of the number of people paid by the state, are employed **in health care**. There are 361,820 physicians and NFZ(National Health Fund) employees. Data regarding earnings are incomplete, because NFZ did not disclose this information.

### **Unemployment in Poland**

The registered unemployment rate as at the end of March 2018 was 6.6 percent.<sup>2</sup> The number of unemployed in March 2018 amounted to 1.09 million people. The number of vacancies and places of professional activation reported by employers to labour offices in March 2018 amounted to 147 thousand and compared to February 2018 increased by 17 thousand. (by 13.1%).

---

<sup>2</sup> <https://www.mpips.gov.pl/aktualnosci-wszystkie/zatrudnienie-i-przeciwdzialanie-bezrobociu/art,9859,w-marcu-lepiej-na-ryнку-pracy.html>

The registered unemployment rate is most often confused with **the number of persons employed**. The latter is also calculated on the basis of BAEL(Labour Force Survey), however, we refer to persons employed on the basis of an employment relationship. In the first quarter of 2014, there were 12.2 million of such persons, that is, they constituted barely 78% of all employed.

**The unemployment rate among recent graduates**<sup>3</sup> (people who completed education in the last 4 years) of all types of schools in Poland was below the average for the European Union. At the same time, although unemployment among graduates increased between 2007 and 2013, in Poland this increase was weaker than in other EU countries (Poland: an increase of 4 percentage points versus an average increase of 9 percentage points in EU countries).

**175,300 - so many unemployed people with higher education were in the statistics of employment offices according to the latest data of the Statistical Information Centre. In total, 13% of the unemployed are people after graduation.**

Disturbing is the fact that the unemployment rate among recent graduates was higher than among the total population of people up to 30 years of age (21% versus 18%), which indicates that there are still barriers to enter the labour market in Poland.

In addition, as many as 34% of unemployed graduates remain unemployed for over a year, while the percentage of long-term unemployed among recent graduates from EU countries is less, or 32%. The mismatch in the labour market and the small number of job offers in Poland are the main reasons for this. 60 percent graduates begin their first job after 2 months.<sup>4</sup>

In Poland young people with higher education have the easiest access to job (13% of unemployed among university graduates), whereas people with high education (27% of the unemployed) have more problems with finding it.

Graduates in Poland are twice as likely to work on temporary contracts as their peers from EU countries (52% against 26%). As much as 63 percent of them agree to be employed on temporary contracts due to the lack of permanent jobs while work based on a temporary contract

---

<sup>3</sup> <http://www.ibe.edu.pl/pl/o-instytucie/aktualnosci/573-bezrobocie-polskich-absolwentow>

<sup>4</sup> System Ekonomicznych Losów Absolwentów (ELA),

in other Central and Eastern European countries is a rare phenomenon - notes the IBE spokeswoman.

Most often, graduates with secondary or lower than secondary education work on a temporary contract in Poland and in some EU countries (in Poland, rarely anyone stops the education at middle school, but for example in Italy it is about 20 percent, and in Portugal about 35 percent). However, in countries where vocational training is well developed (Austria, Germany, Denmark), graduates with secondary vocational education have a better chance of permanent employment than graduates. (PAP).

## 2. Education system in Poland

Currently, the change of the education system is underway in Poland. The new structure of education in Poland will fully function only from the school year 2022/2023.

It will consist of:

- 8-grade primary school,
- 4-year secondary school,
- 5-year technical school
- a two-stage vocational school (5 years in total):
  - 2-year vocational school
  - 3-year secondary vocational school
- post-secondary schools
- first degree studies
- second degree studies
- doctoral studies

The higher education system is waiting for a reform - it is being prepared by the Ministry of Science and Higher Education.

In 2016, there were 1 348,8 thousand students in **390 higher education** schools of all types.<sup>5</sup> The population aged 19-24 in 2006-2016 decreased by 30% (1155.4 thousand people). In 2016/17, there were 390 higher education institutions (including the schools of the Ministry of National Defence and internal affairs and administration). **132 of them were public universities** in which 1 034.2 thousand people were educated (76.7% of all students, 76.5% in the previous year), including 265.9 thousand people in the first year of studies. At the beginning of the academic year 2016/2017, there were **258 non-public universities** educating 314.7

---

<sup>5</sup> GUS, 2017

thousand students (or 23.3% of all students), including 78.5 thousand for the first year of study. In comparison to the previous year, the number of non-public higher education institutions dropped, and the number of youth studying there decreased by 4.7%. Universities classified as run by religious organizations educated 18.3 thousand students.

**At total, there are 1 348 822 students, of whom:**

Public schools - 1 034 16 students

Non-public schools - 314,661 students

### **3. Career in Poland**

In Poland, the legislation on professional careers is subject to three ministries:

- ) **Ministry of Family, Labour and Social Policy** <https://www.mpips.gov.pl/en/>
- ) **Ministry of Education** <https://men.gov.pl/>
- ) **Ministry of Science and Higher Education** <http://www.nauka.gov.pl/>

**Institutions that provide services in the field of career counselling are:**

- ) School career adviser - students
- ) Psychological and pedagogical counselling centres - students
- ) Centres of Practical Education, Lifelong Learning Centres - students
- ) Vocational Training Centres - students
- ) Academic Career Offices - students
- ) Voluntary Labour Corps - students, youth
- ) Public employment services - Labour Offices - adults
- ) Social Welfare Centres – adults
- ) Non-governmental organizations providing advisory services – adults
- ) Private career advisory centres and professional advisors running business activity – adults
- ) Employment agencies, job agencies, personal counselling – adults
- ) Training institutions – adults

#### **3.1. Career counselling in the education system**

It is regulated by the Education Law.

In the Act of 14 December 2016. Education Law:

Article 1. The education system shall ensure in particular:

**19) preparing students for the choice of profession and education;**

Art. 47. 1. The Minister competent for the educational and pedagogical matters shall determine, by way of a regulation:

3) basic teaching framework for particular types of schools, including:

c) the minimum working hours in the field of career counselling

4) program content in the field of career counselling, conditions and method of implementation and organization of career counselling in schools and facilities referred to in art. 2 point 4, and the requirements for the preparation of persons providing career counselling in schools and facilities referred to in art. 2 point 4, taking into account the role of career counselling in supporting students and students in the process of making educational and professional decisions.

Art. 98. 1. The school statute includes in particular:

**16) organization of the school's internal career counselling system.**

Art. 109. 1. The basic forms of didactic and educational activity of the school are:

5) classes conducted as part of psychological and pedagogical assistance;

**7) classes in the field of career counselling.**

6. Classes referred to in paragraph 1 point 7, are organized for students in the 7th and 8th grades of elementary school, 1st grade vocational school, high school and technical school.

7. Classes referred to in paragraph 1 point 7, are implemented independently of the help in choosing the direction of education and profession provided to students as part of the classes referred to in paragraph 1 point 5 of the Regulation of the Minister of National Education of March 28, 2017 on framework teaching plans for public schools.

Teaching programme framework:

J For the primary school: since the school year 2017/2018, in grades VII and VIII of the primary school is required a minimum of 20 hours of classes in counselling - for 10 hours in class VII and 10 in class VIII



- J For vocational school of the first level- a minimum of 10 hours in the whole cycle of education
- J For a general secondary school - a minimum of 10 hours in the whole cycle of education
- J For a technical school - a minimum of 10 hours throughout the entire learning cycle

Regulation of the Minister of National Education of 9 August 2017 on psychological and pedagogical assistance in public kindergartens, primary and secondary schools as well as institutions:

§ 6.2 In the school, psychological and pedagogical assistance is provided during ongoing work with the student and through the integrated activities of teachers and specialists, as well as in the form of:

- 6) **classes related to the choice of education and occupation** - in the case of primary and secondary school students

§ 18. In the case of a primary school, the vocational school of the first level, a general secondary school and technical school as well as facilities referred to in art. 2 point 4 of the Act, classes related to the choice of education and occupation complement the activities of the school and establishments in the field of career counselling.

§ 20.2 Teachers, tutors of educational groups and specialists in kindergarten, In particular, the school and the facility conduct:

2) at school:

- b) supporting students in choosing the direction of education and occupation during their current work with students.

§ 26.1. **The tasks of a career adviser** include in particular:

- 1) systematic diagnosis of students' demand for educational and vocational information as well as help in planning education and career;
- 2) collecting, updating and providing educational and professional information relevant for a given level of education;
- 3) conducting classes related to the choice of the field of education and profession including recognized strengths, predispositions and interests and the talents of students;
- 4) coordinating information and counselling activities conducted by the school and institution;

- 5) cooperation with other teachers in creating and ensuring continuity of activities in the field of activities related to the choice of education and occupation;
- 6) supporting teachers, tutors of educational groups and other specialists in providing psychological and pedagogical assistance.

2. In the absence of a career adviser in a school or institution, the school head teacher or the facility appoints a teacher, tutor of the educational group or a specialist performing the tasks referred to in paragraph 1.

In the Act of 14 December 2016, the Regulations introducing the Act - Education Law read: Art. 292. 1. In the 2017/2018 school year, career counselling classes referred to in art. 109 para. 1 point 7 of the Act - Education Law, are implemented on the basis of a program prepared by a teacher implementing these classes and approved for use by the school head teacher, after consulting the pedagogical council.

2. The program referred to in paragraph 1, contains information about occupations, qualifications and positions as well as the possibility of obtaining qualifications in accordance with the needs of the labour market and career predispositions.

In the Act on Educational Law of 14 December 2016:

Art. 47. 1. The Minister competent for the educational and pedagogical matters shall determine, by way of a regulation:

4) **program content in the field of career counselling, conditions and method of implementation and organization of career counselling in schools and facilities** referred to in art. 2 point 4, and the requirements for the preparation of persons providing career counselling in schools and facilities referred to in art. 2 point 4, taking into account the role of career counselling in supporting students and students in the process of making educational and professional decisions.

### **3.2. Academic Career Offices**

Polish legislation binds Academic Career Offices with a system of labour market institutions. The legal framework for the activities of Academic Career Offices is defined in the Act of 20 April 2004 on the promotion of employment and labour market institutions (Journal of Laws 2004 No. 99, item 1001, as amended). In this Act, the definition of an academic career office appears first of all. According to art. 2 para. 1 item 1) "Academic Careers Office is:" an entity

acting for the benefit of professional activation of students and graduates of a university, run by a university or student organization, whose tasks include in particular:

- a) providing students and graduates of higher education with information about the labour market and opportunities to improve their professional qualifications,
- b) collecting, classifying and making available job offers, internships and apprenticeships,
- c) maintaining a database of university students and graduates interested in finding a job,
- d) helping employers to find suitable candidates for vacancies and professional internships,
- e) help in active job search;

The amendment to the Act on the Promotion of Employment and Labour Market Institutions, which entered into force on 27 May 2014, introduced new regulations that apply to Academic Career Offices. According to the new regulation of art. 8 sec. 8 point 2a of the Act, the Vocational Career Information and Planning Centres operating within voivodship labour offices, the task was to "develop, update and disseminate professional information in cooperation with Academic Career Offices, in particular in academic career offices and powiat labour offices in the territory the province." The amendment also introduced a new loan instrument for business start-ups, available to jobseekers who graduated from university, within 48 months from the date of obtaining a professional title, and final year students ("First business - start-up support"). Career offices may be entrusted with the task of providing consultancy and training services to potential beneficiaries of loans or people who have already benefited from them, and the provisions of the Agency-related Act refer to the career offices operating at the universities registered as employment agencies.

### **3.3 Labour Market Institutions**

#### **Subject to the Ministry of Family, Labour and Social Affairs**

The state's tasks in the area of employment promotion, mitigating the effects of unemployment and occupational activation are implemented by labour market institutions acting to:

- full and productive employment,
- human resources development,
- achieving high quality work,
- strengthening integration and social solidarity

These tasks are carried out on the basis of:

- Act on the promotion of employment and labour market institutions,

- National Action Plan for Employment containing the principles of implementing the European Employment Strategy,

- local government, county, voivodship and social partner initiatives.

Labour market institutions implementing tasks specified in the Act of 20 April 2004 on the promotion of employment and labour market institutions (Journal of Laws No. 99, item 1001, as amended) are:

### **Public employment services**

In Poland, Public Employment Services (PSZ) consist of:

- employment bodies together with powiat and voivodship labour offices,

- minister competent for labour and the office of the minister competent for labour,

- and voivodship offices carrying out tasks defined in the Act of 20 April 2004 on the promotion of employment and labour market institutions (Journal of Laws No. 99, item 1001, as amended).

The objectives of the PSZ are implemented by providing assistance to jobseekers, the unemployed and employers, offering employment services, vocational guidance, training, and implementing professional activation programs.

### **Provincial level – 16 voivodship employment offices**

**The Voivodship Employment Office (WUP)** are organizational units of the voivodship self-government, they are subject to and act on behalf of the Marshal of the voivodship. They are responsible, among others for defining and coordinating regional labour market policy in relation to the national labour market policy (including through preparation and implementation of the regional action plan for the labour market).

The tasks of the voivodship self-government in the field of labour market policy implemented by voivodship labour offices in the field of vocational guidance include:

- organizing and coordinating and providing career guidance and information services, as well as their development in the province,

- developing, collecting, updating and disseminating vocational information in the voivodship.

Directly vocational guidance and information services for the unemployed and jobseekers are provided by Vocational Career Information and Planning Centres operating within voivodship labour offices.

**Centres – (CLiPKZ - Vocational Career Information and Planning Centres)** are specialized units that provide career guidance services. Career advisers in the centres run career planning services for the unemployed and jobseekers. Centres relying on the classification of professions and specialties have a rich collection of professional information in the form of computer programs, job guides, descriptions and professional characteristics supporting career guidance services. The collection of information on the local, regional and national labour market also includes data on the activities of other labour market institutions, including information on lifelong learning and training of the unemployed. CLiPKZ clients have at their disposal computer stations with access to the Internet, professional films, publications and publications related to the methods of personal development and job seeking.

The centres offer psychological services (psychological evaluation) and consultancy in the field of predispositions and professional competences testing, determining the indicated directions of further education and training. They organize thematic workshops for the unemployed and jobseekers regarding:

- getting to know job search techniques,
  - conducting an interview,
  - preparation of documents related to seeking employment,
  - Internet usage,
  - acquiring communication and self-presentation skills,
  - explaining the rules of taking up employment abroad and using the EURES system and others
- Vocational Career Information and Planning Centres cooperate with many institutions and organizations dealing with the development of human resources, and also carry out many projects related to the economic activation of the unemployed and jobseekers.

**Job Clubs** - activation classes for the unemployed and jobseekers whose aim is to acquire the skills of seeking employment by those who participate in them. Participants form a support group, exchange experiences and support each other and motivate each other to continue active action. It is very important to build an atmosphere of trust and mutual acceptance. All those who take part in the Job Club's classes have the right to free use of all forms of assistance, including:

- in using the database about job offers and workplaces,
- using the knowledge and support of the work club leader,
- individual consultations, used to correct the current method of operation,

- help of a work club leader and other institutional specialists in defining an individual action plan.

**Poviat level: Poviat Labour Offices (PUP)** as organizational units of poviat self-government are subordinate to starostes / presidents of cities. They are responsible for developing and implementing a job promotion program and activating the local labour market as part of the poviat strategy for solving social problems.

For tasks of poviat self-governments in the field of labour market policy, include helping unemployed people and jobseekers find a job, as well as employers in recruiting employees through job placement and career guidance.

Career counselling is carried out in each poviat labour office by a separate one-person or multi-person organizational unit. The organizational structure of the unit, among others career counselling is defined in the organizational regulations of the poviat labour office.<sup>6</sup>

**Municipal Information Centres** - facilities targeted at professional and social activation of local communities and the revival of the local labour market by offering access to sources of information on occupations, job offers and other information for job seeking.

**Labour market services provided by Public Employment Services (PSZ):**

- job placement,
- EURES services and information on living and working conditions in these countries to support mobility on the European labour market<sup>7</sup>,
- career counselling and information,
- training organization,
- help in active job search.

Public employment services may commission local government units, non-governmental organizations, training institutions, trade union organizations, employers' organizations and employment agencies to perform certain tasks specified in the Act of 20 April 2004 on employment promotion and labour market institutions (Journal of Laws No. 99, item 1001 with later amendments).

The public employment service is of government and self-government character. Its feature is the independence of each organizational unit.

---

<sup>6</sup> WUP and PUP addresses are available on the website [www.psz.praca.gov.pl](http://www.psz.praca.gov.pl)

<sup>7</sup> <http://www.eures.praca.gov.pl>

## **Voluntary Labour Corps**

**Voluntary Labour Corps (OHP)** is a state unit specialized in activities for the benefit of young people, especially youth at risk of social exclusion, and the unemployed up to the age of 25. Three groups of young people are involved in the activities of the Voluntary Labour Corps:

- neglected youth with reduced life chances, coming from socially maladjusted environments, in a large part of pathological, even criminogenic - from dysfunctional families - incomplete, impoverished, young people seeking institutional support and care, requiring educational and vocational training to make an independent start into adult life
- secondary school graduates (or students of the last grades of these schools), university graduates - educated youth and with some professional qualifications - threatened by unemployment and unemployed,
- upper secondary school students and students who want to work through the OHP during their free time and thus improve their own financial situation.

Voluntary Labour Corps perform tasks in relation to young people in the area of:

- education and upbringing,
- employment and counteracting marginalization and social exclusion.

Tasks in the scope of basic OHP activity include:

- supporting the state's educational system
- social, professional and economic activation of youth in OHP organizational units,
- organizing internships at home and abroad,
- undertaking other forms of activity enabling the improvement of professional qualifications or retraining,
- organizing year-round employment of unemployed young people and during the holidays for secondary school youth,
- providing information and career counselling services,
- reimbursement of costs incurred by the employer for remuneration and social security contributions of young workers employed under a contract of employment for the purpose of vocational training,
- initiating and organizing international cooperation of young people and
- implementation of European programs.

The main purpose of OHP's activity is to create the conditions for proper social and professional development - with particular emphasis on disadvantaged youth - by actively building a support system for the most vulnerable groups, organizing and supporting forms of getting out of poverty, unemployment and social pathologies.

Voluntary Labour Corps are an institution that not only educates, retrains, but also conducts career counselling and job placement, and prepares young people to move independently on the labour market.

OHP provide opportunities to help young people, using available tools and methods for youth activation combined with modern computer and information technologies. OHP organizational structures cover the entire territory of Poland (*detailed information on OHP structure is available at [www.ohp.pl](http://www.ohp.pl)*).<sup>8</sup>

### **Employment Agency**

Employment agencies are non-public organizational units providing services in the field of job placement, job placement abroad with foreign employers, career counselling, personnel counselling and temporary work. Employment agencies included in the provisions of the Act of 20 April 2004 on the promotion of employment and labour market institutions (Journal of Laws No. 99, item 1001, as amended) are: Employment agencies conduct regulated activities within the meaning of the Act of July 2, 2004 on the freedom of economic activity (Journal of Laws No. 173, item 1807, as amended) and are obliged to enter an entry in the register of entities running employment agencies.

Employment agencies may not charge any fees to persons for whom they are seeking employment or other gainful employment. The only exceptions are certain fees charged to people sent to work abroad. The agency is obliged to inform the person directed to work abroad about the possibility of paying contributions to the Labour Fund due to employment abroad and the acquisition of employee rights in this respect.<sup>9</sup>

---

<sup>8</sup> More information on OHP can be found in the Act of 20 April 2004 on employment promotion and labor market institutions (Journal of Laws No. 99, item 1001, as amended), the Regulation of the Minister of Economy and Labor on specific tasks and the organization of Volunteer Labor Corps from December 30, 2004 (Journal of Laws of 2005, No. 6, item 41) and on the website [www.ohp.pl](http://www.ohp.pl)

<sup>9</sup> The list of employment agencies can be found on the website <http://www.kraz.praca.gov.pl/StronaGlowna.aspx>



### **Placement agency**

- they deal with job placement in Poland and work abroad for foreign employers,
- they provide assistance to the unemployed and jobseekers, including those not registered at the employment office, in obtaining appropriate employment, and employers in finding employees with appropriate qualifications.

The agency may demand from persons, for whom it is seeking employment, only the reimbursement of costs actually incurred related to the referral to work abroad, incurred for getting there and returning of the referred person, issuing a visa, medical examination, and translation of documents.

**Personnel consulting agencies** provide services for employers in the area of:

- conducting employment analysis,
- determining the qualifications of employees and their professional predispositions and other features necessary to perform a specific job,
- indicating the sources and methods of obtaining candidates for specific positions,
- verification of candidates in terms of expected qualifications and predispositions.

**Career guidance agencies** provide services consisting in particular of:

- help in choosing the right profession and place of employment,
- providing professional information,
- providing employers with assistance in selecting candidates for jobs requiring specific psychophysical predispositions.

**Temporary work agencies** guide employees to a user/employer, which may be an employer or an entity that is not an employer within the meaning of the Labour Code.

Performing services in the scope of:

- job placement in Poland,
- job placement abroad with foreign employers,
- personal consulting,
- temporary work,
- career counselling

requires obtaining a certificate of the Minister of Labour and Social Policy - confirming the entry in the register of employment agencies run by the competent voivodship marshal (voivodship labour offices).<sup>10</sup>

One of the organizations associating the employment agency environment is **the Association of Employment Agencies (SAZ)**, which cares about the further development of the industry and the interests of enterprises associated in it. *The legal basis for the SAZ operation is the provisions of the Act of May 23, 1991 on employers' organizations (Journal of Laws of 1991 No. 55, item 235, as amended)*. The Association of Employment Agencies is a voluntary, self-governing and independent organization in its statutory activities from public and local government administration bodies as well as political, social and professional organizations. The primary purpose of establishing the Association of Employment Agencies is to represent common interests and protect the rights of the associated Members and to guarantee stable rules and security of the employment agencies in Poland.

### **Training institutions**<sup>11</sup>

Training institutions are public and non-public entities that conduct non-school education based on separate regulations.

Types of educational institutions / conducting training activities:

- public schools, facilities or centres,
- non-public schools or facilities,
- high schools,
- other entities providing out-of-school education.

Entry in the register is required from training institutions applying for orders for training of unemployed and jobseekers, financed from public funds, such as, for example, the Labour Fund, the State Fund for Rehabilitation of Disabled Persons, and European Union assistance funds.

---

<sup>10</sup> The procedure of entry into the register and the conditions for running an agency are specified in the Act of 20 April 2004 on the promotion of employment and labor market institutions (Journal of Laws No. 99, item 1001, as amended) and the Regulation of the Minister of Economy and Labor of October 13, 2005 on the entry in the register of entities running employment agencies and information submitted by agencies (Journal of Laws No. 212, item 1770).

<sup>11</sup> Training institutions operate on the basis of art. 20 of the Act of 20 April 2004 on the promotion of employment and labor market institutions (Journal of Laws No. 99, item 1001, as amended), and the Regulation of the Minister of Economy and Labor of October 27, 2004. on the register of training institutions (Journal of Laws No. 236, item 2365).

A training institution wishing to enter an entry in the register shall submit documents in the voivodship employment office competent for the headquarters of this institution.<sup>12</sup>

**Summary. Labour market services are:**

1. Job placement services, which in particular consist in:
  - providing assistance to the unemployed and jobseekers in obtaining appropriate employment and employers in obtaining employees with sought professional qualifications,
  - obtaining job offers,
  - providing employers with information about job candidates in relation to the submitted job offer,
  - informing the unemployed, jobseekers and employers about the current situation and anticipated changes in the local labour market,
  - initiating and organizing contacts between the unemployed and job seekers with employers (inter alia through job exchanges and job fairs),
  - informing the unemployed about their rights and obligations.
2. EURES services, the European system of international job placement and consultancy in the field of job mobility on the labour market, which include on:
  - providing the unemployed and jobseekers with assistance in obtaining appropriate employment in accordance with the right of free movement of workers in the European Union and countries of the European Economic Area (EEA),
  - providing employers with assistance in acquiring employees with sought qualifications,
  - initiating and organizing contacts between the unemployed and jobseekers with employers (international job fairs, recruitment meetings with foreign employers)
  - information on living and working conditions as well as the situation on the labour markets, taking into account the shortage and surplus professions there (surplus and. via the national EURES website containing job offers submitted to the system by EURES advisers from particular countries).
3. Career counselling and professional information. These services provided by career advisers consist in providing:

---

<sup>12</sup> The register of training institutions is available at [www.psz.praca.gov.pl](http://www.psz.praca.gov.pl)

- a) **the unemployed and jobseekers** with assistance in choosing the right profession and place of employment by:
- providing information on occupations, the labour market and training and education opportunities,
  - providing advice using standardized methods to facilitate the selection of a profession, change qualifications, take up or change employment, including the study of interests and professional talents,
  - directing to specialist psychological and medical examinations enabling the issuing of opinions on professional suitability for work and profession or the direction of training,
  - initiating, organizing and conducting group career advice.
- b) **the employers** with assistance in selecting candidates for work, in particular on providing information and consultancy in this area. Career counselling and career information services are provided in individual and group forms. They are based on the principles of:
- availability
  - equality
  - freedom of choice of profession and place of employment
  - confidentiality and data protection free.
4. Help in active job search. These services consist in preparing unemployed and jobseekers to better cope with finding and taking up employment through:
- participation in training in job search skills,
  - participation in activation classes
  - access to information and electronic databases for finding job and self-employment skills.
- Help in active job search is provided by poviats labour offices within job clubs and by information and career planning centres of voivodship labour offices.
5. Organization of trainings. Training means extracurricular activities aimed at obtaining, supplementing or improving professional and general skills and qualifications necessary to perform work, including the ability to seek employment.

The poviats labour offices deal with the organization and financing of trainings and the targeting of unemployed people and jobseekers.

Source: Act on the promotion of employment and labour market institutions (Journal of Laws of 2004, No. 99, item 1200, as amended)

At present, many programs and projects are being implemented in Poland regarding the planning of professional career and vocational activation, here are examples:

- ) for school students: <http://doradztwo.ore.edu.pl>
- ) for students: <http://www.student.lex.pl/czytaj/-/artykul/aktywizacja-zawodowa-glownym-celem-programu-wiedza-edukacja-rozwoj>
- ) for adults: <http://psz.praca.gov.pl/rynek-pracy/programy-aktywizacyjne-i-projekty>

## **EMPLOYEE QUESTIONNAIRE ANALYSIS-POLAND**

### **GREAT EIGHT DIMENSION DEFINITION**

Leading and Deciding	Takes control and exercises leadership. Initiates action, gives direction, and takes responsibility.
Supporting and Cooperating	Supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with individuals and teams, clients, and staff. Behaves consistently with clear personal values that complement those of the organization.
Interacting and Presenting	Communicates and networks effectively. Successfully persuades and influences others. Relates to others in a confident, relaxed manner.
Analyzing and Interpreting	Shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly takes on new technology. Communicates well in writing

Creating and Conceptualizing	Works well in situations requiring openness to new ideas and experiences. Seeks out learning opportunities. Handles situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organizational change.
Organizing and Executing	Plans ahead and works in a systematic and organized way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product to the agreed standards.
Adapting and Coping	Adapts and responds well to change. Manages pressure effectively and copes well with setbacks.
Enterprising and Performing	Focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce, and finance. Seeks opportunities for self-development and career advancement.

**Source: (Dave, 2005)**

## **EMPLOYEE QUESTIONNAIRE ANALYSIS-SPAIN**

### **Demographics**

Participants participated the research are %16 male and %86 female (Table 7.1), age ranging from 26 to 63 and mean age is 45,14 (Table 7.2). %90,4 of the respondents are higher education, %5,3 are collage, %2,1 are vocational high school, %2,1 are secondary school (Table 7.3). %12,8 of the respondents are employed in service (tourism, health, finance, IT) sector, %84 in education and %3,2 in manufacturing (Table 7.4). %11,7 of the participants are working in companies with 1-10 employees, %30,9 are working in companies with 11-50 employees, %27,7 are working in companies with 51-100 employees, %11,7 are working in companies with 101-250, %5,3 are working in companies with 251-500, and %12,8 are working in companies with 500+ employees (Table 7.5). Participants are working years as a professional range from 0-42 years and average working year as professional is 17,87 years (Table 7.6), participants are working for the same company ranging from 1-36 years and average working

years for the same company is 11,63 years (Table 7.7) and participants are working in their current position ranging from 1-40 years and average working years in the current position is 10,66 years (Table 7.8).

Demographic represent a participant profile as female, in their mid-ages, over-educated, mostly working in education, and experienced employees.

**Table 7.1: Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	15	16,0	16,0	16,0
Female	79	84,0	84,0	100,0
Total	94	100,0	100,0	

**Table 7.2: Age**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 26	2	2,1	2,1	2,1
27	2	2,1	2,1	4,3
28	1	1,1	1,1	5,3
29	2	2,1	2,1	7,4
30	1	1,1	1,1	8,5
31	1	1,1	1,1	9,6
32	3	3,2	3,2	12,8
33	1	1,1	1,1	13,8
34	5	5,3	5,3	19,1
36	1	1,1	1,1	20,2
37	2	2,1	2,1	22,3
38	5	5,3	5,3	27,7
39	5	5,3	5,3	33,0
40	3	3,2	3,2	36,2
42	2	2,1	2,1	38,3
43	4	4,3	4,3	42,6
45	5	5,3	5,3	47,9
46	3	3,2	3,2	51,1
47	3	3,2	3,2	54,3
48	7	7,4	7,4	61,7

49	3	3,2	3,2	64,9
50	6	6,4	6,4	71,3
51	1	1,1	1,1	72,3
52	2	2,1	2,1	74,5
53	3	3,2	3,2	77,7
54	4	4,3	4,3	81,9
55	4	4,3	4,3	86,2
57	1	1,1	1,1	87,2
58	2	2,1	2,1	89,4
59	2	2,1	2,1	91,5
60	2	2,1	2,1	93,6
61	2	2,1	2,1	95,7
62	2	2,1	2,1	97,9
63	2	2,1	2,1	100,0
Total	94	100,0	100,0	

**Table 7.3: Educational background**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Secondary school	2	2,1	2,1	2,1
Vocational high school	2	2,1	2,1	4,3
Graduate	5	5,3	5,3	9,6
Higher education (master/Phd)	85	90,4	90,4	100,0
Total	94	100,0	100,0	

**Table 7.4: Sector**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Manufacturing	3	3,2	3,2	3,2
Education	79	84,0	84,0	87,2
Service (Tourism, health, finance IT)	12	12,8	12,8	100,0
Total	94	100,0	100,0	



**Table 7.5: What is the size of the organization?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-10	11	11,7	11,7	11,7
11-50	29	30,9	30,9	42,6
51-100	26	27,7	27,7	70,2
101-250	11	11,7	11,7	81,9
251-500	5	5,3	5,3	87,2
500+	12	12,8	12,8	100,0
Total	94	100,0	100,0	

**Table 7.6: How long have you being working as a professional?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	3	3,2	3,2	3,2
1	1	1,1	1,1	4,3
2	3	3,2	3,2	7,4
3	1	1,1	1,1	8,5
4	2	2,1	2,1	10,6
5	2	2,1	2,1	12,8
6	5	5,3	5,3	18,1
7	3	3,2	3,2	21,3
8	3	3,2	3,2	24,5
9	3	3,2	3,2	27,7
10	6	6,4	6,4	34,0
11	3	3,2	3,2	37,2
12	1	1,1	1,1	38,3
13	1	1,1	1,1	39,4
14	5	5,3	5,3	44,7
15	1	1,1	1,1	45,7
16	1	1,1	1,1	46,8
17	2	2,1	2,1	48,9
18	6	6,4	6,4	55,3
19	1	1,1	1,1	56,4
20	4	4,3	4,3	60,6
21	2	2,1	2,1	62,8
22	1	1,1	1,1	63,8

23	1	1,1	1,1	64,9
24	3	3,2	3,2	68,1
25	2	2,1	2,1	70,2
26	3	3,2	3,2	73,4
27	4	4,3	4,3	77,7
28	6	6,4	6,4	84,0
30	2	2,1	2,1	86,2
31	1	1,1	1,1	87,2
33	3	3,2	3,2	90,4
35	2	2,1	2,1	92,6
36	2	2,1	2,1	94,7
37	1	1,1	1,1	95,7
38	2	2,1	2,1	97,9
40	1	1,1	1,1	98,9
42	1	1,1	1,1	100,0
Total	94	100,0	100,0	

**Table 7.7: How long have you worked for the company?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	8	8,5	8,5	8,5
2	10	10,6	10,6	19,1
3	6	6,4	6,4	25,5
4	4	4,3	4,3	29,8
5	10	10,6	10,6	40,4
6	1	1,1	1,1	41,5
7	2	2,1	2,1	43,6
8	2	2,1	2,1	45,7
9	2	2,1	2,1	47,9
10	7	7,4	7,4	55,3
11	2	2,1	2,1	57,4
12	3	3,2	3,2	60,6
13	1	1,1	1,1	61,7
14	2	2,1	2,1	63,8
15	4	4,3	4,3	68,1
16	1	1,1	1,1	69,1
17	2	2,1	2,1	71,3

18	5	5,3	5,3	76,6
19	1	1,1	1,1	77,7
20	2	2,1	2,1	79,8
21	2	2,1	2,1	81,9
22	3	3,2	3,2	85,1
23	2	2,1	2,1	87,2
24	2	2,1	2,1	89,4
25	1	1,1	1,1	90,4
26	1	1,1	1,1	91,5
28	3	3,2	3,2	94,7
30	1	1,1	1,1	95,7
31	1	1,1	1,1	96,8
32	1	1,1	1,1	97,9
33	1	1,1	1,1	98,9
36	1	1,1	1,1	100,0
Total	94	100,0	100,0	

**Table 7.8: How long have you worked in present position?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	11	11,7	11,7	11,7
2	12	12,8	12,8	24,5
3	6	6,4	6,4	30,9
4	7	7,4	7,4	38,3
5	11	11,7	11,7	50,0
6	3	3,2	3,2	53,2
7	1	1,1	1,1	54,3
8	1	1,1	1,1	55,3
9	1	1,1	1,1	56,4
10	6	6,4	6,4	62,8
12	2	2,1	2,1	64,9
13	2	2,1	2,1	67,0
14	5	5,3	5,3	72,3
15	1	1,1	1,1	73,4
16	1	1,1	1,1	74,5
17	2	2,1	2,1	76,6
18	6	6,4	6,4	83,0

21	1	1,1	1,1	84,0
22	1	1,1	1,1	85,1
23	1	1,1	1,1	86,2
24	1	1,1	1,1	87,2
25	1	1,1	1,1	88,3
27	1	1,1	1,1	89,4
28	3	3,2	3,2	92,6
30	1	1,1	1,1	93,6
31	1	1,1	1,1	94,7
33	1	1,1	1,1	95,7
36	1	1,1	1,1	96,8
37	1	1,1	1,1	97,9
38	1	1,1	1,1	98,9
40	1	1,1	1,1	100,0
Total	94	100,0	100,0	

### Business Trends

Business trends reported by the participants %23,4 no change in revenue, %25,5 total revenue increasing, %13,8 of the respondents reported a decreasing total revenue and %37,2 reported not applicable (Table 7.9). %45,7 of the respondents reported that employment trend in their organization is not changing, %20,2 reported increase in the number of the employees, %29,8 reported a decrease in the employee numbers and %4,3 reported as not applicable (Table 7.10). %23,4 of the respondent reported that it is moderate to find a job in the same sector if they lose their current job, %14,9 reported as easy, %6,4 as very easy, %38,3 as difficult and %17 as very difficult (Table 7.11). %35,1 of the respondent reported that it is moderate to find a job in another sector if they lose their current job, %23,4 reported as easy, %6,4 as very easy, %27,7 as difficult and %7,4 as very difficult (Table 7.12).

**Table 7.9: What is the business trend in your organization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Total revenue increasing	24	25,5	25,5	25,5
Total revenue decreasing	13	13,8	13,8	39,4
Without change	22	23,4	23,4	62,8

Not applicable	35	37,2	37,2	100,0
Total	94	100,0	100,0	

**Table 7.10: What is the employment trend in your organization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Number of employees increasing	19	20,2	20,2	20,2
Number of employees decreasing	28	29,8	29,8	50,0
Without change	43	45,7	45,7	95,7
Not applicable	4	4,3	4,3	100,0
Total	94	100,0	100,0	

**Table 7.11: If you loose your current job, is it possible to find a job in the same sector?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Difficult	16	17,0	17,0	17,0
Difficult	36	38,3	38,3	55,3
Moderate	22	23,4	23,4	78,7
Easy	14	14,9	14,9	93,6
Very Easy	6	6,4	6,4	100,0
Total	94	100,0	100,0	

**Table 7.12: If you loose your job, can you work in another sector?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Difficult	7	7,4	7,4	7,4
Difficult	26	27,7	27,7	35,1
Moderate	33	35,1	35,1	70,2
Easy	22	23,4	23,4	93,6
Very Easy	6	6,4	6,4	100,0
Total	94	100,0	100,0	

## **SKILL NEED IN INDUSTRY 4.0**

### **Dimensions**

Skill set required by industry 4.0 are captured under 20 dimensions which are Deciding and Initial Action, Leading and Supervising, Working With People, Adhering to Principles and Values, Relating and Networking, Persuading and Influencing, Presenting and Communicating Information, Writing and reporting, Applying Expertise and Technology, Analyzing, Learning and Researching, Creating and Innovation, Formulating Strategies, Planning and Organization, Delivering Results and Meeting Customer Expectation, Following Instructions and Procedures, Adopting and Responding to Change, Persuading and Influencing, Achieving Personal Work Goals and Objectives, Entrepreneurial and Commercial Thinking all base on Big Eighth dimensions.

## **GREAT EIGHT DIMENSIONS AND THEIR DEFINITIONS**

### **Leading and Deciding**

Takes control and exercises leadership. Initiates action, gives direction, and takes responsibility.

### **Supporting and Cooperating**

Supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with individuals and teams, clients, and staff. Behaves consistently with clear personal values that complement those of the organization.

### **Interacting and Presenting**

Communicates and networks effectively. Successfully persuades and influences others. Relates to others in a confident, relaxed manner.

### **Analyzing and Interpreting**

Shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly takes on new technology. Communicates well in writing

**Creating and Conceptualizing**

Works well in situations requiring openness to new ideas and experiences. Seeks out learning opportunities. Handles situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organizational change.

**Organizing and Executing**

Plans ahead and works in a systematic and organized way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product to the agreed standards.

**Adapting and Coping**

Adapts and responds well to change. Manages pressure effectively and copes well with setbacks.

**Enterprising and Performing**

Focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce, and finance. Seeks opportunities for self-development and career advancement.

**LEADING AND DECISION**

The Great Eight's Leading and Decision dimension captures participant's taking control and exercise leadership, initiates action, gives direction, and takes responsibility skills (Dave, 2005). It is composed of two sub dimension called Deciding and Initial Action (2 item) and Leading and Supervising (1 item) in a competency model for industry 4.0 employees (Prifti et al., 2017).

**Deciding and Initial Action**

%75,5 of the Polish participants evaluate themselves as strong and very strong level of decision making (Table 7.13) and %81,2 strong to very strong level of taking responsibility (Table 7.14).

**Table 7.13: Decision making**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	2	2,1	2,1	3,2
Moderate	20	21,3	21,3	24,5
Strong	48	51,1	51,1	75,5
Very Strong	23	24,5	24,5	100,0
Total	94	100,0	100,0	

**Table 7.14: Taking responsibility**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	3	3,2	3,2	3,2
Moderate	9	9,6	9,6	12,8
Strong	52	55,3	55,3	68,1
Very Strong	30	31,9	31,9	100,0
Total	94	100,0	100,0	

### **Leading and Supervising**

Frequency analysis for Leading and Supervising items suggest that %60,6 of the Polish participants evaluate themselves as strong and very strong level of Leadership Skills (Table 7.15).

**Table 7.15: Leadership Skills**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	4	4,3	4,3	4,3
Moderate	33	35,1	35,1	39,4
Strong	42	44,7	44,7	84,0
Very Strong	15	16,0	16,0	100,0
Total	94	100,0	100,0	

## **SUPPORTING AND COOPERATION**



The Great Eight's Supporting and Cooperation dimension captures participant's supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with individuals and teams, clients, and staff. Behaves consistently with clear personal values that complement those of the organization (Dave, 2005). It is composed of two sub dimension called Working With People (3 items) and Adhering to Principles and Values (3 items) in a competency model for industry 4.0 employees (Prifti et al., 2017).

### **Working With People**

Polish participants reported they have high levels of team work skills, %81,9 reported strong and very strong team work skills (Table 7.16) %84 in Collaborating with Others (Table 7.17) and %89,6 in Communicating with People (Table 7.18) respectively. Polish participants evaluate themselves high in working with people dimension.

**Table 7.16: Team work**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	2	2,1	2,1	3,2
Moderate	14	14,9	14,9	18,1
Strong	49	52,1	52,1	70,2
Very Strong	28	29,8	29,8	100,0
Total	94	100,0	100,0	

**Table 7.17: Collaborating with others**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	1	1,1	1,1	1,1
Moderate	14	14,9	14,9	16,0
Strong	51	54,3	54,3	70,2
Very Strong	28	29,8	29,8	100,0
Total	94	100,0	100,0	

**Table 7.18: Communicating with people**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	1	1,1	1,1	1,1
Moderate	9	9,6	9,6	10,6
Strong	51	54,3	54,3	64,9
Very Strong	33	35,1	35,1	100,0
Total	94	100,0	100,0	

### Adhering to Principles and Values

Polish participants evaluate themselves %94,7 high as strong and very strong in Respecting Ethics, no weak or very weak response (Table 7.19) and %76,4 in Environmental Awareness (Table 7.20) skills, awareness of ergonomics rated %53,2 strong and very strong.

**Table 7.19: Respecting ethics**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Moderate	5	5,3	5,3	5,3
Strong	37	39,4	39,4	44,7
Very Strong	52	55,3	55,3	100,0
Total	94	100,0	100,0	

**Table 7.20: Environmental awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	4	4,3	4,3	4,3
Moderate	18	19,1	19,1	23,4
Strong	49	52,1	52,1	75,5
Very Strong	23	24,5	24,5	100,0
Total	94	100,0	100,0	

**Table 7.21: Awareness of ergonomics**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	6	6,4	6,4	8,5
Moderate	36	38,3	38,3	46,8
Strong	39	41,5	41,5	88,3
Very Strong	11	11,7	11,7	100,0
Total	94	100,0	100,0	

## INTERACTING AND PRESENTING

The Great Eight's Interacting and Presenting dimension captures communicates and networks effectively. Successfully persuades and influences others. Relates to others in a confident, relaxed manner (Dave, 2005). It is composed of two sub dimension called Relating and Networking (3 items), Persuading and Influencing (2 Items) and Presenting and Communicating Information (1 item) in a competency model for industry 4.0 employees (Prifti et al., 2017).

### Relating and Networking

%72,3 of the Polish participants rated themselves as strong and very strong compromising skills (Table 7.22), %19,1 in creating business networks (Table 7.23), and %64,9 in maintaining customer relationships (Table 7.24). Polish participants rate low in Creating Business networks skills.

**Table 7.22: Compromising**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	3	3,2	3,2	3,2
Moderate	23	24,5	24,5	27,7
Strong	46	48,9	48,9	76,6
Very Strong	22	23,4	23,4	100,0
Total	94	100,0	100,0	

**Table 7.23: Creating business networks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	6	6,4	6,4	6,4
Weak	27	28,7	28,7	35,1
Moderate	43	45,7	45,7	80,9
Strong	14	14,9	14,9	95,7
Very Strong	4	4,3	4,3	100,0
Total	94	100,0	100,0	

**Table 7.24: Maintaining customer relationships**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	8	8,5	8,5	8,5
Moderate	25	26,6	26,6	35,1
Strong	37	39,4	39,4	74,5
Very Strong	24	25,5	25,5	100,0
Total	94	100,0	100,0	

### **Persuading and Influencing**

%46,8 of the Polish participants rated themselves strong and very strong in persuading influencing skills (Table 7.25) whereas %75,7 in emotional intelligence skills (Table 7.26).

**Table 7.25: Negotiating**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	8	8,5	8,5	9,6
Moderate	41	43,6	43,6	53,2
Strong	37	39,4	39,4	92,6
Very Strong	7	7,4	7,4	100,0
Total	94	100,0	100,0	

**Table 7.26: Emotional intelligence**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	2	2,1	2,1	2,1
Moderate	21	22,3	22,3	24,5
Strong	45	47,9	47,9	72,3
Very Strong	26	27,7	27,7	100,0
Total	94	100,0	100,0	

### **Presenting and Communicating Information**

Polish participant rate themselves with strong and very strong with %79,8 in presenting and communication ability (Table 7.27).

**Table 7.27: Presenting and communication ability**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	2	2,1	2,1	2,1
Moderate	17	18,1	18,1	20,2
Strong	48	51,1	51,1	71,3
Very Strong	27	28,7	28,7	100,0
Total	94	100,0	100,0	

### **ANALYZ NG AND INTERPRET NG**

The Great Eight's Analyzing And Interpreting dimension captures shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly takes on new technology. Communicates well in writing (Dave, 2005). It is composed of three sub dimension called Writing and Reporting (2 items), Applying Expertise and Technology (23 items) and Analyzing (4 items) in a competency model for industry 4.0 employees (Prifti et al., 2017).

#### **Writing and reporting**

%54,3 of the Polish participants rated strong and very strong in targeted/ technical communication skills (Table 7.28) and %97,9 strong and very strong in literacy skills (Table 7.29).

**Table 7.28: Targeted/Technical Communication**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	5	5,3	5,3	6,4
Moderate	37	39,4	39,4	45,7
Strong	39	41,5	41,5	87,2
Very Strong	12	12,8	12,8	100,0
Total	94	100,0	100,0	

**Table 7.29: Literacy (Reporting, writing plans, writing letters)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Moderate	2	2,1	2,1	2,1
Strong	29	30,9	30,9	33,0
Very Strong	63	67,0	67,0	100,0
Total	94	100,0	100,0	

**Applying Expertise and Technology**

Applying expertise and technology dimension is composed of 23 items. Participants rated their skills in IT and technology affinity %53,2 strong and very strong (Table 7.30), Economics %80,9 strong and very strong (Table 7.31), Extract business value from social media %68,1 strong and very strong (Table 7.32), Service orientation/product service offerings %33 strong and very strong (Table 7.33), Business process management %13,4 strong and very strong (Table 7.34), Business change management %33 strong and very strong (Table 7.35), Understand and coordinate workflows %36,2 strong and very strong (Table 7.36), Network security %58,5 strong and very strong (Table 7.37), IT architectures %17 strong and very strong (Table 7.38), Machine learning %10,6 strong and very strong (Table 7.39), System development %16 strong and very strong (Table 7.40), Integrating heterogeneous technologies %19,1 strong and very strong (Table 7.41), Mobile technologies %25,5 strong and very strong (Table 7.42), Sensors/embedded systems %9,6 strong and very strong (Table 7.43), Network technology/M2M communication %8,5 strong and very strong (Table 7.44),

Robotics/Artificial intelligence %5,3 strong and very strong (Table 7.45), Predictive maintenance %8,5 strong only (Table 7.46), Modelling and programming %6,4 strong and very strong (Table 7.47), Big data/Data analysis and interpretation %13,8 (Table 7.48), Cloud computing/architectures %8,5 strong and very strong (Table 7.49), In-memory DBs %6,4 strong and very strong (Table 7.50), Statistics %12,8 strong and very strong (Table 7.51) and Data Security %28,7 strong and very strong (Table 7.52).

**Table 7.30: IT and technology affinity**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	6	6,4	6,4	6,4
Moderate	38	40,4	40,4	46,8
Strong	34	36,2	36,2	83,0
Very Strong	16	17,0	17,0	100,0
Total	94	100,0	100,0	

**Table 7.31: Economics**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	17	18,1	18,1	19,1
Moderate	43	45,7	45,7	64,9
Strong	25	26,6	26,6	91,5
Very Strong	8	8,5	8,5	100,0
Total	94	100,0	100,0	

**Table 7.32: Extract business value from social media**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	7	7,4	7,4	7,4
Weak	23	24,5	24,5	31,9
Moderate	31	33,0	33,0	64,9

Strong	27	28,7	28,7	93,6
Very Strong	6	6,4	6,4	100,0
Total	94	100,0	100,0	

**Table 7.33: Service orientation/product service offerings**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	3,2	3,2	3,2
Weak	20	21,3	21,3	24,5
Moderate	40	42,6	42,6	67,0
Strong	28	29,8	29,8	96,8
Very Strong	3	3,2	3,2	100,0
Total	94	100,0	100,0	

**Table 7.34: Business process management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	13	13,8	13,8	13,8
Weak	27	28,7	28,7	42,6
Moderate	32	34,0	34,0	76,6
Strong	19	20,2	20,2	96,8
Very Strong	3	3,2	3,2	100,0
Total	94	100,0	100,0	

**Table 7.35: Business change management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	6	6,4	6,4	6,4
Weak	23	24,5	24,5	30,9
Moderate	34	36,2	36,2	67,0
Strong	26	27,7	27,7	94,7



Very Strong	5	5,3	5,3	100,0
Total	94	100,0	100,0	

**Table 7.36: Understand and coordinate workflows**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	4	4,3	4,3	4,3
Weak	20	21,3	21,3	25,5
Moderate	36	38,3	38,3	63,8
Strong	29	30,9	30,9	94,7
Very Strong	5	5,3	5,3	100,0
Total	94	100,0	100,0	

**Table 7.37: Network security**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	5	5,3	5,3	6,4
Moderate	33	35,1	35,1	41,5
Strong	44	46,8	46,8	88,3
Very Strong	11	11,7	11,7	100,0
Total	94	100,0	100,0	

**Table 7.38: IT architectures**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	11	11,7	11,7	11,7
Weak	29	30,9	30,9	42,6
Moderate	38	40,4	40,4	83,0
Strong	12	12,8	12,8	95,7
Very Strong	4	4,3	4,3	100,0

Total	94	100,0	100,0
-------	----	-------	-------

**Table 7.39: Machine learning**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	18	19,1	19,1	19,1
Weak	21	22,3	22,3	41,5
Moderate	45	47,9	47,9	89,4
Strong	7	7,4	7,4	96,8
Very Strong	3	3,2	3,2	100,0
Total	94	100,0	100,0	

**Table 7.40: System development**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	17	18,1	18,1	18,1
Weak	29	30,9	30,9	48,9
Moderate	33	35,1	35,1	84,0
Strong	12	12,8	12,8	96,8
Very Strong	3	3,2	3,2	100,0
Total	94	100,0	100,0	

**Table 7.41: Integrating heterogeneous technologies**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	14	14,9	14,9	14,9
Weak	27	28,7	28,7	43,6
Moderate	35	37,2	37,2	80,9
Strong	14	14,9	14,9	95,7
Very Strong	4	4,3	4,3	100,0
Total	94	100,0	100,0	

**Table 7.42: Mobile technologies**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	7	7,4	7,4	7,4
Weak	16	17,0	17,0	24,5
Moderate	47	50,0	50,0	74,5
Strong	18	19,1	19,1	93,6
Very Strong	6	6,4	6,4	100,0
Total	94	100,0	100,0	

**Table 7.43: Sensors/embedded systems**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	31	33,0	33,0	33,0
Weak	28	29,8	29,8	62,8
Moderate	26	27,7	27,7	90,4
Strong	7	7,4	7,4	97,9
Very Strong	2	2,1	2,1	100,0
Total	94	100,0	100,0	

**Table 7.44: Network technology/M2M communication**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	43	45,7	45,7	45,7
Weak	23	24,5	24,5	70,2
Moderate	20	21,3	21,3	91,5
Strong	5	5,3	5,3	96,8
Very Strong	3	3,2	3,2	100,0
Total	94	100,0	100,0	

**Table 7.45: Robotics/Artificial intelligence**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	48	51,1	51,1	51,1
Weak	30	31,9	31,9	83,0
Moderate	11	11,7	11,7	94,7
Strong	2	2,1	2,1	96,8
Very Strong	3	3,2	3,2	100,0
Total	94	100,0	100,0	

**Table 7.46: Predictive maintenance**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	51	54,3	54,3	54,3
Weak	23	24,5	24,5	78,7
Moderate	12	12,8	12,8	91,5
Strong	6	6,4	6,4	97,9
Very Strong	2	2,1	2,1	100,0
Total	94	100,0	100,0	

**Table 7.47: Modelling and programming**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	54	57,4	57,4	57,4
Weak	22	23,4	23,4	80,9
Moderate	12	12,8	12,8	93,6
Strong	5	5,3	5,3	98,9
Very Strong	1	1,1	1,1	100,0
Total	94	100,0	100,0	

**Table 7.48: Big data/Data analysis and interpretation**

	Frequency	Percent	Valid Percent	Cumulative Percent
--	-----------	---------	---------------	--------------------

Valid	Very Weak	25	26,6	26,6	26,6
	Weak	27	28,7	28,7	55,3
	Moderate	29	30,9	30,9	86,2
	Strong	11	11,7	11,7	97,9
	Very Strong	2	2,1	2,1	100,0
	Total	94	100,0	100,0	

**Table 7.49: Cloud computing/architectures**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Weak	37	39,4	39,4	39,4
	Weak	28	29,8	29,8	69,1
	Moderate	21	22,3	22,3	91,5
	Strong	7	7,4	7,4	98,9
	Very Strong	1	1,1	1,1	100,0
	Total	94	100,0	100,0	

**Table 7.50: In-memory DBs**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Weak	56	59,6	59,6	59,6
	Weak	23	24,5	24,5	84,0
	Moderate	9	9,6	9,6	93,6
	Strong	5	5,3	5,3	98,9
	Very Strong	1	1,1	1,1	100,0
	Total	94	100,0	100,0	

**Table 7.51: Statistics**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Weak	22	23,4	23,4	23,4
	Weak	28	29,8	29,8	53,2

Moderate	32	34,0	34,0	87,2
Strong	10	10,6	10,6	97,9
Very Strong	2	2,1	2,1	100,0
Total	94	100,0	100,0	

**Table 7.52: Data security**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	10	10,6	10,6	10,6
Weak	19	20,2	20,2	30,9
Moderate	38	40,4	40,4	71,3
Strong	22	23,4	23,4	94,7
Very Strong	5	5,3	5,3	100,0
Total	94	100,0	100,0	

### Analyzing

Analyzing sub-dimension is composed of 4 items. Participants rated Problem Solving %59,6 strong and very strong (Table 7.53), Optimization %33 (Table 7.54), Analytical Skills %47,9 (Table 7.55) and Cognitive Ability %76,6 (Table 7.56). Optimization and analytical skills are below average.

**Table 7.53: Problem Solving**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	3,2	3,2	3,2
Weak	2	2,1	2,1	5,3
Moderate	33	35,1	35,1	40,4
Strong	41	43,6	43,6	84,0
Very Strong	15	16,0	16,0	100,0
Total	94	100,0	100,0	

**Table 7.54: Optimization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	7	7,4	7,4	7,4
Weak	17	18,1	18,1	25,5
Moderate	39	41,5	41,5	67,0
Strong	25	26,6	26,6	93,6
Very Strong	6	6,4	6,4	100,0
Total	94	100,0	100,0	

**Table 7.55: Analytical Skills**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	5	5,3	5,3	5,3
Weak	5	5,3	5,3	10,6
Moderate	39	41,5	41,5	52,1
Strong	32	34,0	34,0	86,2
Very Strong	13	13,8	13,8	100,0
Total	94	100,0	100,0	

**Table 7.56: Cognitive Ability**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	1	1,1	1,1	3,2
Moderate	19	20,2	20,2	23,4
Strong	52	55,3	55,3	78,7
Very Strong	20	21,3	21,3	100,0
Total	94	100,0	100,0	

## **CREATING AND CONCEPTUALIZING**

The Great Eight's Creating and Conceptualizing dimension captures works well in situations requiring openness to new ideas and experiences. Seeks out learning opportunities. Handles

situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organizational change (Dave, 2005). It is composed of three sub dimension called Learning and Researching (2 items) and Creating and Innovation (4 items) and Formulating Strategies (3 items) in a competency model for industry 4.0 employees (Prifti et al., 2017).

### **Learning and Researching**

Polish participants reported they have life-long learning skill %94,7 strong and very strong (Table 7.57) and %76,6 strong and very strong in knowledge management (Table 7.58).

**Table 7.57: Life-long learning**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Moderate	5	5,3	5,3	5,3
Strong	37	39,4	39,4	44,7
Very Strong	52	55,3	55,3	100,0
Total	94	100,0	100,0	

**Table 7.58: Knowledge management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Moderate	22	23,4	23,4	23,4
Strong	41	43,6	43,6	67,0
Very Strong	31	33,0	33,0	100,0
Total	94	100,0	100,0	

### **Creating and Innovation**

Participants rated themselves %57,4 strong and very strong in Innovating (%39,4 moderate and %3,2 weak) (Table 7.59), %70,2 strong and very strong in creativity (Table 7.60), %75,5 strong and very strong in Critical Thinking (Table 7.61) and %38,3 strong and very strong in Change Management (Table 7.62). Polish participants rate low in Change management skill.

**Table 7.59: Innovating**



	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	3	3,2	3,2	3,2
Moderate	37	39,4	39,4	42,6
Strong	38	40,4	40,4	83,0
Very Strong	16	17,0	17,0	100,0
Total	94	100,0	100,0	

**Table 7.60: Creativity**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	1	1,1	1,1	1,1
Moderate	27	28,7	28,7	29,8
Strong	33	35,1	35,1	64,9
Very Strong	33	35,1	35,1	100,0
Total	94	100,0	100,0	

**Table 7.61: Critical thinking**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	2	2,1	2,1	2,1
Moderate	21	22,3	22,3	24,5
Strong	49	52,1	52,1	76,6
Very Strong	22	23,4	23,4	100,0
Total	94	100,0	100,0	

**Table 7.62: Change management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	11	11,7	11,7	11,7
Moderate	47	50,0	50,0	61,7
Strong	26	27,7	27,7	89,4

Very Strong	10	10,6	10,6	100,0
Total	94	100,0	100,0	

### Formulating Strategies

Business Strategy %21,3 strong and very strong (Table 7.63), Abstract Ability %62,8 strong and very strong (Table 7.64), and Managing Complexity %28,7 strong and very strong (Table 7.65). Polish participants rated low in formulating strategies and Managing Complexity.

**Table 7.63: Business strategy**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	13	13,8	13,8	13,8
Weak	25	26,6	26,6	40,4
Moderate	36	38,3	38,3	78,7
Strong	13	13,8	13,8	92,6
Very Strong	7	7,4	7,4	100,0
Total	94	100,0	100,0	

**Table 7.64: Abstraction ability**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	1	1,1	1,1	3,2
Moderate	32	34,0	34,0	37,2
Strong	40	42,6	42,6	79,8
Very Strong	19	20,2	20,2	100,0
Total	94	100,0	100,0	

**Table 7.65: Managing complexity**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	5	5,3	5,3	5,3

Weak	18	19,1	19,1	24,5
Moderate	44	46,8	46,8	71,3
Strong	23	24,5	24,5	95,7
Very Strong	4	4,3	4,3	100,0
Total	94	100,0	100,0	

## ORGANIZING AND EXECUTING

The Great Eight's Organizing and Executing dimension captures plans ahead and works in a systematic and organized way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product to the agreed standards. It is composed of three sub dimension called Planning and Organization (3 items) and delivering Results and Meeting Customer Expectations(2 items) and Following Instructions and Procedures (3 items) in a competency model for industry 4.0 employees (Prifti et al., 2017).

### Planning and Organization

Participants rated Planning and Organization dimensions Project management %44,7 strong and very strong (Table 7.66), Planning and organizing work %79,2 strong and very strong (Table 7.67) and %56,4 strong and very strong Management Ability (Table 7.68).

**Table 7.66: Project management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	15	16,0	16,0	18,1
Moderate	34	36,2	36,2	54,3
Strong	33	35,1	35,1	89,4
Very Strong	10	10,6	10,6	100,0
Total	94	100,0	100,0	

**Table 7.67: Planning and organizing work**

	Frequency	Percent	Valid Percent	Cumulative Percent
--	-----------	---------	---------------	--------------------

Valid	Weak	1	1,1	1,1	1,1
	Moderate	18	19,1	19,1	20,2
	Strong	50	53,2	53,2	73,4
	Very Strong	25	26,6	26,6	100,0
	Total	94	100,0	100,0	

**Table 7.68: Management ability**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Weak	1	1,1	1,1	1,1
	Weak	5	5,3	5,3	6,4
	Moderate	35	37,2	37,2	43,6
	Strong	42	44,7	44,7	88,3
	Very Strong	11	11,7	11,7	100,0
	Total	94	100,0	100,0	

### **Delivering Results and Meeting Customer Expectation**

Participants rated their Customer Orientation skills % 74,5 strong and very strong (Table 7.69), Customer Relationship Management skills %66 strong and very strong (Table 7.70)

**Table 7.69: Customer orientation**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Weak	1	1,1	1,1	1,1
	Moderate	23	24,5	24,5	25,5
	Strong	53	56,4	56,4	81,9
	Very Strong	17	18,1	18,1	100,0
	Total	94	100,0	100,0	

**Table 7.70: Customer relationship management**

		Frequency	Percent	Valid Percent	Cumulative Percent
--	--	-----------	---------	---------------	--------------------

Valid	Weak	4	4,3	4,3	4,3
	Moderate	28	29,8	29,8	34,0
	Strong	45	47,9	47,9	81,9
	Very Strong	17	18,1	18,1	100,0
	Total	94	100,0	100,0	

### Following Instructions and Procedures

Legislation awareness skills %47,9 strong and very strong (Table 7.71), Safety awareness skills %55,3 strong and very strong (Table 7.72) and Individual responsibility skills %85,1 strong and very strong (Table 7.73).

**Table 7.71: Legislation awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	9	9,6	9,6	11,7
Moderate	38	40,4	40,4	52,1
Strong	35	37,2	37,2	89,4
Very Strong	10	10,6	10,6	100,0
Total	94	100,0	100,0	

**Table 7.72: Safety awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	3	3,2	3,2	5,3
Moderate	37	39,4	39,4	44,7
Strong	40	42,6	42,6	87,2
Very Strong	12	12,8	12,8	100,0
Total	94	100,0	100,0	

**Table 7.73: Individual responsibility**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Moderate	13	13,8	13,8	14,9
Strong	56	59,6	59,6	74,5
Very Strong	24	25,5	25,5	100,0
Total	94	100,0	100,0	

## ADAPTING AND COPING

The Great Eight's Adapting and Coping captures adapts and responds well to change. Manages pressure effectively and copes well with setbacks. It is composed of two sub dimension called Adopting and Responding to Change (4 items) and persuading and influencing (1 item) in a competency model for industry 4.0 employees (Prifti et al., 2017).

### Adopting and Responding to Change

Participants rated their Work in interdisciplinary environments skills %55,3 strong and very strong (Table 7.74), Intercultural competency skills %48,9 strong and very strong (Table 7.75), Flexibility skills %78,7 strong and very strong (%21.3 Moderate, no weak or very weak) (Table 7.76) and Adaptability and ability to change mind-set skills %68,1 strong and very strong (Table 7.77).

**Table 7.74: Work in interdisciplinary environments**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	7	7,4	7,4	9,6
Moderate	33	35,1	35,1	44,7
Strong	38	40,4	40,4	85,1
Very Strong	14	14,9	14,9	100,0
Total	94	100,0	100,0	

**Table 7.75: Intercultural competency**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	10	10,6	10,6	11,7
Moderate	37	39,4	39,4	51,1
Strong	33	35,1	35,1	86,2
Very Strong	13	13,8	13,8	100,0
Total	94	100,0	100,0	

**Table 7.76: Flexibility**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Moderate	20	21,3	21,3	21,3
Strong	52	55,3	55,3	76,6
Very Strong	22	23,4	23,4	100,0
Total	94	100,0	100,0	

**Table 7.77: Adaptability and ability to change mind-set**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	1	1,1	1,1	1,1
Moderate	29	30,9	30,9	31,9
Strong	50	53,2	53,2	85,1
Very Strong	14	14,9	14,9	100,0
Total	94	100,0	100,0	

### **Persuading and Influencing**

Participants rated their Work Life Balance skills %53,2 strong and very strong (Table 7.78).

**Table 7.78: Work-life Balance**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	3,2	3,2	3,2
Weak	8	8,5	8,5	11,7
Moderate	33	35,1	35,1	46,8
Strong	40	42,6	42,6	89,4
Very Strong	10	10,6	10,6	100,0
Total	94	100,0	100,0	

## ENTERPRISING AND PERFORMING

The Great Eight's Enterprising and Performing captures focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce, and finance. Seeks opportunities for self-development and career advancement. It is composed of two sub dimension called Achieving Personal Works Goals And Objectives (1 item) and Entrepreneurial and Commercial Thinking (2 items) in a competency model for industry 4.0 employees (Prifti et al., 2017).

### Achieving Personal Work Goals and Objectives

Participants rate their Self-management and organization skills %74,5 strong and very strong (Table 7.79).

**Table 7.79: Self-management and organization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	1,1	1,1	1,1
Weak	4	4,3	4,3	5,3
Moderate	19	20,2	20,2	25,5
Strong	50	53,2	53,2	78,7
Very Strong	20	21,3	21,3	100,0
Total	94	100,0	100,0	

### Entrepreneurial and Commercial Thinking



Participants rated their Business model understanding skills %30,9 strong and very strong (Table 7.80) and Entrepreneurship skills %40,4 strong and very strong (Table 7.81). Polish participant rate below average Entrepreneurial and Commercial Thinking skills.

**Table 7.80: Business model understanding**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	6	6,4	6,4	6,4
Weak	25	26,6	26,6	33,0
Moderate	34	36,2	36,2	69,1
Strong	26	27,7	27,7	96,8
Very Strong	3	3,2	3,2	100,0
Total	94	100,0	100,0	

**Table 7.81: Entrepreneurship**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	2,1	2,1	2,1
Weak	15	16,0	16,0	18,1
Moderate	39	41,5	41,5	59,6
Strong	25	26,6	26,6	86,2
Very Strong	13	13,8	13,8	100,0
Total	94	100,0	100,0	

### **STUDENT QUESTIONNAIRE ANALYSIS-POLAND**

Participants participated the research are % 20,3 male and %79,7 female (Table 8.1), age ranging from 17 to 66 and mean age is 31,56 (Table 8.2). %2,9 of the respondents are studying higher education, %42,8 graduate, %13 vocational high school, %0,7 vocational school and %40,6 are studying secondary school (Table 8.4). %88,4 of the respondents are planning to work in service (tourism, health, finance, IT) sector, %10,1 in manufacturing (Table 8.5). Demographic represent a participant profile with a female, in their thirties, mostly planning to work in service sector.

**Table 8.1: Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	28	20,3	20,3	20,3
Female	110	79,7	79,7	100,0
Total	138	100,0	100,0	

**Table 8.2: Age**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 17,0	1	,7	,7	,7
19,0	1	,7	,7	1,4
20,0	3	2,2	2,2	3,6
21,0	12	8,7	8,7	12,3
22,0	8	5,8	5,8	18,1
23,0	12	8,7	8,7	26,8
24,0	7	5,1	5,1	31,9
25,0	5	3,6	3,6	35,5
26,0	4	2,9	2,9	38,4
27,0	4	2,9	2,9	41,3
28,0	7	5,1	5,1	46,4
29,0	4	2,9	2,9	49,3
30,0	6	4,3	4,3	53,6
32,0	5	3,6	3,6	57,2
33,0	8	5,8	5,8	63,0
34,0	1	,7	,7	63,8
35,0	3	2,2	2,2	65,9
36,0	2	1,4	1,4	67,4
37,0	3	2,2	2,2	69,6
38,0	8	5,8	5,8	75,4
39,0	7	5,1	5,1	80,4
40,0	1	,7	,7	81,2
41,0	7	5,1	5,1	86,2
42,0	4	2,9	2,9	89,1
43,0	2	1,4	1,4	90,6
44,0	1	,7	,7	91,3
45,0	1	,7	,7	92,0

47,0	2	1,4	1,4	93,5
48,0	1	,7	,7	94,2
49,0	2	1,4	1,4	95,7
50,0	3	2,2	2,2	97,8
52,0	1	,7	,7	98,6
58,0	1	,7	,7	99,3
66,0	1	,7	,7	100,0
Total	138	100,0	100,0	

**Table 8.3: Level of study**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Collage	71	51,4	51,4	51,4
Graduate	67	48,6	48,6	100,0
Total	138	100,0	100,0	

**Table 8.4: Educational background**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Secondary school	56	40,6	40,6	40,6
vocational school	1	,7	,7	41,3
Vocational high school	18	13,0	13,0	54,3
Graduate	59	42,8	42,8	97,1
Higher education (master/Phd)	4	2,9	2,9	100,0
Total	138	100,0	100,0	

**Table 8.5: In which sector do you plan to work**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Manufacturing	14	10,1	10,1	10,1
Service (Tourism, health, finance IT)	122	88,4	88,4	98,6
99	2	1,4	1,4	100,0
Total	138	100,0	100,0	

## Business Trends

Business trends they plan to work in reported by the students is %15,2 no change in revenue, %42 total revenue increasing, %11,6 of the respondents reported a decreasing total revenue and %31,2 reported not applicable (Table 8.6). %15,9 of the respondents reported that employment trend in the sector they plan to work is not changing, %38,4 reported increase in the number of the employees, %19,6 reported a decrease in the employee numbers and %26,1 reported as not applicable (Table 8.7).

%18,1 of the respondent reported that it is easy and very easy to find a job in the sector they want to work, %37,7 reported as moderate, %42 difficult and %2,2 as very difficult (Table 8.8). %40,1 of the respondent reported that it is easy and very easy to find a job in a sector other than they want to work, %43,1 reported as moderate, %15,3 as difficult and %1,5 as very difficult (Table 8.9).

**Table 8.6: What is the business trend in the sector you want to work?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Total revenue increasing	58	42,0	42,0	42,0
Total revenue decreasing	16	11,6	11,6	53,6
Without change	21	15,2	15,2	68,8
Hard to say	43	31,2	31,2	100,0
Total	138	100,0	100,0	

**Table 8.7: What employment possibilities are in the sector you want to work?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Number of employees increasing	53	38,4	38,4	38,4
Number of employees decreasing	27	19,6	19,6	58,0
Without change	22	15,9	15,9	73,9
Hard to say	36	26,1	26,1	100,0
Total	138	100,0	100,0	

**Table 8.8: Can you find a job in the sector you want to work?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Difficult	3	2,2	2,2	2,2
Difficult	58	42,0	42,0	44,2
Moderate	52	37,7	37,7	81,9
Easy	21	15,2	15,2	97,1
Very Easy	4	2,9	2,9	100,0
Total	138	100,0	100,0	

**Table 8.9: If you cannot find a job in the sector you want to work, is it possible for you to find another job in a different sector?**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Difficult	2	1,4	1,5	1,5
Difficult	21	15,2	15,3	16,8
Moderate	59	42,8	43,1	59,9
Easy	44	31,9	32,1	92,0
Very Easy	11	8,0	8,0	100,0
Total	137	99,3	100,0	
Missing System	1	,7		
Total	138	100,0		

**SKILL NEED IN INDUSTRY 4.0****Dimensions**

Skill set required by industry 4.0 are captured under 20 dimensions which are Deciding and Initial Action, Leading and Supervising, Working With People, Adhering to Principles and Values, Relating and Networking, Persuading and Influencing, Presenting and Communicating Information, Writing and reporting, Applying Expertise and Technology, Analyzing, Learning and Researching, Creating and Innovation, Formulating Strategies, Planning and Organization, Delivering Results and Meeting Customer Expectation, Following Instructions and Procedures, Adopting and Responding to Change, Persuading and

Influencing, Achieving Personal Work Goals and Objectives, Entrepreneurial and Commercial Thinking all base on Big Eighth dimensions.

**Big Eight Dimensions and definition**

**Leading and Deciding**

Takes control and exercises leadership. Initiates action, gives direction, and takes responsibility.

**Supporting and Cooperating**

Supports others and shows respect and positive regard for them in social situations. Puts people first, working effectively with individuals and teams, clients, and staff. Behaves consistently with clear personal values that complement those of the organization.

**Interacting and Presenting**

Communicates and networks effectively. Successfully persuades and influences others. Relates to others in a confident, relaxed manner.

**Analyzing and Interpreting**

Shows evidence of clear analytical thinking. Gets to the heart of complex problems and issues. Applies own expertise effectively. Quickly takes on new technology. Communicates well in writing

**Creating and Conceptualizing**

Works well in situations requiring openness to new ideas and experiences. Seeks out learning opportunities. Handles situations and problems with innovation and creativity. Thinks broadly and strategically. Supports and drives organizational change.

**Organizing and Executing**

Plans ahead and works in a systematic and organized way. Follows directions and procedures. Focuses on customer satisfaction and delivers a quality service or product to the agreed standards.

**Adapting and Coping**

Adapts and responds well to change. Manages pressure effectively and copes well with setbacks.

**Enterprising and Performing**

Focuses on results and achieving personal work objectives. Works best when work is related closely to results and the impact of personal efforts is obvious. Shows an understanding of business, commerce, and finance. Seeks opportunities for self-development and career advancement.

**LEADING AND DECISION**

The Great Eight's Leading and Decision dimension captures participant's taking control and exercise leadership, initiates action, gives direction, and takes responsibility skills (Dave, 2005). It is composed of two sub dimension called Deciding and Initial Action (2 item) and Leading and Supervising (1 item) in a competency model for industry 4.0 employees (Prifti et al., 2017).

**Deciding and Initial Action**

Frequency analysis for Deciding and Initial Action items suggest that %58 of the Polish students evaluate themselves as strong and very strong level of decision making (Table 8.10), %82,6 strong and very strong level of taking responsibility (Table 8.11).

**Table 8.10: Decision making**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	2	1,4	1,4	1,4
Moderate	56	40,6	40,6	42,0
Strong	64	46,4	46,4	88,4
Very Strong	16	11,6	11,6	100,0
Total	138	100,0	100,0	

**Table 8.11: Taking responsibility**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	1	,7	,7	,7
Moderate	23	16,7	16,7	17,4

Strong	70	50,7	50,7	68,1
Very Strong	44	31,9	31,9	100,0
Total	138	100,0	100,0	

### Leading and Supervising

Polish students score themselves %55,8 strong and very strong leadership skills (Table 8.12).

**Table 8.12: Leadership Skills**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	7	5,1	5,1	7,2
Moderate	51	37,0	37,0	44,2
Strong	60	43,5	43,5	87,7
Very Strong	17	12,3	12,3	100,0
Total	138	100,0	100,0	

## SUPPORTING AND COOPERATION

### Working With People

%80,4 of the students rate themselves as strong and very strong in team work (Table 8.13), %82,6 rate themselves strong and very strong in collaborating with others (Table 8.14) and %78,3 rate strong and very strong in communicating with people (Table 8.15).

**Table 8.13: Team work**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Moderate	26	18,8	18,8	19,6
Strong	81	58,7	58,7	78,3
Very Strong	30	21,7	21,7	100,0
Total	138	100,0	100,0	



**Table 8.14: Collaborating with others**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Moderate	22	15,9	15,9	17,4
Strong	83	60,1	60,1	77,5
Very Strong	31	22,5	22,5	100,0
Total	138	100,0	100,0	

**Table 8.15: Communicating with people**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	4	2,9	2,9	3,6
Moderate	25	18,1	18,1	21,7
Strong	87	63,0	63,0	84,8
Very Strong	21	15,2	15,2	100,0
Total	138	100,0	100,0	

**Adhering to Principles and Values**

%89,1 of the students rate strong and very strong in Respecting ethics (Table 8.16), %66,7 strong and very strong in Environmental awareness (Table 8.17) and %52,2 strong and very strong in Awareness of ergonomics (Table 8.18).

**Table 8.16: Respecting ethics**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Moderate	13	9,4	9,4	10,9
Strong	70	50,7	50,7	61,6
Very Strong	53	38,4	38,4	100,0
Total	138	100,0	100,0	

**Table 8.17: Environmental awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	3	2,2	2,2	2,9
Moderate	42	30,4	30,4	33,3
Strong	61	44,2	44,2	77,5
Very Strong	31	22,5	22,5	100,0
Total	138	100,0	100,0	

**Table 8.18: Awareness of ergonomics**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	11	8,0	8,0	8,0
Moderate	55	39,9	39,9	47,8
Strong	60	43,5	43,5	91,3
Very Strong	12	8,7	8,7	100,0
Total	138	100,0	100,0	

## INTERACTING AND PRESENTING

### Relating and Networking

%69,6 of the students rate strong and very strong in Compromising skills (Table 8.19), %19,6 rate strong and very strong in Creating business networks (Table 8.20), %62,3 rate strong and very strong in Maintaining customer relationships (Table 8.21).

**Table 8.19: Compromising**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	4	2,9	2,9	2,9
Moderate	38	27,5	27,5	30,4
Strong	74	53,6	53,6	84,1

Very Strong	22	15,9	15,9	100,0
Total	138	100,0	100,0	

**Table 8.20: Creating business networks**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	13	9,4	9,4	9,4
Weak	32	23,2	23,2	32,6
Moderate	66	47,8	47,8	80,4
Strong	22	15,9	15,9	96,4
Very Strong	5	3,6	3,6	100,0
Total	138	100,0	100,0	

**Table 8.21: Maintaining customer relationships**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	11	8,0	8,0	9,4
Moderate	39	28,3	28,3	37,7
Strong	62	44,9	44,9	82,6
Very Strong	24	17,4	17,4	100,0
Total	138	100,0	100,0	

### **Persuading and Influencing**

%47,8 of the students rate strong and very strong in Negotiating (Table 8.22) and %78,3 strong and very strong in Emotional intelligence (Table 8.23).

**Table 8.22: Negotiating**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	19	13,8	13,8	13,8
Moderate	53	38,4	38,4	52,2
Strong	55	39,9	39,9	92,0

Very Strong	11	8,0	8,0	100,0
Total	138	100,0	100,0	

**Table 8.23: Emotional intelligence**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	1	,7	,7	,7
Moderate	29	21,0	21,0	21,7
Strong	80	58,0	58,0	79,7
Very Strong	28	20,3	20,3	100,0
Total	138	100,0	100,0	

### Presenting and Communicating Information

%55,1 of the students rate strong and very strong in Presenting and communication ability (Table 8.24).

**Table 8.24: Presenting and communication ability**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	8	5,8	5,8	7,2
Moderate	52	37,7	37,7	44,9
Strong	61	44,2	44,2	89,1
Very Strong	15	10,9	10,9	100,0
Total	138	100,0	100,0	

## ANALYZING AND INTERPRETING

### Writing and reporting

%40,6 of the Polish students rate strong and very strong in Targeted/Technical Communication (Table 8.25) and %92 rate strong and very strong in Literacy (Table 8.26).

**Table 8.25: Targeted/Technical Communication**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	10	7,2	7,2	8,0
Moderate	71	51,4	51,4	59,4
Strong	48	34,8	34,8	94,2
Very Strong	8	5,8	5,8	100,0
Total	138	100,0	100,0	

**Table 8.26: Literacy (Reporting, writing plans, writing letters)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	1	,7	,7	1,4
Moderate	9	6,5	6,5	8,0
Strong	58	42,0	42,0	50,0
Very Strong	69	50,0	50,0	100,0
Total	138	100,0	100,0	

**Applying Expertise and Technology**

%43,5 of the Polish students rate themselves with strong and very strong in IT and technology affinity (Table 8.27), %32,9 strong and very strong in Economics (Table 8.28), %38,4 strong and very strong in Extract business value from social media (Table 8.29), %37 strong and very strong in Service orientation/product service offerings (Table 8.30), %28,3 strong and very strong in Business process management (Table 8.31), %31,9 strong and very strong in Business change management (Table 8.32), %42,8 strong and very strong in Understand and coordinate workflows (Table 8.33), %58,7 strong and very strong in Network security (Table 8.34), %18,1 strong and very strong in IT architectures (Table 8.35), %17,4 strong and very strong in Machine learning (Table 8.36), %18,8 strong and very strong in System development (Table 8.37), %22,5 strong and very strong in Integrating heterogeneous technologies (Table 8.38), %43,5 strong and very strong in Mobile technologies (Table 8.39), %11,6 strong and very strong in Sensors/embedded systems (Table 8.40), %13 strong and very strong in Network technology/M2M communication (Table 8.41), %6,5 strong and very strong in Robotics/Artificial intelligence (Table 8.42), %14,5 strong and very strong in Predictive maintenance (Table 8.43), %9,4 strong and very strong in Modelling and programming (Table

8.44), %18,8 strong and very strong in Big data/Data analysis and interpretation (Table 8.45), %9,4 strong and very strong in Cloud computing/architectures (Table 8.46), %9,4 strong and very strong in In memory DBs (Table 8.47), %10,9 strong and very strong in Statistics (Table 8.48), , %29 strong and very strong in Data security (Table 8.49).

**Table 8.27: IT and technology affinity**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	14	10,1	10,1	11,6
Moderate	62	44,9	44,9	56,5
Strong	48	34,8	34,8	91,3
Very Strong	12	8,7	8,7	100,0
Total	138	100,0	100,0	

**Table 8.28: Economics**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	20	14,5	14,5	15,2
Moderate	73	52,9	52,9	68,1
Strong	38	27,5	27,5	95,7
Very Strong	6	4,3	4,3	100,0
Total	138	100,0	100,0	

**Table 8.29: Extract business value from social media**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	19	13,8	13,8	15,9
Moderate	63	45,7	45,7	61,6
Strong	49	35,5	35,5	97,1
Very Strong	4	2,9	2,9	100,0

Total	138	100,0	100,0
-------	-----	-------	-------

**Table 8.30: Service orientation/product service offerings**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	17	12,3	12,3	13,8
Moderate	68	49,3	49,3	63,0
Strong	46	33,3	33,3	96,4
Very Strong	5	3,6	3,6	100,0
Total	138	100,0	100,0	

**Table 8.31: Business process management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	4	2,9	2,9	2,9
Weak	36	26,1	26,1	29,0
Moderate	59	42,8	42,8	71,7
Strong	32	23,2	23,2	94,9
Very Strong	7	5,1	5,1	100,0
Total	138	100,0	100,0	

**Table 8.32: Business change management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	5	3,6	3,6	3,6
Weak	30	21,7	21,7	25,4
Moderate	59	42,8	42,8	68,1
Strong	40	29,0	29,0	97,1
Very Strong	4	2,9	2,9	100,0
Total	138	100,0	100,0	

**Table 8.33: Understand and coordinate workflows**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	16	11,6	11,6	13,8
Moderate	60	43,5	43,5	57,2
Strong	52	37,7	37,7	94,9
Very Strong	7	5,1	5,1	100,0
Total	138	100,0	100,0	

**Table 8.34: Network security**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	3	2,2	2,2	3,6
Moderate	52	37,7	37,7	41,3
Strong	55	39,9	39,9	81,2
Very Strong	26	18,8	18,8	100,0
Total	138	100,0	100,0	

**Table 8.35: IT architectures**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	9	6,5	6,5	6,5
Weak	47	34,1	34,1	40,6
Moderate	57	41,3	41,3	81,9
Strong	18	13,0	13,0	94,9
Very Strong	7	5,1	5,1	100,0
Total	138	100,0	100,0	

**Table 8.36: Machine learning**



	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	16	11,6	11,6	11,6
Weak	42	30,4	30,4	42,0
Moderate	56	40,6	40,6	82,6
Strong	20	14,5	14,5	97,1
Very Strong	4	2,9	2,9	100,0
Total	138	100,0	100,0	

**Table 8.37: System development**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	9	6,5	6,5	6,5
Weak	36	26,1	26,1	32,6
Moderate	67	48,6	48,6	81,2
Strong	24	17,4	17,4	98,6
Very Strong	2	1,4	1,4	100,0
Total	138	100,0	100,0	

**Table 8.38: Integrating heterogeneous technologies**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	7	5,1	5,1	5,1
Weak	36	26,1	26,1	31,2
Moderate	64	46,4	46,4	77,5
Strong	25	18,1	18,1	95,7
Very Strong	6	4,3	4,3	100,0
Total	138	100,0	100,0	

**Table 8.39: Mobile technologies**

	Frequency	Percent	Valid Percent	Cumulative Percent
--	-----------	---------	---------------	--------------------

Valid	Very Weak	3	2,2	2,2	2,2
	Weak	18	13,0	13,0	15,2
	Moderate	57	41,3	41,3	56,5
	Strong	55	39,9	39,9	96,4
	Very Strong	5	3,6	3,6	100,0
	Total	138	100,0	100,0	

**Table 8.40: Sensors/embedded systems**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Weak	25	18,1	18,1	18,1
	Weak	44	31,9	31,9	50,0
	Moderate	53	38,4	38,4	88,4
	Strong	14	10,1	10,1	98,6
	Very Strong	2	1,4	1,4	100,0
	Total	138	100,0	100,0	

**Table 8.41: Network technology/M2M communication**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Weak	30	21,7	21,7	21,7
	Weak	48	34,8	34,8	56,5
	Moderate	42	30,4	30,4	87,0
	Strong	17	12,3	12,3	99,3
	Very Strong	1	,7	,7	100,0
	Total	138	100,0	100,0	

**Table 8.42: Robotics/Artificial intelligence**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Weak	45	32,6	32,6	32,6

Weak	49	35,5	35,5	68,1
Moderate	35	25,4	25,4	93,5
Strong	9	6,5	6,5	100,0
Total	138	100,0	100,0	

**Table 8.43: Predictive maintenance**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	35	25,4	25,4	25,4
Weak	39	28,3	28,3	53,6
Moderate	44	31,9	31,9	85,5
Strong	17	12,3	12,3	97,8
Very Strong	3	2,2	2,2	100,0
Total	138	100,0	100,0	

**Table 8.44: Modelling and programming**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	41	29,7	29,7	29,7
Weak	53	38,4	38,4	68,1
Moderate	31	22,5	22,5	90,6
Strong	11	8,0	8,0	98,6
Very Strong	2	1,4	1,4	100,0
Total	138	100,0	100,0	

**Table 8.45: Big data/Data analysis and interpretation**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	30	21,7	21,7	21,7
Weak	32	23,2	23,2	44,9
Moderate	50	36,2	36,2	81,2
Strong	23	16,7	16,7	97,8

Very Strong	3	2,2	2,2	100,0
Total	138	100,0	100,0	

**Table 8.46: Cloud computing/architectures**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	41	29,7	29,7	29,7
Weak	52	37,7	37,7	67,4
Moderate	32	23,2	23,2	90,6
Strong	11	8,0	8,0	98,6
Very Strong	2	1,4	1,4	100,0
Total	138	100,0	100,0	

**Table 8.47: In-memory DBs**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	55	39,9	39,9	39,9
Weak	44	31,9	31,9	71,7
Moderate	26	18,8	18,8	90,6
Strong	12	8,7	8,7	99,3
Very Strong	1	,7	,7	100,0
Total	138	100,0	100,0	

**Table 8.48: Statistics**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	18	13,0	13,0	13,0
Weak	43	31,2	31,2	44,2
Moderate	62	44,9	44,9	89,1
Strong	13	9,4	9,4	98,6
Very Strong	2	1,4	1,4	100,0

Total	138	100,0	100,0
-------	-----	-------	-------

**Table 8.49: Data security**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	14	10,1	10,1	10,1
Weak	29	21,0	21,0	31,2
Moderate	55	39,9	39,9	71,0
Strong	32	23,2	23,2	94,2
Very Strong	8	5,8	5,8	100,0
Total	138	100,0	100,0	

### Analyzing

%56,5 of the Polish students rate strong and very strong in Problem Solving (Table 8.50), %35,5 strong and very strong in Optimization (Table 8.51), %33,3 strong and very strong in Analytical Skills (Table 8.52), %56,5 strong and very strong in Cognitive Ability (Table 2.53). Optimization and Analytical skills needs improvement.

**Table 8.50: Problem Solving**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	7	5,1	5,1	6,5
Moderate	51	37,0	37,0	43,5
Strong	68	49,3	49,3	92,8
Very Strong	10	7,2	7,2	100,0
Total	138	100,0	100,0	

**Table 8.51: Optimization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	6	4,3	4,3	4,3
Weak	22	15,9	15,9	20,3

Moderate	61	44,2	44,2	64,5
Strong	46	33,3	33,3	97,8
Very Strong	3	2,2	2,2	100,0
Total	138	100,0	100,0	

**Table 8.52: Analytical Skills**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	5	3,6	3,6	3,6
Weak	26	18,8	18,8	22,5
Moderate	61	44,2	44,2	66,7
Strong	36	26,1	26,1	92,8
Very Strong	10	7,2	7,2	100,0
Total	138	100,0	100,0	

**Table 8.53: Cognitive Ability**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	4	2,9	2,9	2,9
Weak	7	5,1	5,1	8,0
Moderate	49	35,5	35,5	43,5
Strong	63	45,7	45,7	89,1
Very Strong	15	10,9	10,9	100,0
Total	138	100,0	100,0	

## **CREATING AND CONCEPTUALIZATION**

### **Learning and Researching**

%80,4 rate strong and very strong in Life-long learning skills (Table 8.54), %59,6 rate strong and very strong in Knowledge management skills (Table 8.55).

**Table 8.54: Life-long learning**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	2	1,4	1,4	2,2
Moderate	24	17,4	17,4	19,6
Strong	76	55,1	55,1	74,6
Very Strong	35	25,4	25,4	100,0
Total	138	100,0	100,0	

**Table 8.55: Knowledge management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	1	,7	,7	2,9
Moderate	52	37,7	37,7	40,6
Strong	69	50,0	50,0	90,6
Very Strong	13	9,4	9,4	100,0
Total	138	100,0	100,0	

### Creating and Innovation

%46,9 rate strong and very strong in Innovating (Table 8.56), %72,5 rate strong and very strong Creativity (Table 8.57), %65,9 strong and very strong Critical thinking (Table 8.58), %39,1 rate strong and very strong Change management (Table 8.59). Polish student rate below average in innovating and change management.

**Table 8.56: Innovating**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	7	5,1	5,1	6,5
Moderate	65	47,1	47,1	53,6
Strong	52	37,7	37,7	91,3
Very Strong	12	8,7	8,7	100,0
Total	138	100,0	100,0	

**Table 8.57: Creativity**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	3	2,2	2,2	4,3
Moderate	32	23,2	23,2	27,5
Strong	69	50,0	50,0	77,5
Very Strong	31	22,5	22,5	100,0
Total	138	100,0	100,0	

**Table 8.58: Critical thinking**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Weak	5	3,6	3,6	3,6
Moderate	42	30,4	30,4	34,1
Strong	67	48,6	48,6	82,6
Very Strong	24	17,4	17,4	100,0
Total	138	100,0	100,0	

**Table 8.59: Change management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	13	9,4	9,4	10,9
Moderate	69	50,0	50,0	60,9
Strong	45	32,6	32,6	93,5
Very Strong	9	6,5	6,5	100,0
Total	138	100,0	100,0	

**Formulating Strategies**



%27,5 rate strong and very strong in Business strategy (Table 8.60), %46,4 strong and very strong in Abstraction ability (Table 8.61), %21,7 strong and very strong in Managing complexity (Table 8.62). Business strategy and Abstraction ability skills need improvement. Polish students lack formulating strategies.

**Table 8.60: Business strategy**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	10	7,2	7,2	7,2
Weak	34	24,6	24,6	31,9
Moderate	56	40,6	40,6	72,5
Strong	32	23,2	23,2	95,7
Very Strong	6	4,3	4,3	100,0
Total	138	100,0	100,0	

**Table 8.61: Abstraction ability**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	14	10,1	10,1	11,6
Moderate	58	42,0	42,0	53,6
Strong	46	33,3	33,3	87,0
Very Strong	18	13,0	13,0	100,0
Total	138	100,0	100,0	

**Table 8.62: Managing complexity**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	8	5,8	5,8	5,8
Weak	33	23,9	23,9	29,7
Moderate	67	48,6	48,6	78,3
Strong	25	18,1	18,1	96,4

Very Strong	5	3,6	3,6	100,0
Total	138	100,0	100,0	

## ORGANIZING AND EXECUTING

### Planning and Organization

%37,7 rate strong and very strong in Project management (Table 8.63), %65,2 rate strong and very strong in Planning and organizing work (Table 8.64), %55,8 rate strong and very strong in Management ability (Table 8.65). Polish students lack Project management skills.

**Table 8.63: Project management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	16	11,6	11,6	13,8
Moderate	67	48,6	48,6	62,3
Strong	43	31,2	31,2	93,5
Very Strong	9	6,5	6,5	100,0
Total	138	100,0	100,0	

**Table 8.64: Planning and organizing work**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	7	5,1	5,1	7,2
Moderate	38	27,5	27,5	34,8
Strong	60	43,5	43,5	78,3
Very Strong	30	21,7	21,7	100,0
Total	138	100,0	100,0	

**Table 8.65: Management ability**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	5	3,6	3,6	3,6
Weak	13	9,4	9,4	13,0
Moderate	43	31,2	31,2	44,2
Strong	53	38,4	38,4	82,6
Very Strong	24	17,4	17,4	100,0
Total	138	100,0	100,0	

### Delivering Results and Meeting Customer Expectation

%52,2 of the Polish students rate their Customer orientation skills as strong and very strong (Table 8.66) and %57,2 in Customer relationship management (Table 8.67).

**Table 8.66: Customer orientation**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	13	9,4	9,4	11,6
Moderate	50	36,2	36,2	47,8
Strong	53	38,4	38,4	86,2
Very Strong	19	13,8	13,8	100,0
Total	138	100,0	100,0	

**Table 8.67: Customer relationship management**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	14	10,1	10,1	11,6
Moderate	43	31,2	31,2	42,8
Strong	60	43,5	43,5	86,2
Very Strong	19	13,8	13,8	100,0
Total	138	100,0	100,0	

### Following Instructions and Procedures

%30,4 rate strong and very strong Legislation awareness skill (Table 8.68), %59,4 strong and very strong in Safety awareness (Table 8.69), %73,2 strong very strong in Individual responsibility (Table 8.70). Polish Students lack legislation awareness.

**Table 8.68: Legislation awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	5	3,6	3,6	3,6
Weak	23	16,7	16,7	20,3
Moderate	68	49,3	49,3	69,6
Strong	33	23,9	23,9	93,5
Very Strong	9	6,5	6,5	100,0
Total	138	100,0	100,0	

**Table 8.69: Safety awareness**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	10	7,2	7,2	8,0
Moderate	45	32,6	32,6	40,6
Strong	67	48,6	48,6	89,1
Very Strong	15	10,9	10,9	100,0
Total	138	100,0	100,0	

**Table 8.70: Individual responsibility**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	3	2,2	2,2	4,3
Moderate	31	22,5	22,5	26,8
Strong	64	46,4	46,4	73,2

Very Strong	37	26,8	26,8	100,0
Total	138	100,0	100,0	

## ADAPTING AND COPING

### Adopting and Responding to Change

%37,7 rate strong and very strong in Work in interdisciplinary environments (Table 8.71), %49,3 rate strong and very strong in Intercultural competency (Table 8.72), %67,4 rate strong and very strong in Flexibility (Table 8.73), %61,6 rate strong and very strong in Adaptability and ability to change mind-set (Table 8.74). Polish students lack Work in interdisciplinary environments skills.

**Table 8.71: Work in interdisciplinary environments**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	2	1,4	1,4	1,4
Weak	16	11,6	11,6	13,0
Moderate	68	49,3	49,3	62,3
Strong	42	30,4	30,4	92,8
Very Strong	10	7,2	7,2	100,0
Total	138	100,0	100,0	

**Table 8.72: Intercultural competency**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	16	11,6	11,6	12,3
Moderate	53	38,4	38,4	50,7
Strong	44	31,9	31,9	82,6
Very Strong	24	17,4	17,4	100,0
Total	138	100,0	100,0	

**Table 8.73: Flexibility**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	5	3,6	3,6	4,3
Moderate	39	28,3	28,3	32,6
Strong	64	46,4	46,4	79,0
Very Strong	29	21,0	21,0	100,0
Total	138	100,0	100,0	

**Table 8.74: Adaptability and ability to change mind-set**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	6	4,3	4,3	5,1
Moderate	46	33,3	33,3	38,4
Strong	69	50,0	50,0	88,4
Very Strong	16	11,6	11,6	100,0
Total	138	100,0	100,0	

### **Persuading and Influencing**

%61,6 of the Polish students rate strong and very strong in Work Life Balance skill (Table 8.75).

**Table 8.75: Work-life Balance**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	5	3,6	3,6	4,3
Moderate	47	34,1	34,1	38,4
Strong	69	50,0	50,0	88,4
Very Strong	16	11,6	11,6	100,0
Total	138	100,0	100,0	

## ENTERPRISING AND PERFORMING

### Achieving Personal Work Goals and Objectives

%70,3 of the Polish students rate strong and very strong in Self-management and organization (Table 8.76).

**Table 8.76: Self-management and organization**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	3	2,2	2,2	2,2
Weak	2	1,4	1,4	3,6
Moderate	36	26,1	26,1	29,7
Strong	69	50,0	50,0	79,7
Very Strong	28	20,3	20,3	100,0
Total	138	100,0	100,0	

### Entrepreneurial and Commercial Thinking

%30,4 of the Polish students rate strong and very strong in Business model understanding (Table 8.77) and %44,9 rate strong and very strong in Entrepreneurship (Table 8.77). Polish students lack business model understanding and entrepreneurship skills.

**Table 8.77: Business model understanding**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	10	7,2	7,2	7,2
Weak	22	15,9	15,9	23,2
Moderate	64	46,4	46,4	69,6
Strong	36	26,1	26,1	95,7
Very Strong	6	4,3	4,3	100,0
Total	138	100,0	100,0	

**Table 8.78: Entrepreneurship**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Very Weak	1	,7	,7	,7
Weak	12	8,7	8,7	9,4
Moderate	63	45,7	45,7	55,1
Strong	47	34,1	34,1	89,1
Very Strong	15	10,9	10,9	100,0
Total	138	100,0	100,0	

## INTERVIEW WITH MANAGERS

### POLAND

In the research was participated 5 people: 3 woman and 2 man

Gender/Age:

Woman: 50, 38, 36

Man: 40, 28

Sectors:

- ) Automotive branch, HR Manager
- ) Manager Of The Pedagogy Department, private college
- ) ICT, position: IT Process Manager
- ) Manager Of Educational Project, sector: Education
- ) General Manager, Sector: Finance

1- What is the business trend in your organization (income increase / decreasing, number of employees increasing / decreasing)?

**Automotive branch**

*The organization is increasing. Currently, 670 employees are employed. In the nearest hour, 50 employees are hired. The number of employees has been growing for 5 years. On average, about 25-30% per year.*

**Manager Of The Pedagogy Department, private college**



*Although the business trend is increasing, the organization grows, the number of employees decreases. It is due to reorganization and trend to give more duties to the rest of employees.*

**ICT, position: IT Process Manager**

*The organization is rather stable, both revenue and number of employees are at similar level.*

**Manager Of Educational Project, sector: Education**

*The organization is developing and number of employees is increasing.*

**General Manager, Sector: Finance**

*Constantly growing business, increasing number of new employees*

2- What is the business trend in your sector (income increase / decreasing, number of employees increasing / decreasing)?
---

**Automotive branch**

*The industry is growing. The demand for luxury cars is growing in Poland. Society is becoming more and more affluent. Besides, we have a Mazda merger. We currently have 9 branches in Poland. The company "sucks" smaller companies.*

**Manager Of The Pedagogy Department, private college**

*Decreasing due to the demographic low. This low is however diminished by the trend in the society to learn, so the studies are substituted by post-gradual courses or other forms of education.*

**ICT, position: IT Process Manager**

*IT sector is developing very fast and revenues and number of employees are increasing.*

**Manager Of Educational Project, sector: Education**

*HE sector is facing challenges due to declining demographical trends resulting in lower number of students. There is a strong competition in attracting students and only the best universities stays in the market.*

**General Manager, Sector: Finance**

*Challenging sector due to increasing number of bpo companies offering finance services on the market now.*

3- What is the business trend in economy?
---

**Automotive branch**

*Of course, trends are growing. Last year, the company generated revenues of 630 million. PLN, and in 2018 plans to exceed one billion revenues. Revenues go up.*

Manager Of The Pedagogy Department, private college

*Monopolizing, which is disturbing from social point of view.*

ICT, position: IT Process Manager

*I think business is developing rapidly in Poland right now, which wasn't the case in the near past.*

Manager Of Educational Project, sector: Education

*Promising. In Poland it was already a positive trend a couple of years ago when Europe was struggling with the global financial and economical crisis.*

General Manager, Sector: Finance

*Strong competition on the market makes the copanies more ambitious and elastic, and the main trend is to expand the services.*

4- If you lose your position right now, it is easy to find a new position in the same sector

Automotive branch

*Yes, I think so it's rather easy. I am a good expert in process management and controlling.*

Manager Of The Pedagogy Department, private college

*Not very easy. There's oversupply in the job market.*

ICT, position: IT Process Manager

*I have hight qualifications and skills, so it is quite easy.*

Manager Of Educational Project, sector: Education

*I have hight qualifications and skills, so it is quite easy.*

General Manager, Sector: Finance

*It is relatively easy, due to shortages of high skilled labour in the market.*

5 - If you lose your position right now, how easy is it for you to find a new position in the same position

Automotive branch

*This is not so easy because in my position I have access to key, confidential company data and it requires building longer relationships. It is not so easy but yes, I would find a new job easy*

Manager Of The Pedagogy Department, private college

*Almost impossible.*

**ICT, position: IT Process Manager**

*I have short experience on this position, so it might be rather hard.*

**Manager Of Educational Project, sector: Education**

*Quite easy thanks to specific skills related to that position*

**General Manager, Sector: Finance**

*It is not easy as the employee usually grows and get promoted within the company*

6 - If you lose your position right now, how easy is it for you to find a new position in another sector
--

**Automotive branch**

*It's a bit complicated but I think I would quickly find a new job in another sector.*

**Manager Of The Pedagogy Department, private college**

*Quite easy, it depends on how fast I can gain new qualification or reorganize the ones that I already have.*

**ICT, position: IT Process Manager**

*With my qualifications it is rather easy.*

**Manager Of Educational Project, sector: Education**

*Very easy as project management is a rapidly growing profession.*

**General Manager, Sector: Finance**

*It would be easy, but I would have to start from the beginning or from the lower position.*

7 -Can you work in a lower position?
--------------------------------------

**Automotive branch**

*Definitely not.*

**Manager Of The Pedagogy Department, private college**

*Of course, yes.*

**ICT, position: IT Process Manager**

*Depends on several things but I would like to maintain my position.*

**Manager Of Educational Project, sector: Education**

*I would not like to.*

**General Manager, Sector: Finance**

*I could if it would be a job in more challenging sector/position connected with job trainings.*

8- What is the biggest challenge for you?

**Automotive branch**

*Involvement of people in organization in process management, motivating people, HR.*

**Manager Of The Pedagogy Department, private college**

*Lack of group-management culture.*

**ICT, position: IT Process Manager**

*High responsibility and large competition.*

**Manager Of Educational Project, sector: Education**

*Staff shortages.*

**General Manager, Sector: Finance**

*Due to huge demand for the specialists on the market it is very hard to recruit and keep the employee within a company.*

9 - In which areas do you think you should develop your skill kit in order to continue working as a manager.

**Automotive branch**

*my work-life balance ☺.*

**Manager Of The Pedagogy Department, private college**

*Project management*

**ICT, position: IT Process Manager**

*Human resources manage.*

**Manager Of Educational Project, sector: Education**

*Time management, HR*

**General Manager, Sector: Finance**

*Succesfully recruiting good employees, find time to organize more social activities for teams/departments.*

10 - Can automation be a problem for your current position? What do you think about Industry 4 in your sector?

**Automotive branch**

*Yes, process management and personnel controlling, which I deal with are processes and tools based on information technology. That is why ITC competences are very important. I constantly improve them.*

**Manager Of The Pedagogy Department, private college**

*I don't have an opinion on that subject.*

**ICT, position: IT Process Manager**

*We hire only qualified employees, so they are not in danger of losing job.*

**Manager Of Educational Project, sector: Education**

*No. This trend is more visible in manufacturing technologies rather than HE, however we may expect its development also there. For example my organization is involved in a project on Internet of Things in education (Erasmus+ 'Designing a 3D Virtual Environment For Teaching IoT')*

**General Manager, Sector: Finance**

*Automation of services won't be a problem in my sector as most of activities performed in finance departments cannot be done by scripts and automatic applications as they are concerning important and valuable transactions and must be constantly monitored.*

11- Are employees working in lower positions in danger of losing their jobs in your organization, and sector? How will industry 4 effects employment in your organization, and sector?

**Automotive branch**

*Good employees are not afraid of losing their job. I still have to document, especially new technology. The younger goes to better, but the company trains all employees on a regular basis.*

**Manager Of The Pedagogy Department, private college**

*I don't have an opinion on that subject.*

**ICT, position: IT Process Manager**

.....

## Manager Of Educational Project, sector: Education

*It is difficult to answer that question*

## General Manager, Sector: Finance

*There is no such danger regarding those employees, as the staff needs are higher than the number of employees which we are able to recruit on daily basis.*

## CONCLUSION

### 1-What is the business trend in your organization (income increase / decreasing, number of employees increasing / decreasing)?

Generally managers said, that their enterprises and sectors are developing. This is related to the good economic and economic situation in Poland. Only one person, who representative ICT industry reiterated that in his organization the situation is unchanged. The ICT industry is constantly evolving, so it may be difficult to see development from the perspective of one organization.

### 2- What is the business trend in your sector (income increase / decreasing, number of employees increasing / decreasing)?

*All surveyed managers stated that their sectors are developing and number of employees increasing. In addition, the representative of the financial industry pointed to difficulties in development - related to large and growing competition.*

### 3- What is the business trend in economy?

To the main development trends they included: strong competition on the market, which makes the companies more ambitious and elastic, and the main trend is to expand the services.

Negative trends is: the monopolisation of educational services.

### 4- If you lose your position right now, it is easy to find a new position in the same sector

For the majority of managers surveyed, finding a new job is easy or relatively easy, due to their high professional qualifications and shortages of personnel in the labor market. Only the educator stated that there is an oversupply of workers in this sector on the market.

### 5- If you lose your position right now, how easy is it for you to find a new position in the same position

Despite the good market situation indicated, the managers said finding a new job with the same position is not so easy. For the factors hindering finding a job in the same position, the respondents indicated the following factors:

- access to key, confidential company data and it requires building longer relationships
- almost impossible (due to the oversupply of employees in the education sector)
- short experience on this position

- the employee usually grows and get promoted within the company.

*Only one manager said that is: "Quite easy".*

#### 6- If you lose your position right now, it is easy to find a new position in another sector

All respondents believed that they would quickly find work in another sector, which confirms the good situation on the labor market. One of managers said: *"It would be easy, but I would have to start from the beginning or from the lower position"*.

#### 7- Can you work in a lower position?

Two managers definitely not. One stated that yes, but in a more difficult sector that would require development and training and one said, that yes.

#### 8- What is the biggest challenge for you?

The respondents assessed the challenges as:

- *involvement of people in organization in process management, motivating people, HR*
- *lack of group-management culture*
- *high responsibility and large competition*
- *staff shortages*
- *due to huge demand for the specialists on the market it is very hard to recruit and keep the employee within a company.*

#### 9 - In which areas do you think you should develop your skill kit in order to continue working as a manager.

As areas for development, the respondents indicated:

- *work-life balance*
- *project management*
- *Human resources manage*
- *time management, HR*
- *successfully recruiting good employees, find time to organize more social activities for teams/departments.*

#### 10 - Can automation be a problem for your current position? What do you think about Industry 4 in your sector?

In this matter, the opinions of the respondents were divided:

- *Yes, process management and personnel controlling, which I deal with are processes and tools based on information technology. That is why ITC competences are very important. I constantly improve them.*
- *I don't have an opinion on that subject (Educational sector).*
- *We hire only qualified employees, so they are not in danger of losing job.*

- *No. This trend is more visible in manufacturing technologies rather than HE, however we may expect its development also there. For example my organization is involved in a project on Internet of Things in education (Erasmus+ 'Designing a 3D Virtual Environment For Teaching IoT').*
- *Automation of services won't be a problem in my sector as most of activities performed in finance departments cannot be done by scripts and automatic applications as they are concerning important and valuable transactions and must be constantly monitored.*

**11- Are employees working in lower positions in danger of losing their jobs in your organization, and sector? How will industry 4 effects employment in your organization, and sector?**

However, despite the threat of automation, managers are not afraid that their or their employees are going to lose their jobs.