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Key study on current skills, knowledge, and qualifications regarding digitalisation

Project:

Fostering diGitalisation and blonic transformation of SMEs through the development of a novel and innovative Training material for overcoming COVID-19 crisis



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2. Introduction

GIST project aims at developing and implementing an innovative training material for small and medium enterprises (SMEs), which will provide the basic competences to reach a "bionic status". Bionic is a company which is capable of combining technological, transversal and leadership components to achieve more productive operations and greater innovation. GIST will strengthen those key skills and competences through up/re-skilling of the current workers of traditional sectors, especially furniture (continuous VET) and students willing to focus on their professional career in such sectors (initial VET). GIST will not only focus on technical skills (4.0 key technologies); but it will also address the high lack of transversal skills under the current educational curricula for being creative, innovative, and entrepreneurial professional capable of advancing research and strengthening the addressed sector apart from having an open leadership.

In this stage of the project, the specific objective of the Partnership was to conduct an in-depth research of knowledge related to digital transformation. An analysis of the current situation was carried out through a survey and the findings of the analysis will be used for preparation of a new educational program that will enable the acquisition of new knowledge on digital transformation, Industry 4.0 for bionic transformation of SMEs and enable the strengthening of management capacity to introduce change.

3. Methodology

The survey conducted was in form of a questionnaire and it was completed by 71 respondents, out of which 30 SMEs, 24 other organisations (VET providers and HE Institutions, Consultancy organisations) and 17 unemployed and students interested in digitalisation among other topics.

The research on knowledge related to digital transformation was divided into three groups of respondents – SMEs, other organisations that include VET providers, HE Institutions and consultancy organisations, and students and unemployed. First part of the questionnaires regarding general information are the same for all participants and require their nationality, gender, education and other general questions. In the second part of the questionnaire, SMEs rated the situation regarding digital transformation in their enterprises, while students and other institutions expressed their opinion based on their experience and knowledge regarding digital transformation.

Results of three groups of research are presented in the following chapter.

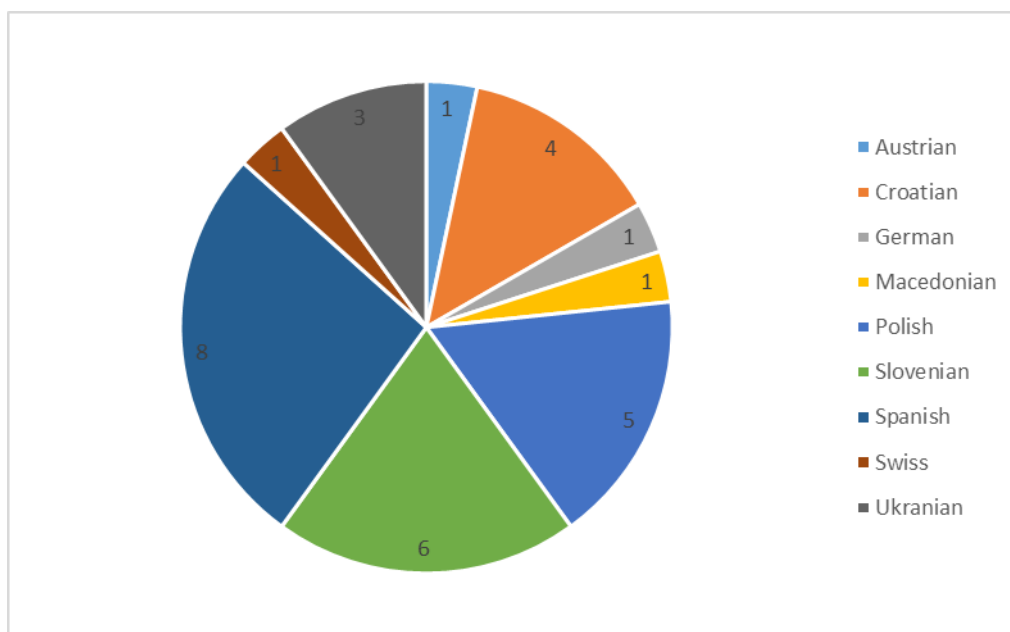
4. Results

4.1. SMEs

As already mentioned, the questionnaire related to SMEs was divided into two parts, first part regarding general information and the second part regarding knowledge and skills on digitalisation and 4.0 technology. The questionnaire was completed by 30 respondents.

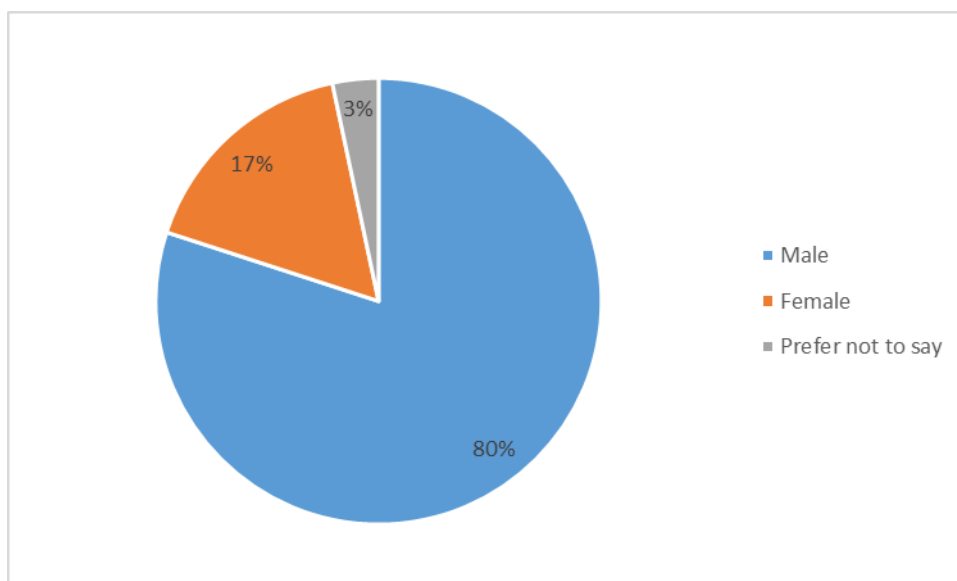
The part of the questionnaire regarding general information asked the participants about their nationality, gender, education, sector they are working at, size of their SME, their role in the organisation and their professional experience. The largest number of participants, 8 out of 30 are Spanish, followed by 6 respondents of Slovenian nationality, 5 Polish, 4 Croatian, 3 Ukrainian and 1 Austrian, German, Macedonian and Swiss (Figure 1).

Figure 1. Nationality of respondents (SMEs)



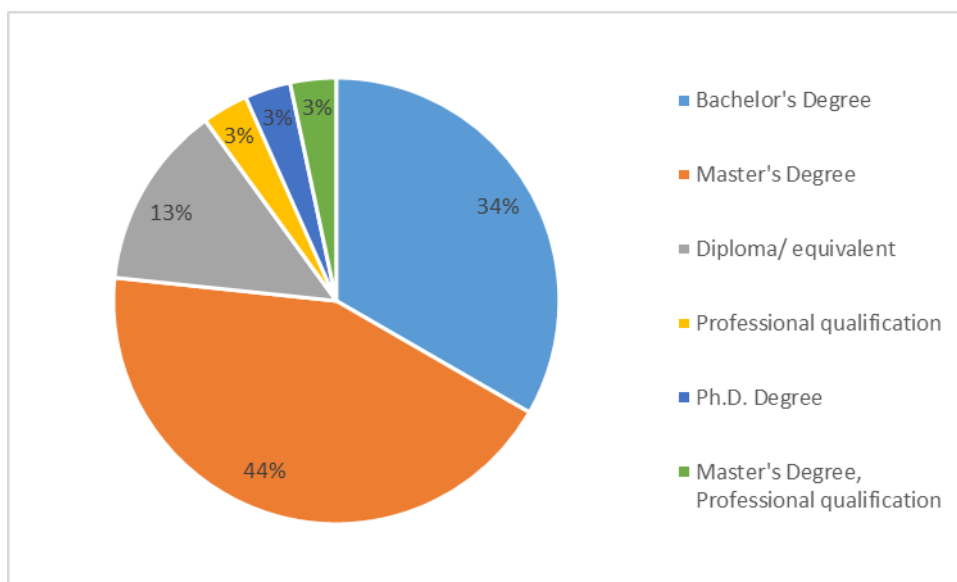
Most of the respondents are male (80%), 17% are female, while one person preferred not to say the gender (Figure 2).

Figure 2. Gender of the respondents (SMEs)



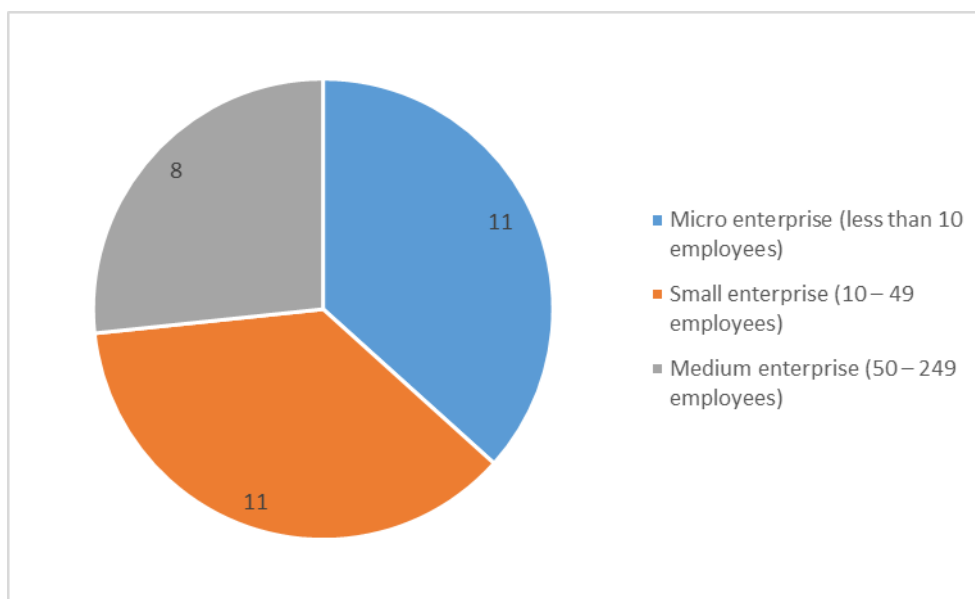
Most of the respondents' level of education is Master's Degree (44%), followed by Bachelor's Degree (34%) and Diploma / equivalent (13%). One of the respondents' level of education is Professional qualification, one is a Ph.D. diploma holder and one of the respondents has Master's Degree and Professional qualification (Figure 3).

Figure 3. Level of education (SMEs)



Out of 30 SMEs that were a part of this research, 11 are micro enterprises with less than 10 employees, 11 are small enterprises with 10 to 49 employees and 8 of them are medium enterprises with 50-249 employees (Figure 4).

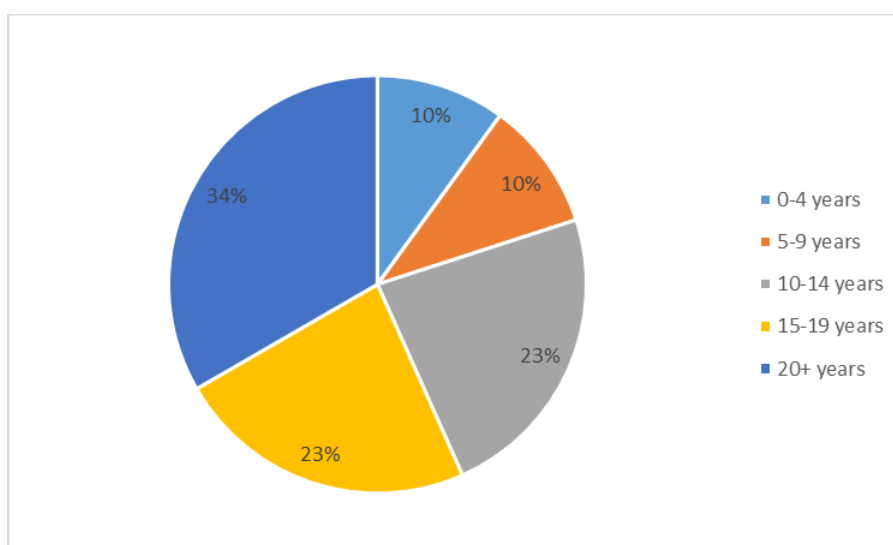
Figure 4. Size of SMEs



SMEs that were a part of the survey work in different sectors, such as marketing, software, consultancy, industrial and intellectual property, sports medicine and management, automation, education, metal industry, real estate, etc. However, most of the SMEs are related to the furniture sector, including upholstered furniture, kitchen furniture, custom furniture, indoor furniture, children beds and components, and cabinet furniture. The roles of the participants in SMEs are also quite different and include owners, CEOs, directors, managers, software developers, technologists, salers, designers, administrators, and designers.

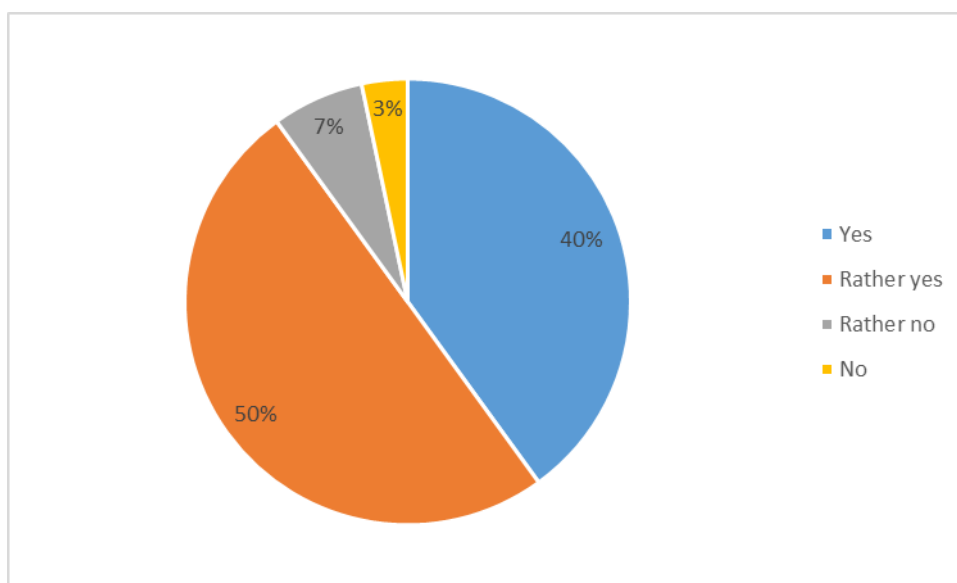
Most of the respondents (34%) have 20 or more years of professional experience, followed by 15-19 and 10-14 years (23% each) (Figure 5).

Figure 5. Professional experience



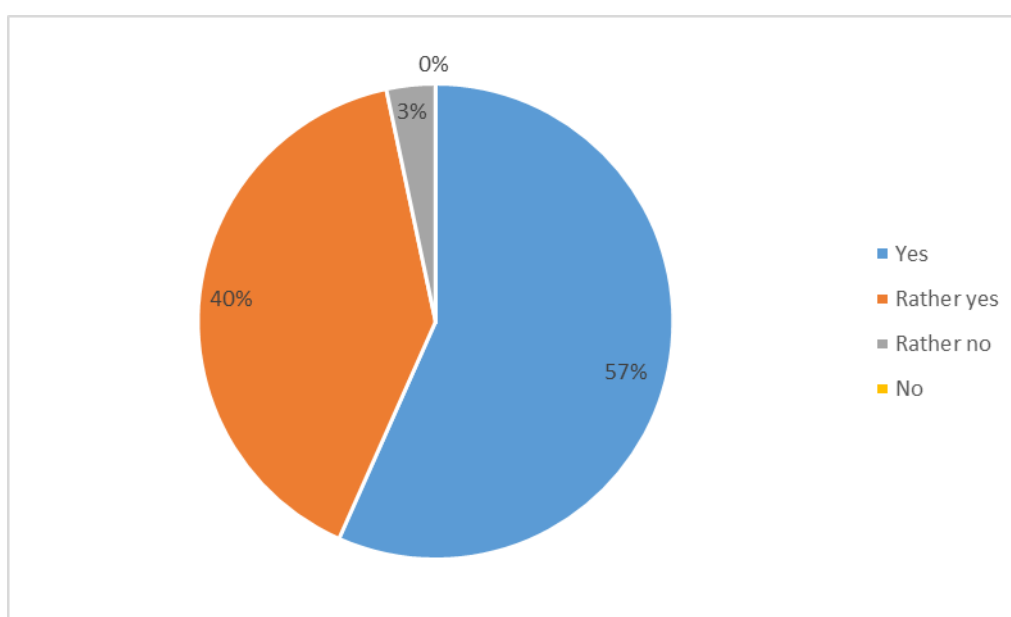
The second part of the questionnaire, related to 4.0 technology started with the question whether the participants are familiar with 4.0 technologies and the results show that 50% of the respondents are rather familiar with it, 40% are familiar, while only 3% (1 participant) are not familiar with 4.0 technologies (Figure 6).

Figure 6. Familiarity with 4.0 technologies (SMEs)



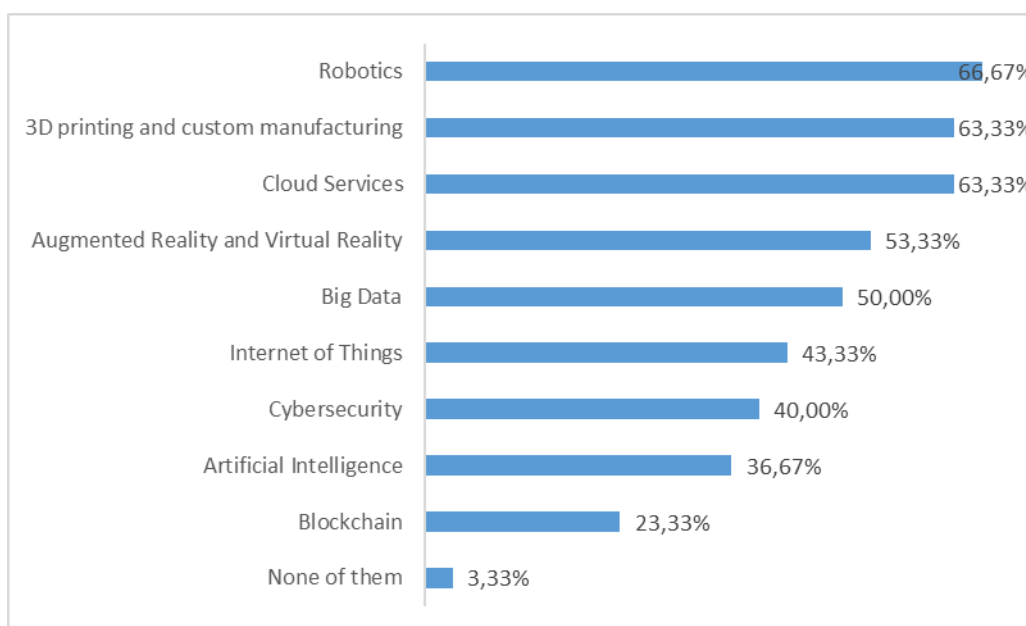
Additionally, 57% of respondents consider 4.0 technologies important for their sector, followed by 40% of them considering it rather important. No one considers 4.0 technologies not important (Figure 7).

Figure 7. Importance of 4.0 technologies (SMEs)



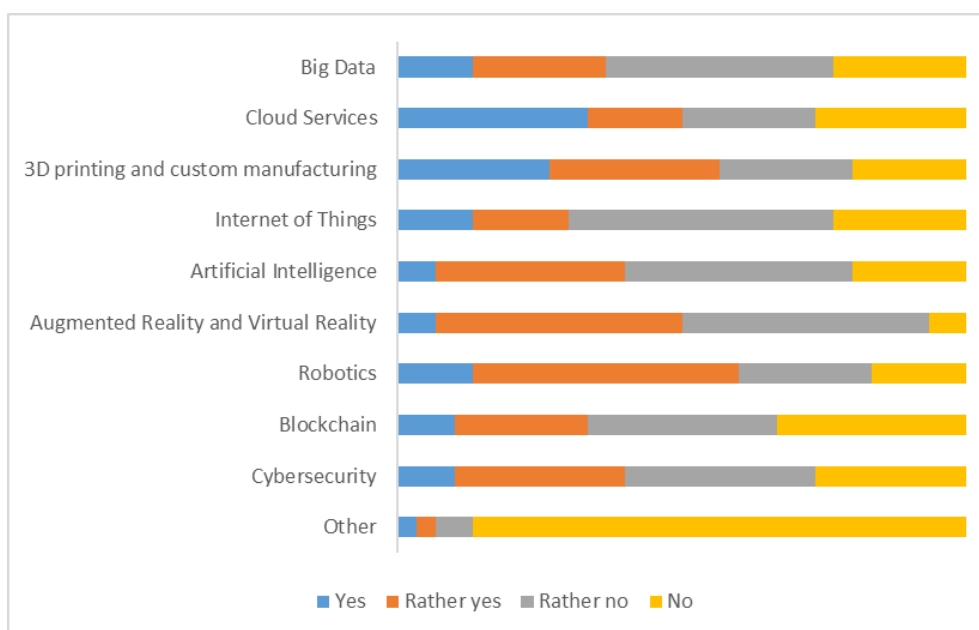
Among technologies, the participants were asked to rate the most important for their sector and the biggest share of respondents (66.67%) rated robotics as the most important. It is followed by 3D printing and custom manufacturing and Cloud Services (63.33% each) and Augmented Reality and Virtual Reality (53.33%). The least important technologies according to respondents are Artificial Intelligence (important for 36.67% of respondents) and Blockchain (important for 23.33% of respondents). One of the respondents said that none of those technologies are important for the sector (Figure 8).

Figure 8. Importance of technologies for sector (SMEs)



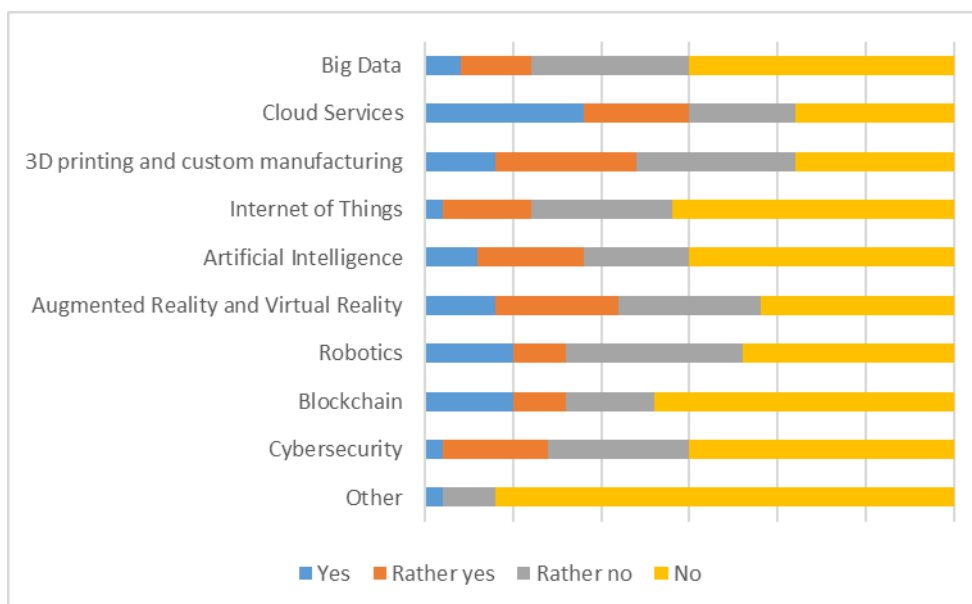
The technologies most respondents have experience or are (rather) familiar with are robotics, 3D printing and manufacturing, Cloud Services and Augmented Reality and Virtual Reality. On the other hand, technologies least number of respondents are (rather) familiar or have experience with include Internet of Things, Blockchain, Big Data and Cybersecurity (Figure 9). Among other technologies participants are (rather) familiar with are CNC, online marketing, presentation and co-designing, quantum sensing, getting to market, access to voice customers, MES and logistics technology.

Figure 9. Familiarity and/or experience with technologies (SMEs)



Among technologies the most SMEs are already using, the most respondents have chosen Cloud Services, 3D printing and custom manufacturing and Augmented Reality and Virtual Reality, while the least used technology is Big Data. In general, SMEs are at quite a low level of using technologies which is presented at Figure 10.

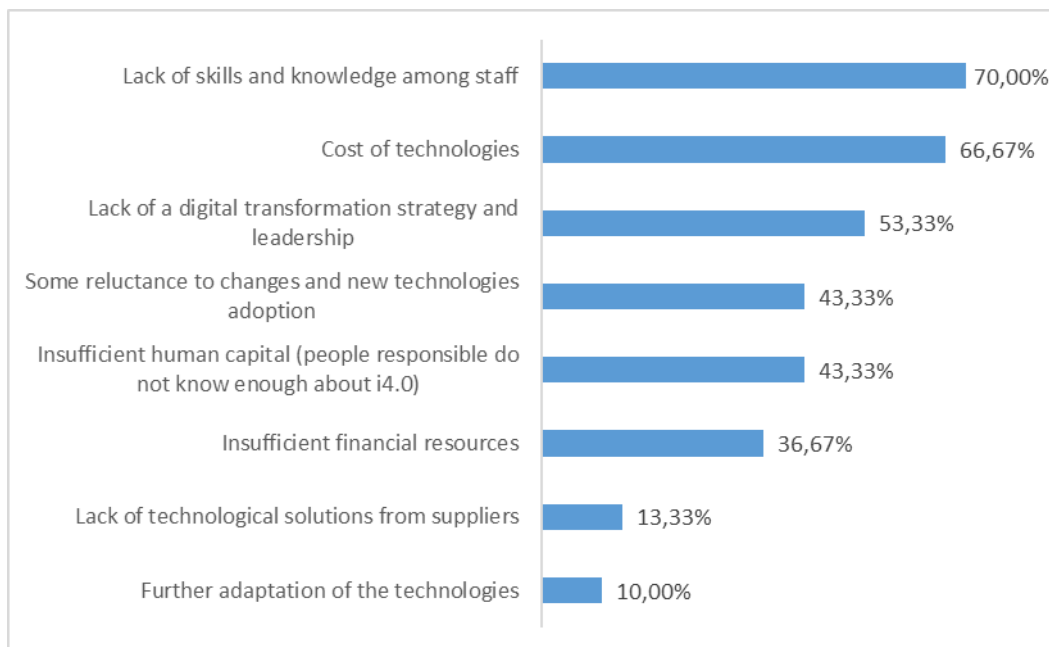
Figure 10. Technologies SMEs are already using



As main barriers for the implementation of 4.0 technologies in the furniture and related sectors, most respondents, 70%, have chosen lack of skills and knowledge among staff. Other main barriers include cost of technologies (66.67%), lack of digital transformation strategy and leadership (53.33%) and reluctance to

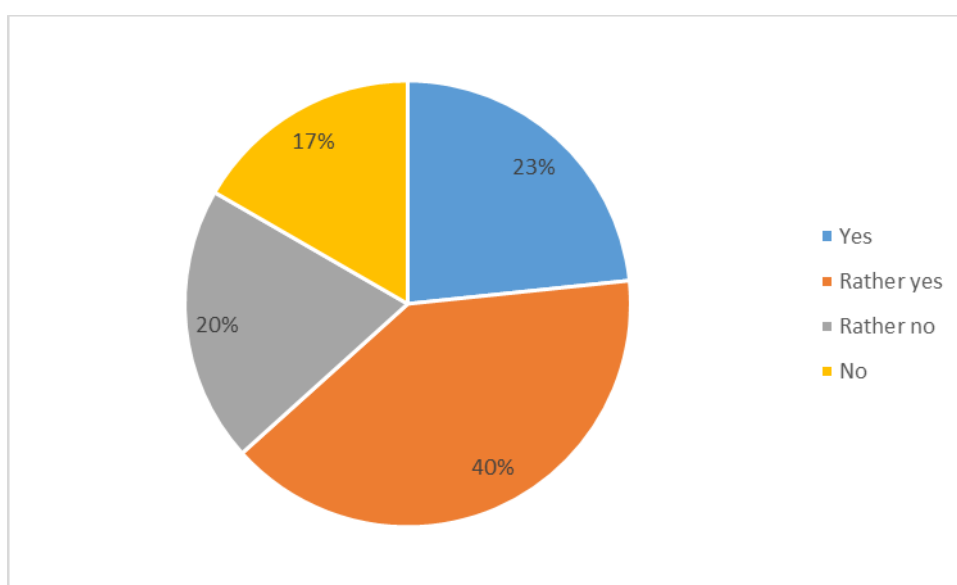
changes and new technologies adoption (43.33%). The least number of participants as a main barrier consider lack of technological solutions from suppliers and further adoption of technologies (Figure 11).

Figure 11. Main barriers for the implementation of 4.0 technologies (SMEs)



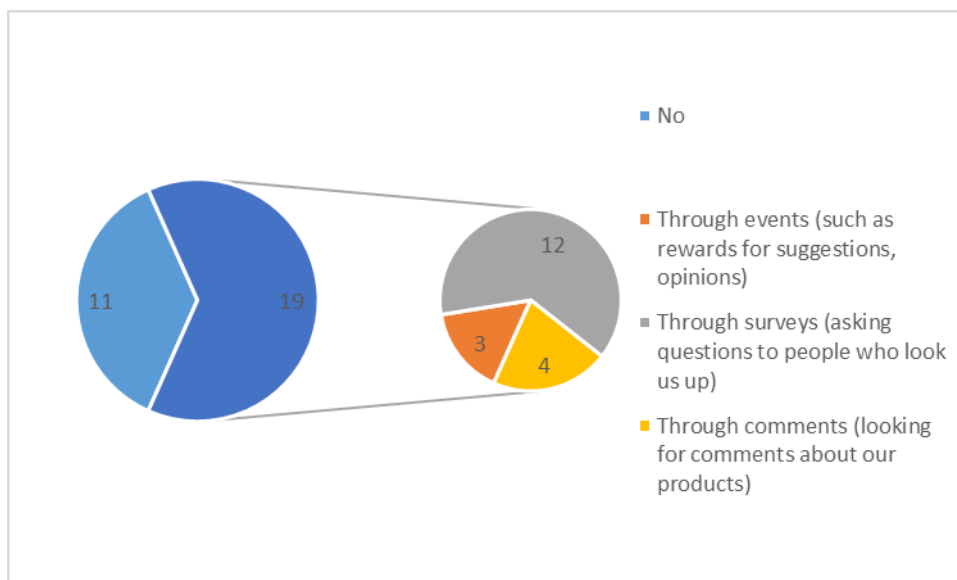
Following question analysed whether the company is equipped with a thought-out strategy for improving the online experiences of customers, i.e., whether the company is easily accessible for customers online. Most of the respondents, 40%, answered rather yes, followed by 23% who answered yes, while 17% of the participants answered no (Figure 12).

Figure 12. Existence of thought-out strategy for improving the online experiences of customers (SMEs)



Most of the SMEs, 19 out of 30 have online campaigns, such as online commercials and blogs, for promoting their products and services. The largest share of SMEs, 12 out of 19 which have online campaigns are doing it through surveys, i.e., asking questions to people who look them out, 4 SMEs are doing it through comments and 3 of them through events (Figure 13).

Figure 13. Existence of online campaigns (SMEs)



The following set of questions analyses the situation regarding readiness for digitalisation of SMEs. The set starts with the question whether the SME practices the open culture of communication, which can help all involved understand and adapt to challenges with more ease. According to the participants, 23 out of 30 SMEs practices or rather practices the open culture of communication.

Participants were also asked if they are aware of all the different risks their company is exposed to and most of them are rather aware (40%), followed by rather unaware (36.67%). None of the respondents is completely unaware of risks their company is exposed to.

To the question whether the company is regularly carrying out a comprehensive analysis of all company's strengths and weaknesses, 9 out of 30 respondents answered rather yes, 8 of them said rather no and 8 of them pointed out that company is not carrying out a comprehensive analysis of strengths and weaknesses.

According to the respondents, 10 out of 30 SMEs are rather not equipped with a systematic inventory of all-important aspects of their current business model, while 8 of them are completely not equipped with it. Only 5 SMEs have a systematic inventory of all-important aspects of their current business model.

On the other hand, most of the SMEs, 13 completely and 6 rather, have experience

with methods of analysis, such as the SWOT analysis, that can support them to identify the development strategies with biggest potential to success.

Furthermore, participants were asked whether the European Union's General Data Protection Regulation (GDPR) impacted their company and most of them, 43.33% said rather not, followed by 30% who stated that the GDPR impacted their company. Additionally, respondents were asked how it impacted their company and there were quite different answers, such as that GDPR complicates things, brings changes in management system and necessity to organise data and data security differently, introduces new responsibilities, makes networking more difficult and requires permissions for sending surveys.

To the question whether the company listens to the fears of employees regarding digital transformation and are those fears analysed regarding their significance for a proper digital transformation process in the company, most of the respondents, 13 out of 30 answered rather yes, followed by 7 of them who answered rather no.

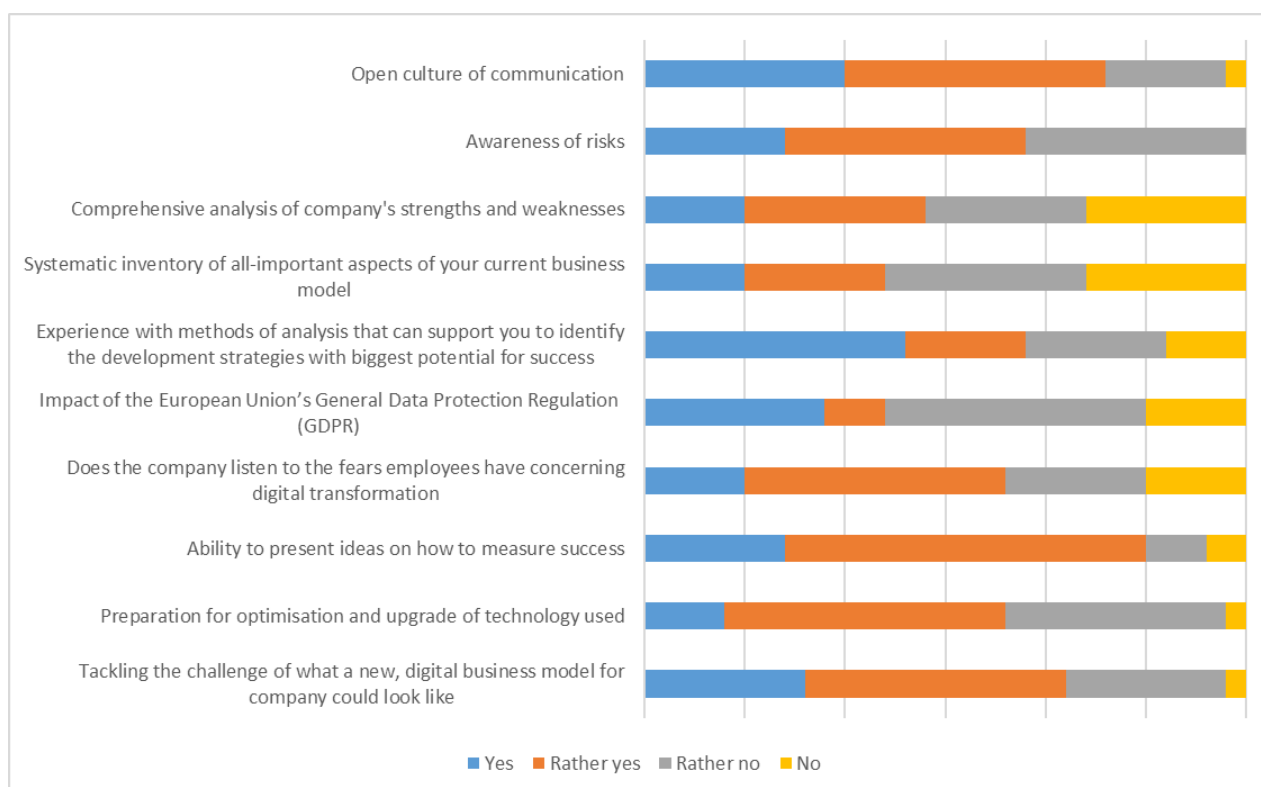
Additionally, most of the participants, 18 out of 30 (60%) are rather able to present their ideas on how to measure success of the company within their company team, followed by 7 respondents who are completely able to do it. Only 5 of the respondents are not able or rather not able to present their ideas within their company team.

Also, participants of the survey were asked if their company has systematically prepared for the optimisation and upgrade of technology used, and 14 out of 30 participants answered rather yes, followed by 11 of them who answered rather no.

Last question of this group analysed whether the company has already tackled the challenge of what a new, digital business model for the company could look like, and most of the respondents, 13 out of 30, answered rather yes, followed by 8 of them who said yes and 8 of them who said rather no.

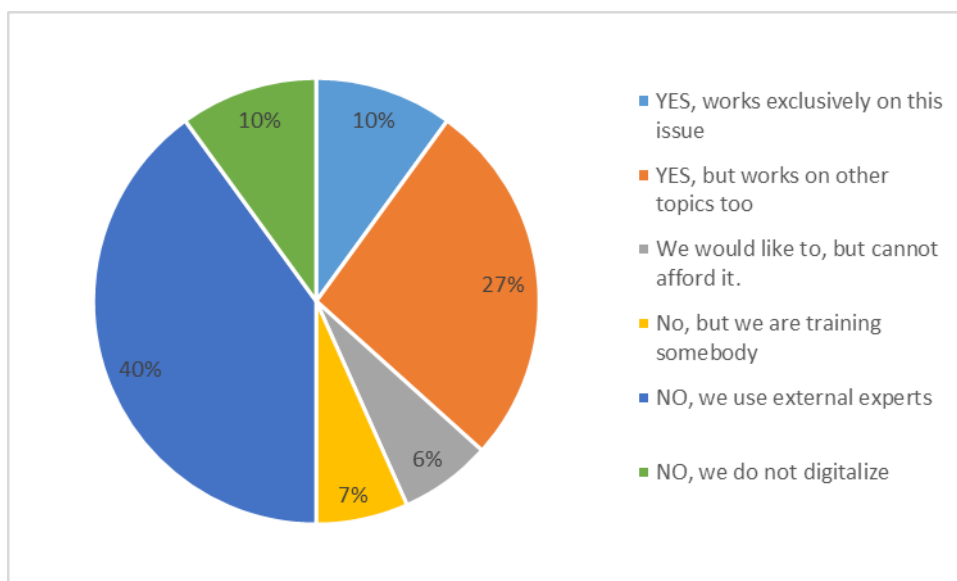
All the results regarding readiness for digitalisation of SMEs are presented in Figure 14.

Figure 14. Readiness for digitalisation of SMEs



Also, participants were asked if their company has an inhouse expert for digitalisation and most of the respondents (40%) said that they are using external experts, followed by 27% who stated that they have an expert for digitalisation, but he/she works on other topics too. 10% of respondents stated that they have an expert that works exclusively on this issue and the same share stated that they do not digitalise. The smallest share of respondents, 6%, stated that they would like it, but cannot afford it (Figure 15).

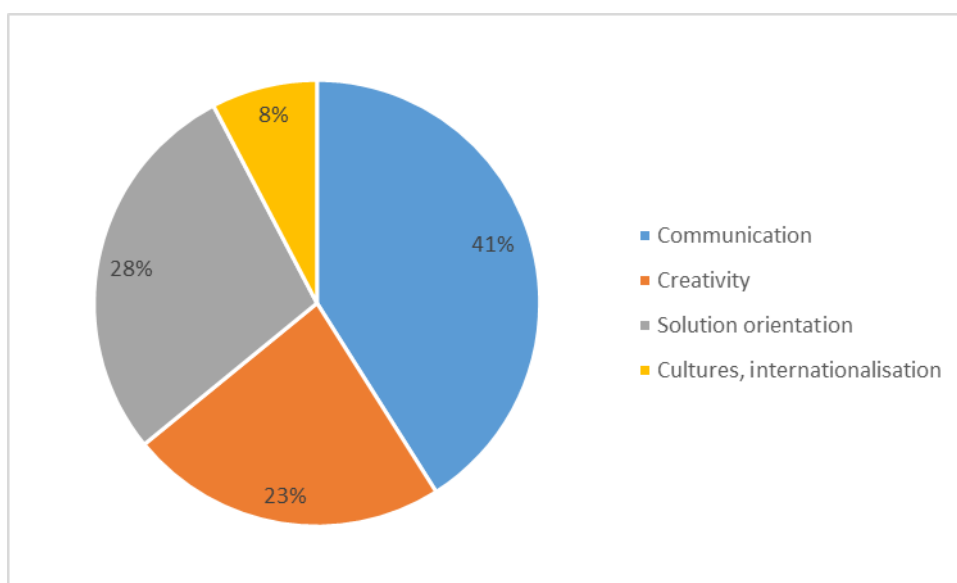
Figure 15. Employment of inhouse expert for digitalisation



Finally, the last question of the research regarding SMEs was what are the main skills that a leader should have to successfully implement the digital transformation of the company, and according to most of the participants (41%) it is communication, followed by solution orientation and creativity (Figure 16).

Additionally, participants were asked to state if there are any other relevant aspects for a leaders of an organisations to have and the answers were following: *fostering teamwork, be willing to undergo a cultural transformation, openness, authority, experience, open communication and good strategy, leadership skills and the spread of good practice in everyday life, interest in their own and employees' training, effective delegation, organisational skills, customer relations, empathy, and capacity for change.*

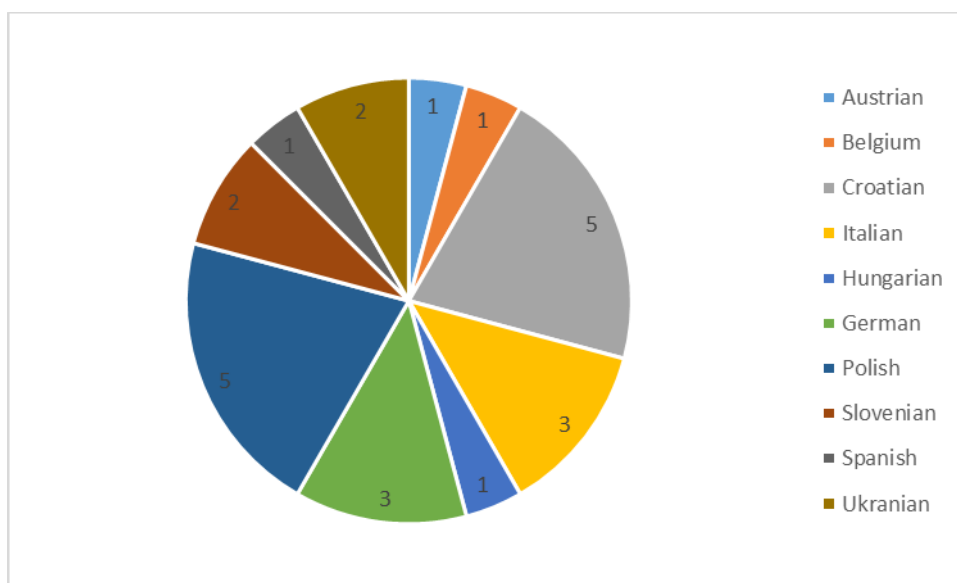
Figure 16. Main skills needed to implement digital transformation (SMEs)



4.2. Other organisations

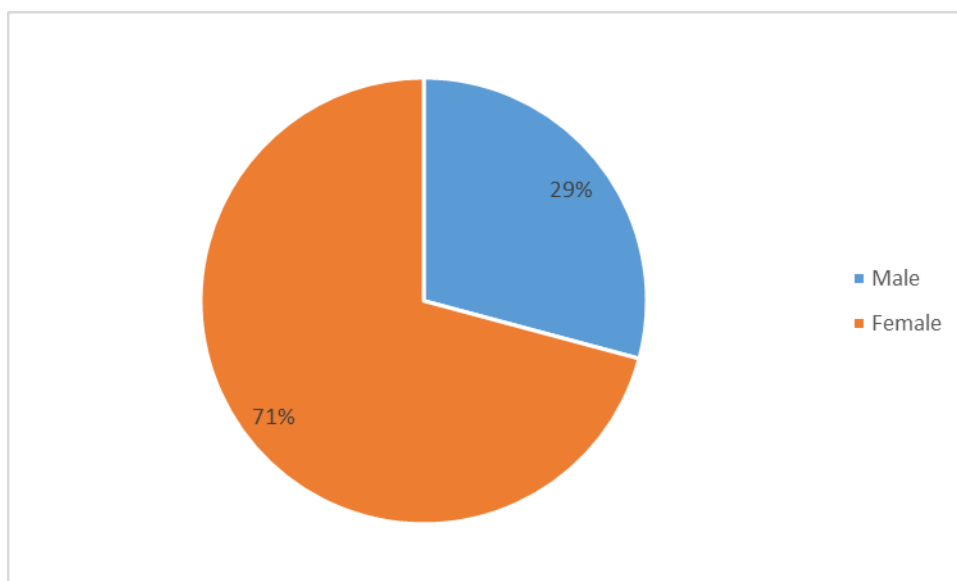
The second part of the survey was related to other organisations that include Vocational Education and Training providers, High education institutions and consultancy organisations. The questionnaire was completed by 24 participants – 5 each from Croatia and Poland, 3 each from Italy and Germany, 2 each from Slovenia and Ukraine and 1 each from Austria, Belgium, Hungary and Spain (Figure 17).

Figure 17. Nationality of participants (other organisations)



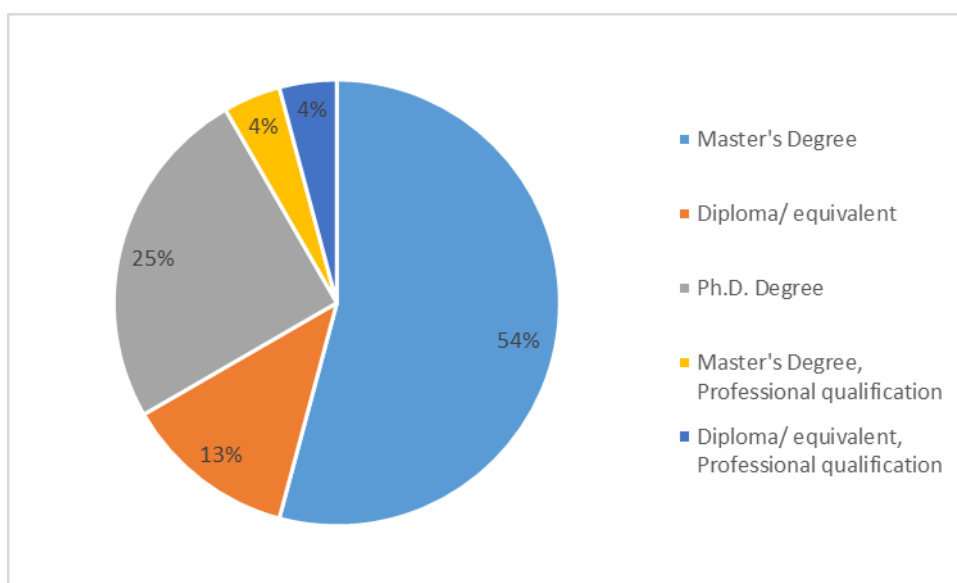
Most of the participants in the survey related to other organisations, 71% are females and 29% are males (Figure 18).

Figure 18. Gender of participants (other organisations)



Most of the participants (54%) education level is Master's Degree, followed by Ph.D. Degree (25%) and Diploma / equivalent (13%) (Figure 19).

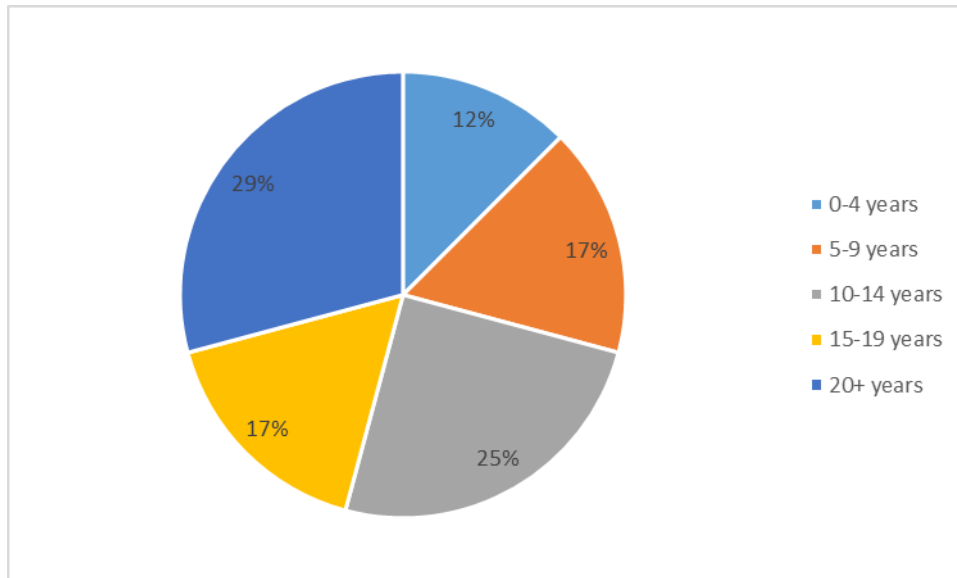
Figure 19. Education level (other organisations)



Type of organisation participants are working in includes public bodies, non-governmental organisations (NGOs), universities, clusters, technological centres, private companies, clusters, employment offices, European Network, consultant organisations and adult education institutions. Sectors that participants are working in are education and training, research, forest and wood industry, wood-based value chain, consulting, information technology, business solutions, security and support and architecture. Participants' roles in the organisations include researchers, experts, trainers, owners, counsellors, business developers, administrators, project managers, programmers, coordinators and professors.

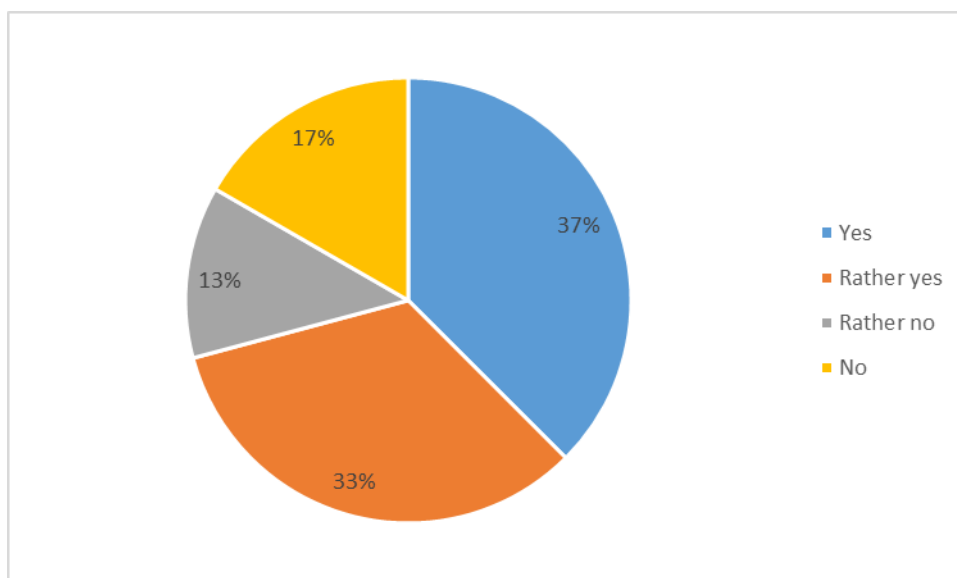
Most of the participants of the research, 29% have more than 20 years of professional experience, followed by 25% that have 10-14 years. The smallest share of participants, 12%, has less than 5 years of professional experience (Figure 20).

Figure 20. Professional experience of participants (other organisations)



As in the previous part of the research, the second part of the questionnaire was related to 4.0 technologies and participants were firstly asked whether they are familiar with 4.0 technologies. Most of the participants, 37% are familiar with 4.0 technologies, followed by 33% who are rather familiar and 17% who are not familiar (Figure 21).

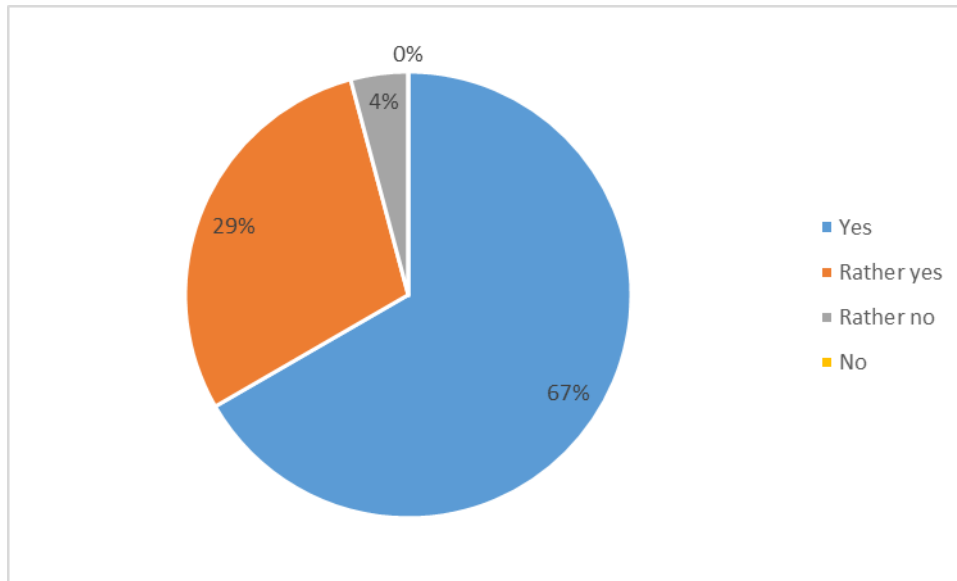
Figure 21. Familiarity with 4.0 technologies (other organisations)



A Large majority of respondents, 67% thinks that 4.0 technologies are important for industry and especially traditional sectors, such as furniture, 29% of participants find it rather important, and 4% rather unimportant. No one thinks

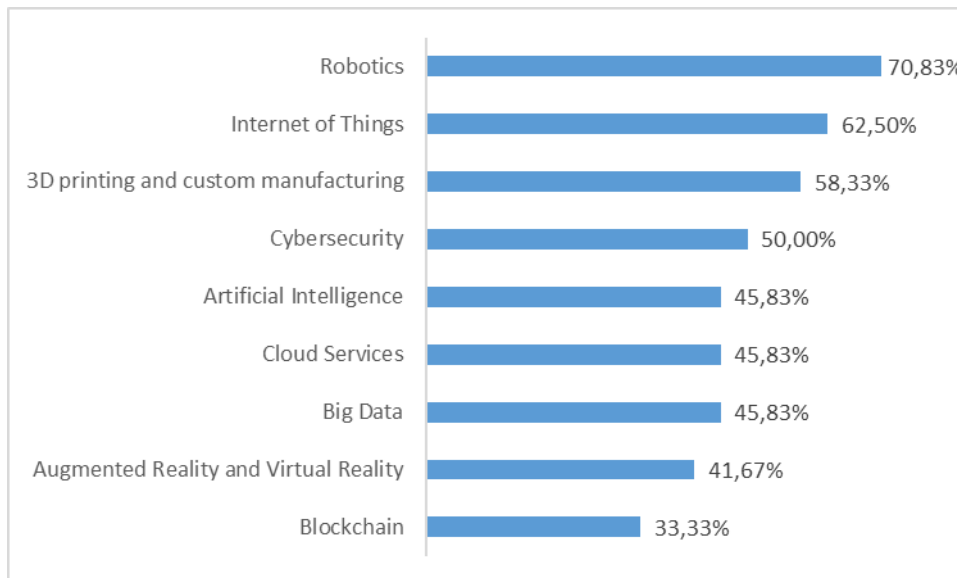
that 4.0 technologies are not important (Figure 22).

Figure 22. Importance of 4.0 technologies for industry and traditional sectors (other organisations)



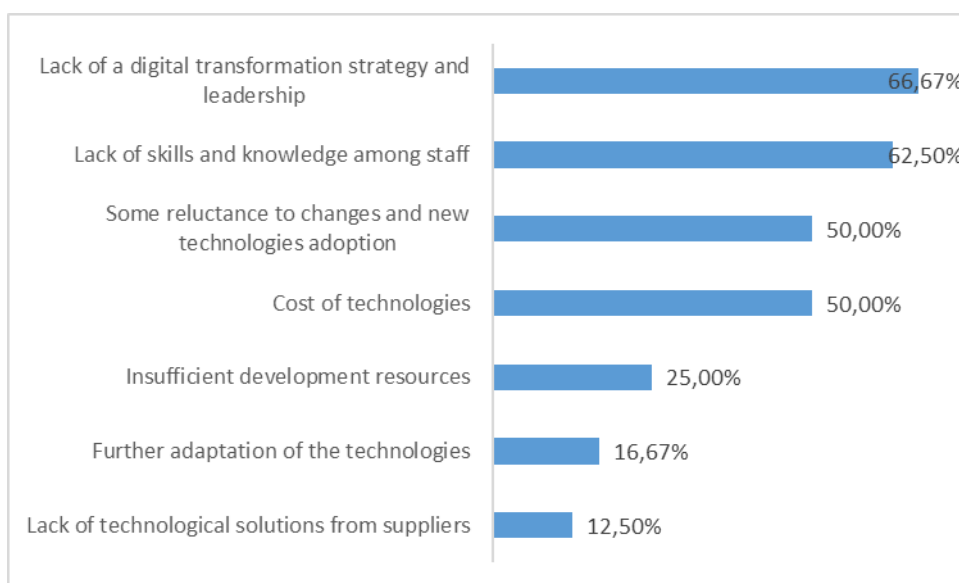
According to participants, the most important technology is robotics (70.83% of participants find it most important), followed by Internet of Things (62.5%) and 3D printing and manufacturing (58.33%). The least number of participants (33.33%) thinks that blockchain is the most important technology (Figure 23).

Figure 23. Importance of technologies (other organisations)



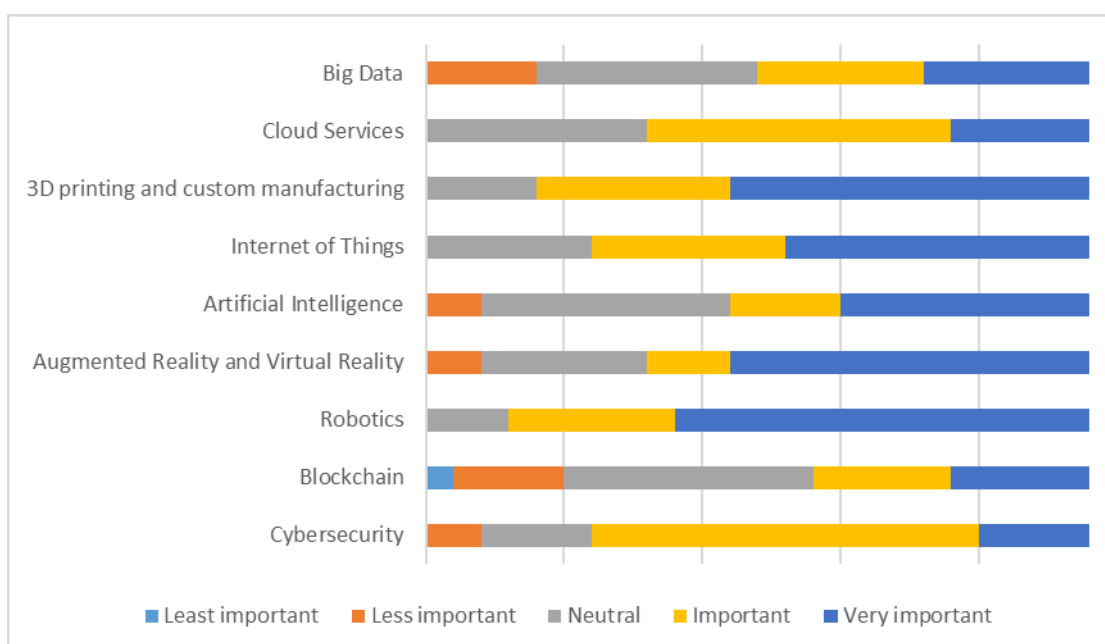
The biggest barrier for successful implementation of industry 4.0 technologies in the furniture and related sectors, according to the participants, is lack of digital transformation strategy and leadership (66.67%). It is followed by lack of skills and knowledge among staff (62.5%), reluctance to changes and new technologies adoption (50%) and cost of technologies (50%) (Figure 24).

Figure 24. Main barriers for the implementation of 4.0 technologies (other organisations)



According to the participants, the most important technologies for furniture and related industries is robotics and it is followed by 3D printing and manufacturing and cybersecurity. The least important technologies for the sector are blockchain and Big Data (Figure 25).

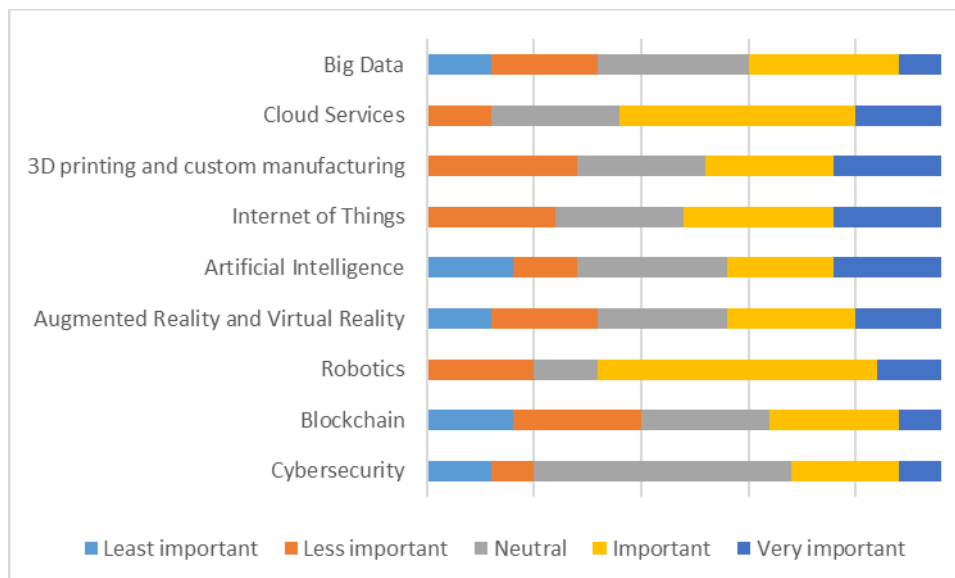
Figure 25. Importance of technologies for furniture and related industries (other organisations)



Following question asked the participants to rate the importance of implementation of technologies in traditional sectors. According to most of the respondents, the most important is the implementation of robotics and Cloud Services, while least important is the implementation of blockchain, big data, 3D printing and custom manufacturing and Augmented Reality and Virtual Reality

(Figure 26).

Figure 26. Importance of implementation of technologies in traditional sectors (other organisations)



In the following set of questions, participants were asked to, regarding their experience, assess the situation in SMEs regarding the readiness for digitalisation.

Firstly, the participants were asked to assess whether the companies from furniture and related sectors are equipped with a thought-out strategy for improving online experiences of their customers (Digital customer experience, DCX). Most of the participants, 15 out of 24, think that companies are rather not equipped with the strategy.

Similarly, most of the respondents, 11 out of 24, find that companies from furniture and related sectors are rather not equipped with a thought-out strategy to optimise and obtain benefits of social media, while 10 out of 24 respondents answered rather yes to this question.

Companies from furniture and related sectors, according to most of the participants from other organisations rather do not have an open culture of communication so that challenges and successes in the course of digital change can be quickly and transparently made accessible to all those involved.

Also, regarding the experience of respondents, most of them, 15 out of 24, find that companies from furniture and related sectors are rather not aware of all the different risks they are exposed to.

To the question whether the companies from furniture and related sectors are regularly carrying out a comprehensive analysis of all the company's strengths and weaknesses, 14 out of 24 participants answered rather no.

Half of the respondents, 12 out of 24, think that companies from furniture and related sectors are rather not equipped with a systematic inventory of all-important aspects of their current business model.

On the other hand, answers to the question whether companies from furniture and related sectors know the implications of the European Union's General Data Protection Regulation (GDPR) are quite diverse – 9 out of 24 participants consider that they rather know the implications, 7 out of 24 believe that they rather do not know, while 6 participants consider that companies know the implications of the GDPR.

Most of the respondents, 13 out of 24, believe that leaders of SMEs rather not consider the fears that their employees have concerning digital transformation and they rather not try to analyse those fears for the implementation of a proper digital transformation process.

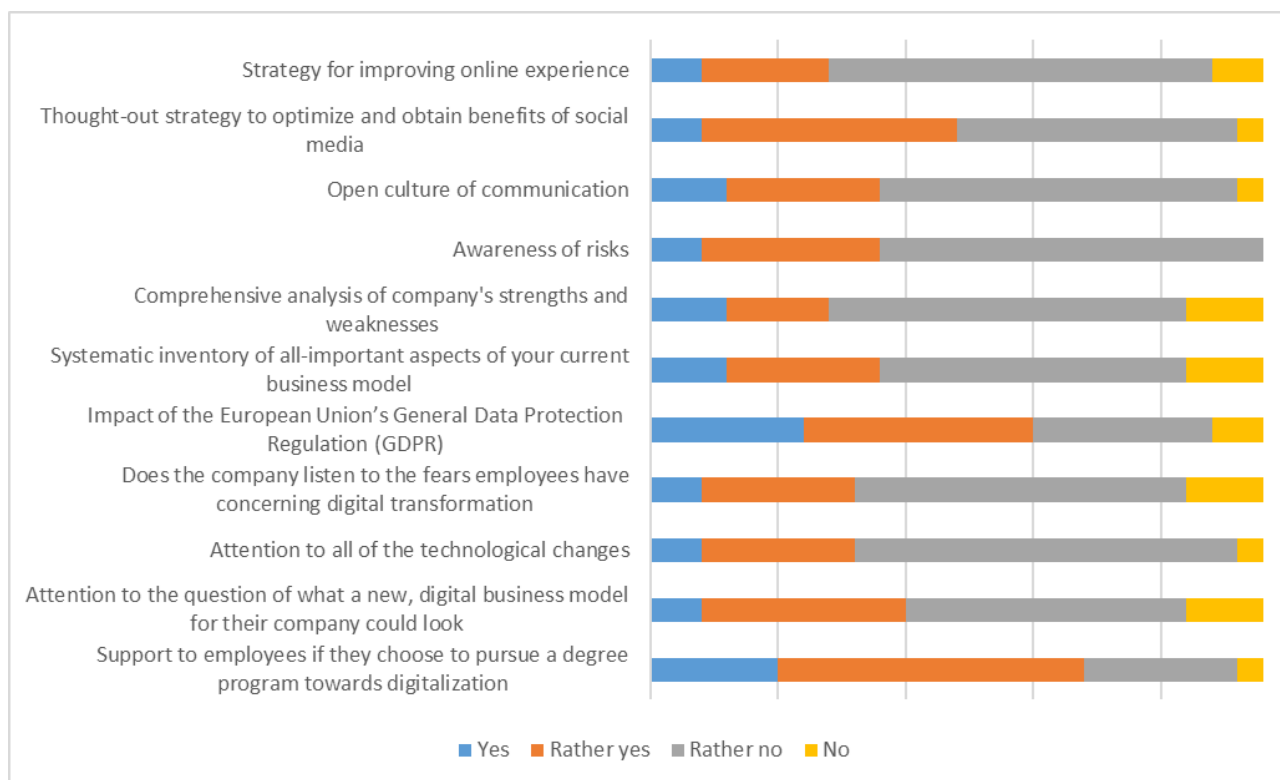
Also, most of the participants, 15 out of 24, believe that companies are rather not systematically dedicating attention to all of the technological changes that could shape their branch of business in the future.

To the question whether they believe that companies already dedicated enough attention to the question of what a new, digital model for their company could look like and which customers they would like to address in the future, 11 out of 24 participants answered rather no and 8 participants answered rather yes.

The last question of this set of questions was whether participants think that managers of SMEs would support their employees if they choose to pursue a degree program towards digitalisation and half of the respondents answered rather yes, 6 rather no and 5 yes.

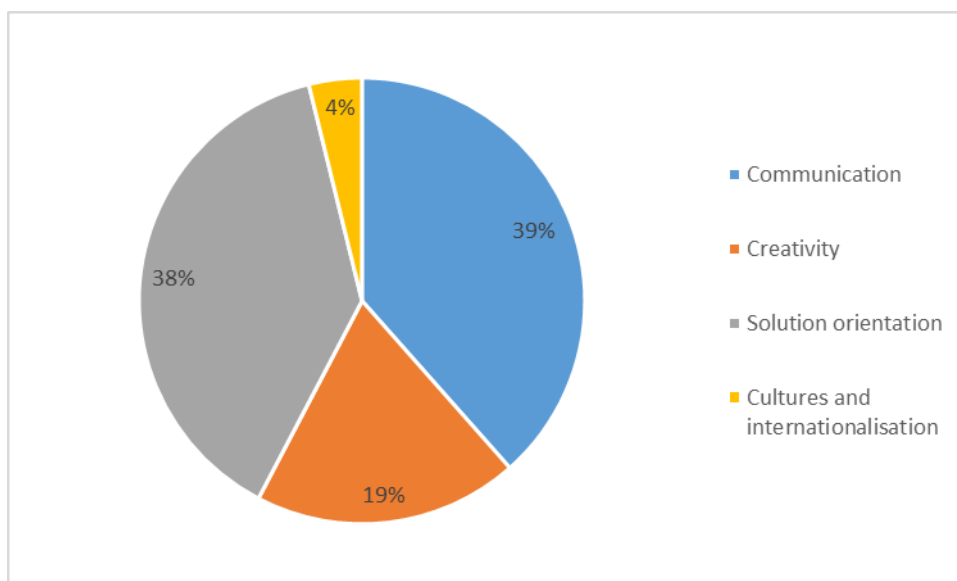
The results of the part of the questionnaire related to the assessment of readiness for digitalisation are presented in Figure 27.

Figure 27. Assessment of the readiness for digitalisation (other organisations)



Finally, the last question of the questionnaire for other organisations was to choose what are the main skills a leader should have to achieve a proper digital transformation of the company. According to participants, the most important skills are communication and solution orientation (Figure 28). Other aspects participants find relevant for a leader of an organisation to have to implement the digitalisation and new trends are competences in the area, trust building, strategic thinking, providing the staff with the resources they need to drive / implement the change, openness for change and ingenuity.

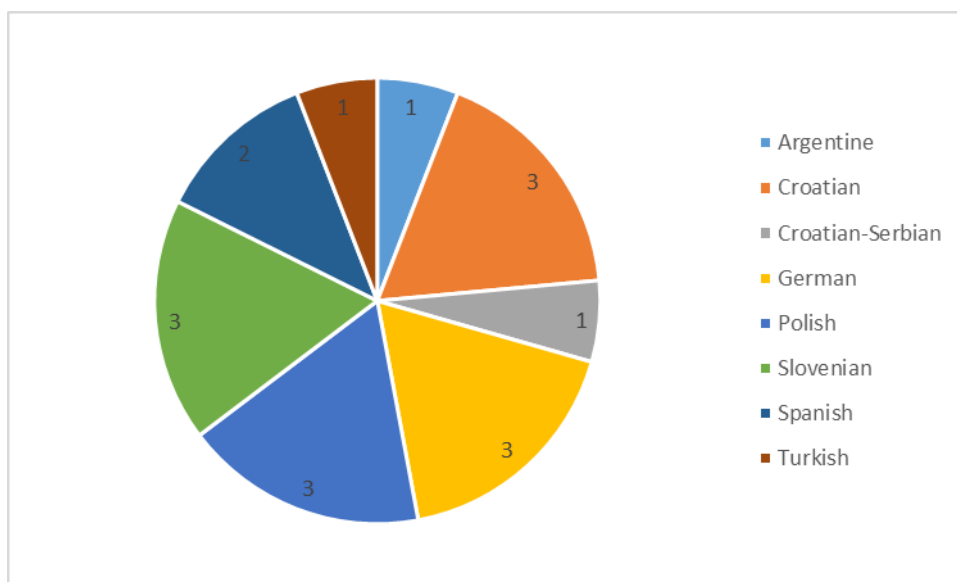
Figure 28. Main skills needed to implement digital transformation (other organisations)



4.3. Students and unemployed

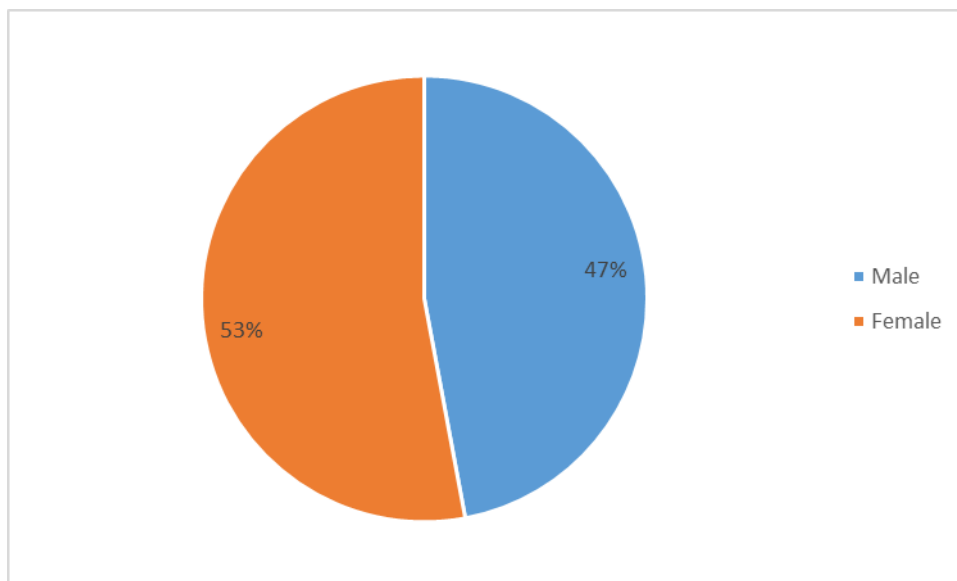
Last part of the survey was related to students and unemployed. The questionnaire was completed by 17 participants – 3 Croatians, 3 Germans, 3 Poles, 3 Slovenians, 2 Spanish and 1 Argentine, 1 Croatian-Serbian and 1 Turk (Figure 29).

Figure 29. Nationality of participants (students and unemployed)



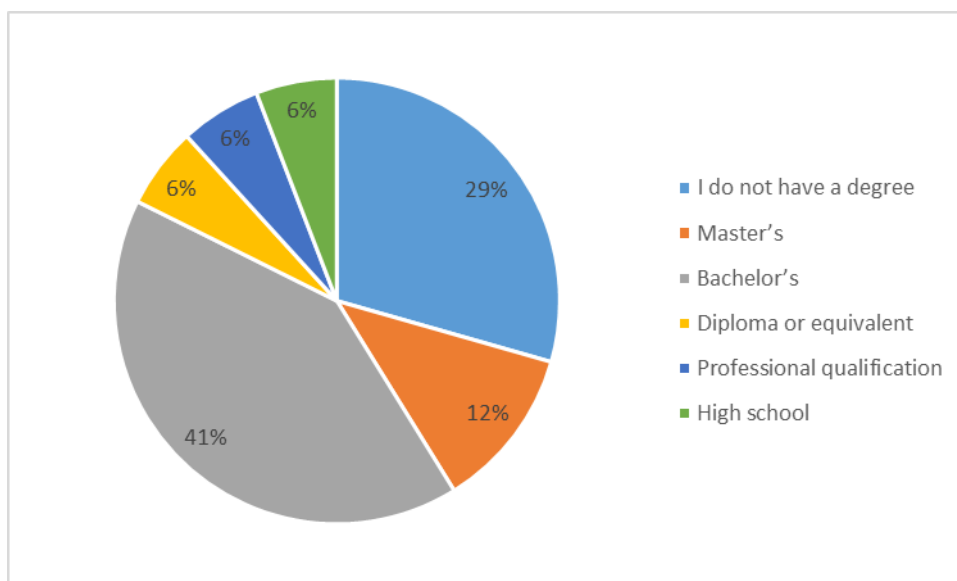
Out of 17 respondents, 9 are females and 8 males (Figure 30).

Figure 30. Gender of participants (students and unemployed)



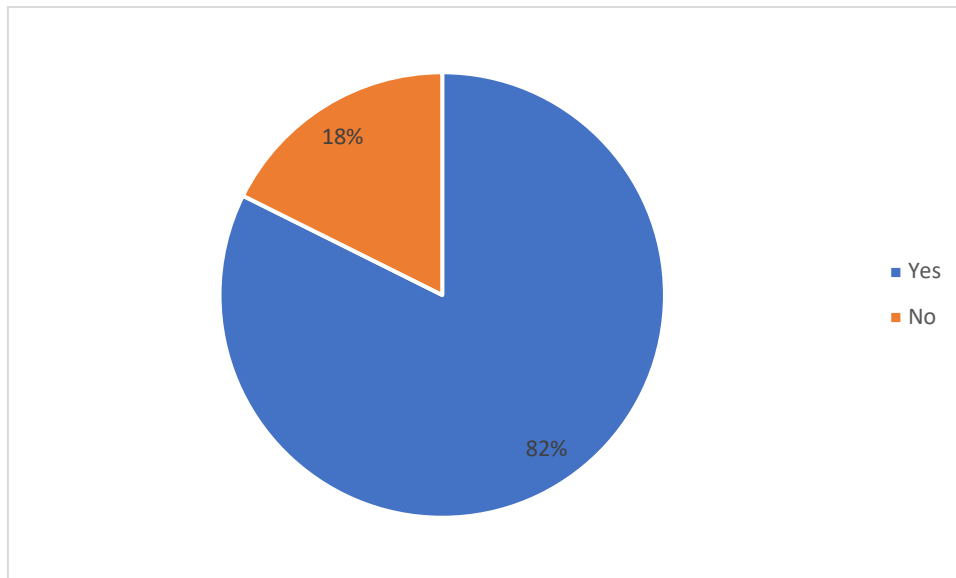
Most of the participants' level of education is Bachelor's Degree (41%), followed by no degree (29%) and Master's Degree (12%) (Figure 31).

Figure 31. Level of education (students and unemployed)



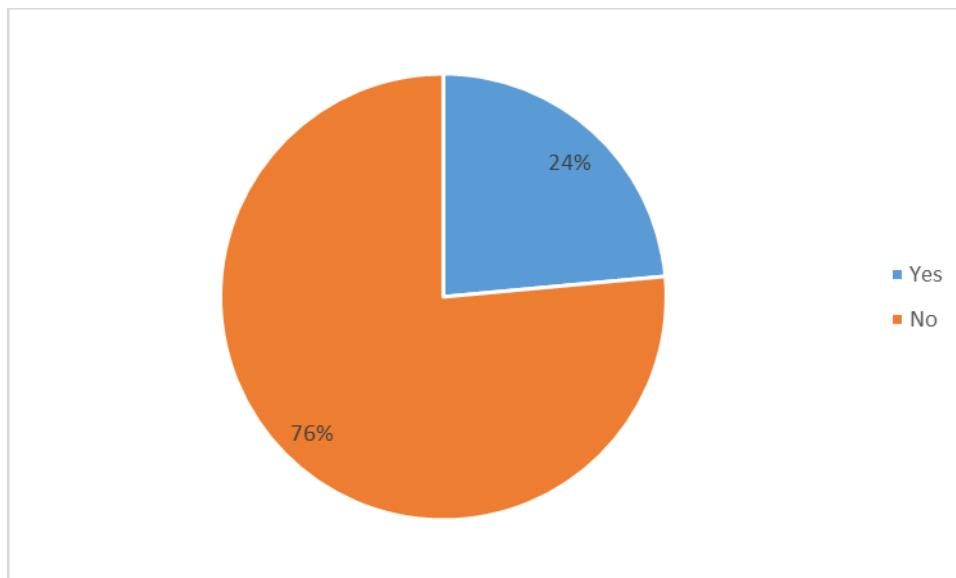
Of the 17 participants, 14 (82%) are enrolled in a study programme (Figure 32). The study programmes in which the participants are enrolled are as follows: Faculty of Design, Interior Design, Bachelor of Business, Graphic Design and Marketing, Marketing and E-Commerce Training, Furniture Design, English Philology, Marketing, Bachelor of Biology, Product Design and Management, and Informatics.

Figure 32. Enrolment in a study programme



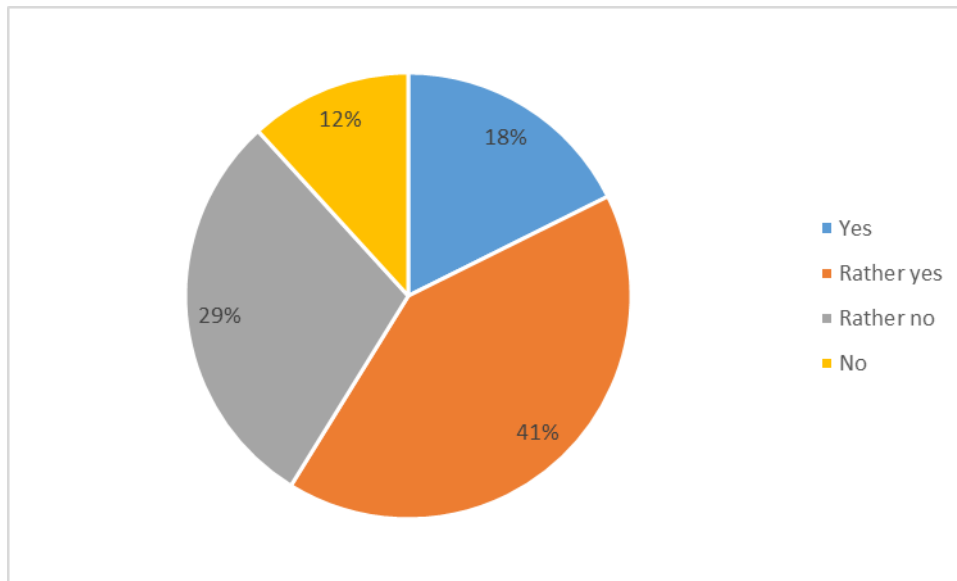
Most of the participants, 13 out of 17 (76%) do not have professional experience related to furniture and related sectors (Figure 33). The professional experience of participants who answered yes was between 1 and 3 years, while their role included design, carpentry work, interior design and product design.

Figure 33. Professional experience related to furniture and related sectors (students and unemployed)



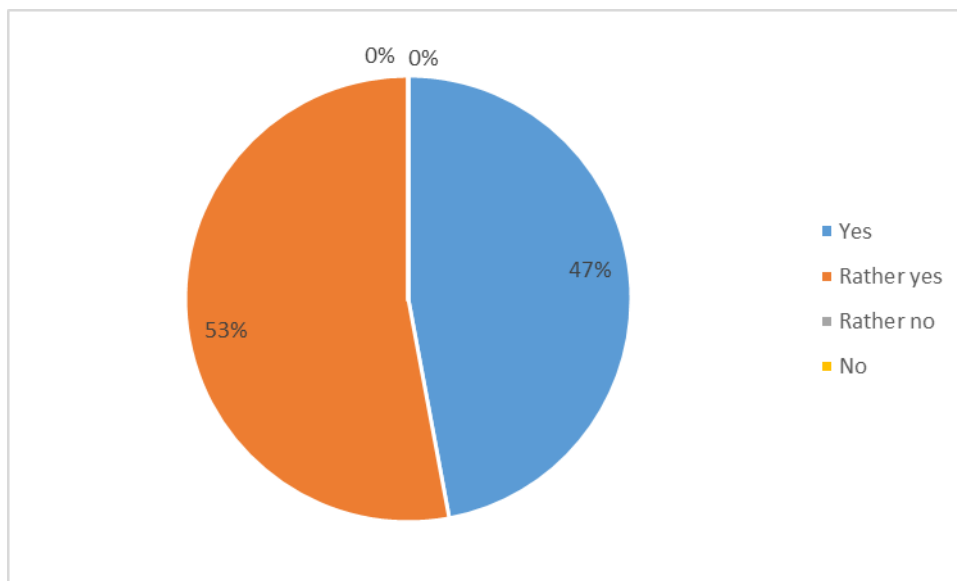
Most of the respondents, 41% are rather familiar with 4.0 technologies, 29% are rather not familiar with 4.0 technologies, 18% are familiar and 12% not (Figure 34).

Figure 34. Familiarity with 4.0 technologies (students and unemployed)



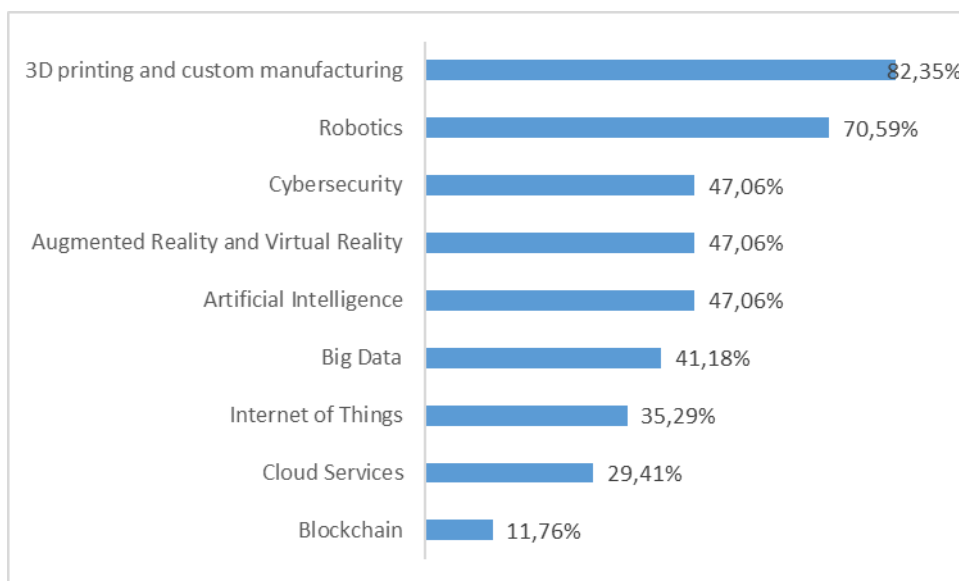
All the participants find 4.0 technologies important (47%) or rather important (53%) for industry and especially traditional sectors, such as furniture (Figure 35).

Figure 35. Importance of 4.0 technologies (students and unemployed)



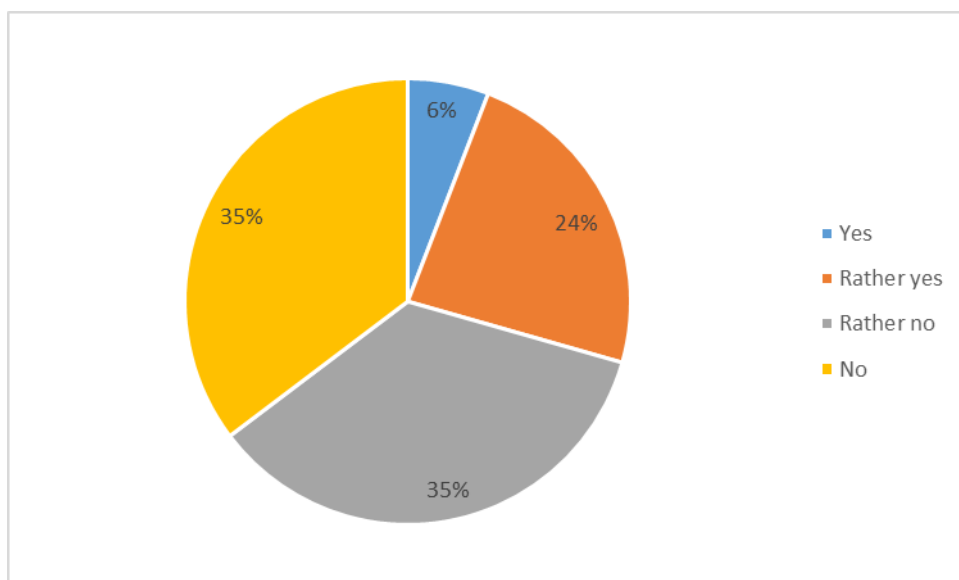
The most important technology for the furniture and other related traditional sectors according to 82.35% of participants is 3D printing and custom manufacturing, followed by robotics (70.59%), cybersecurity, Augmented Reality and Virtual Reality and Artificial Intelligence (47.06% each). The least important technology, with 11.76% participants listing it as important, is blockchain (Figure 36).

Figure 36. Importance of technologies for the furniture and other related traditional sectors (students and unemployed)



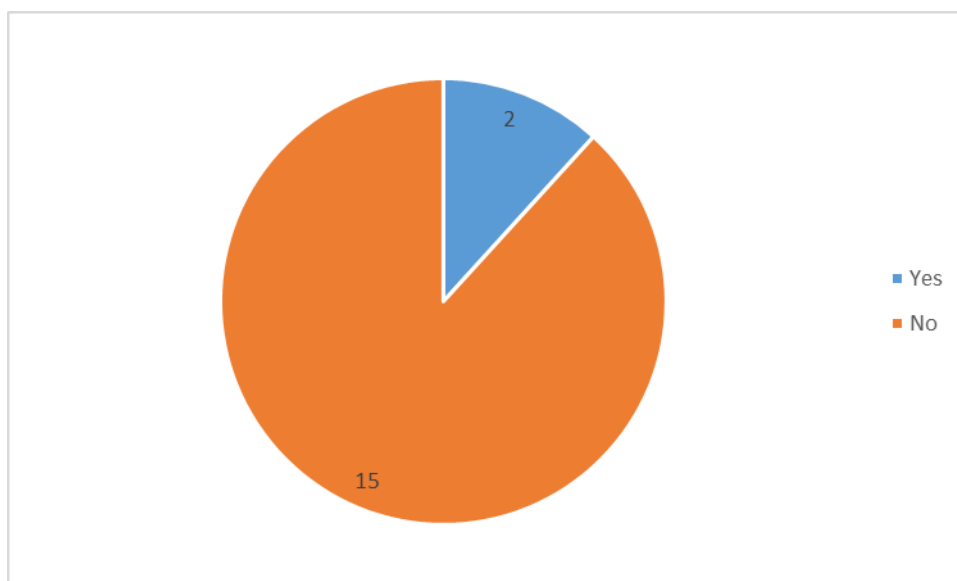
Following question to the participants was if they know some courses on 4.0 technology. Six participants (35%) answered no and the same number of them answered rather no. Only one participant knows courses on 4.0 technology, while 4 of them answered rather yes (Figure 37). All the participants that (rather) know some courses on 4.0 technology said that it is 1-5 courses. Main methodology of these courses is online or mixed training (online + some physical classes).

Figure 37. Knowledge on courses on 4.0 technology



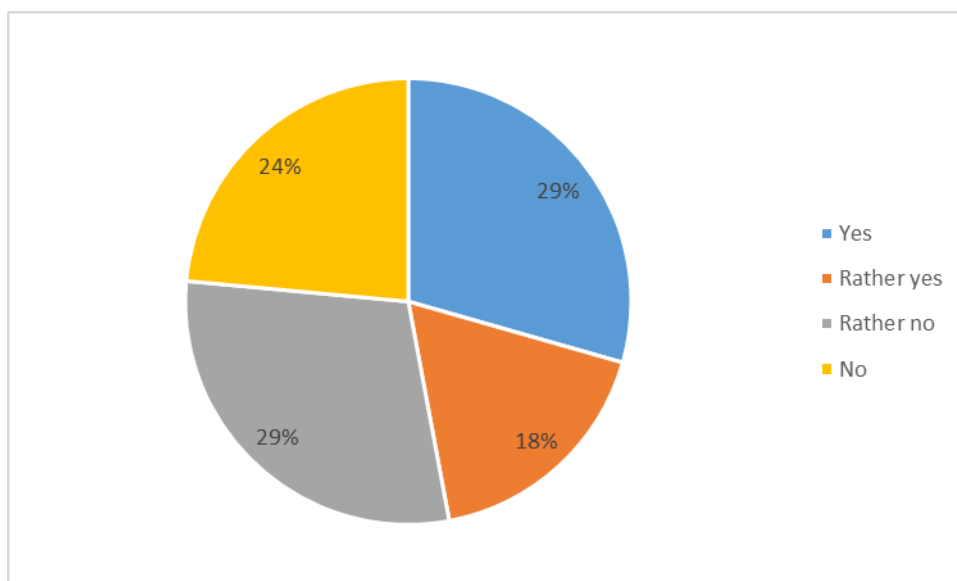
Out of 17 participants, only 2 attended some course on 4.0 technology (Figure 38). Main content of those courses were Virtual reality and home automation, Digital prototyping and 3d printing and edge computing.

Figure 38. Attendance of courses on 4.0 technology



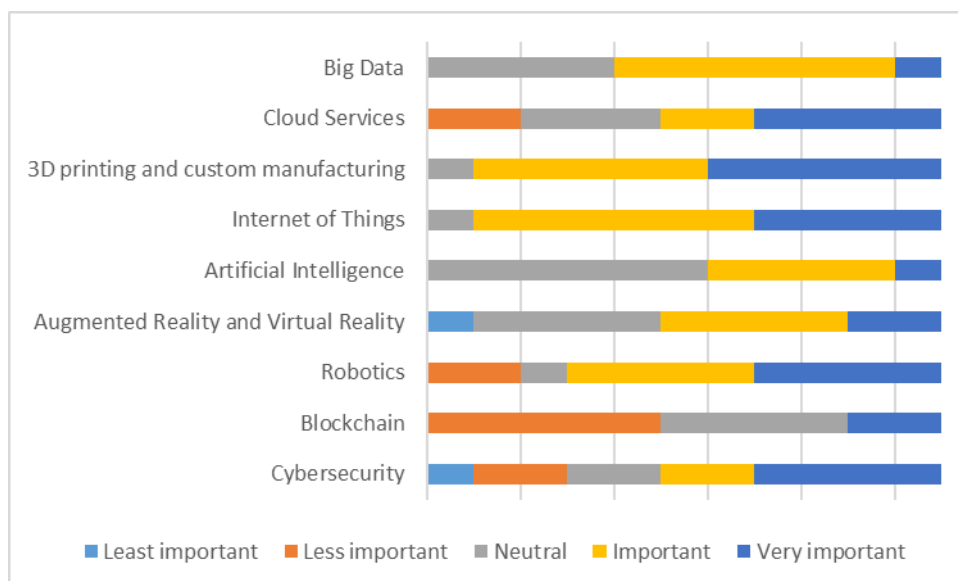
To the question if 4.0 technologies skills are taught by their institutions, 29% of respondents answered yes and the same share of them answered rather no (Figure 39).

Figure 39. 4.0 technologies skills taught by the institution



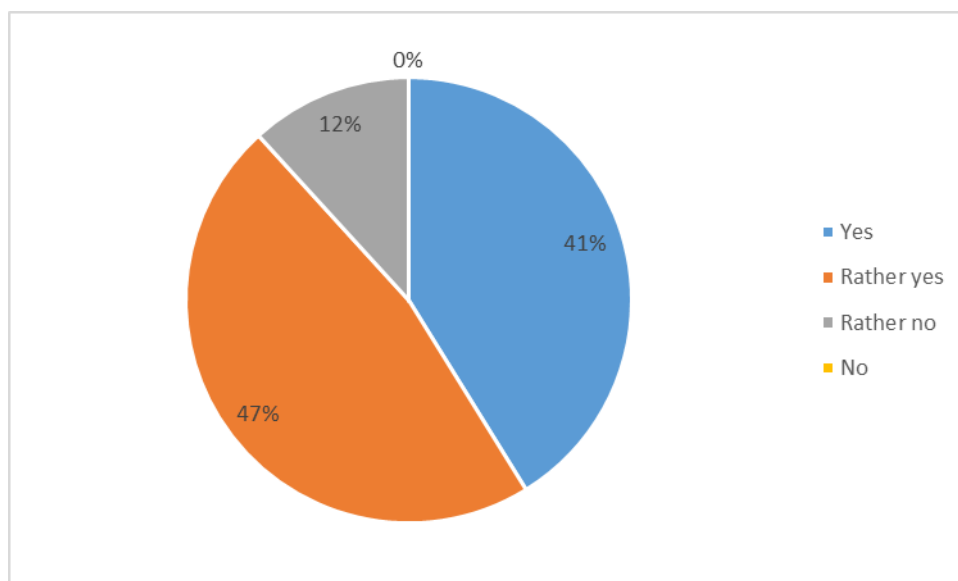
Participants who answered yes to the previous question were also asked to mark the topics addressed and their importance in terms of knowledge required. The most important topics according to participants are 3D printing and custom manufacturing, Internet of Things, robotics and Big Data. As the least important topics, participants addressed blockchain (Figure 40).

Figure 40. importance of topics in terms of knowledge required



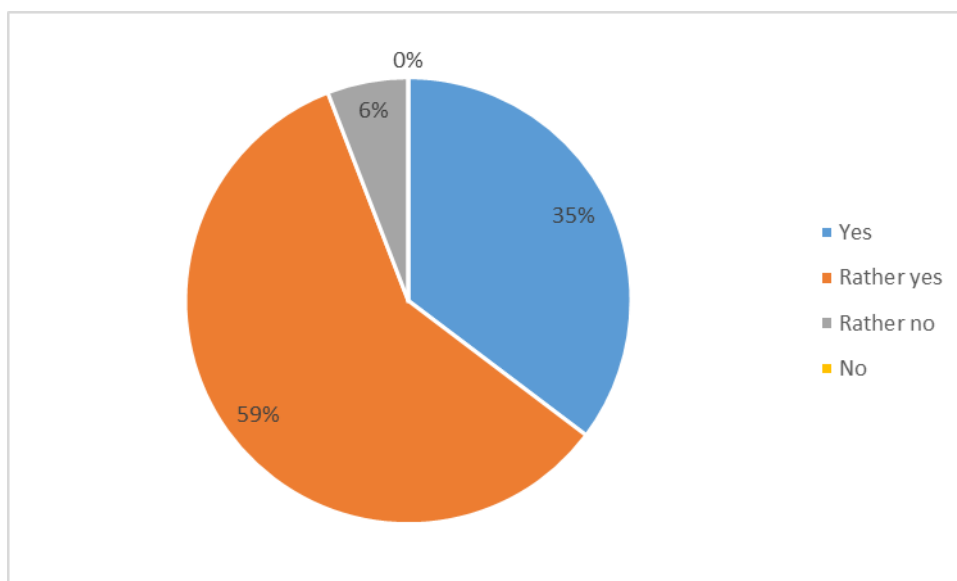
A Large majority of respondents think that they will (rather) apply 4.0 technologies in their work. Only 12% of respondents think they would rather not apply it, while no one said they would definitely not apply them (Figure 41).

Figure 41. Applying 4.0 technologies in the future work



Additionally, participants were asked whether they think that having 4.0 technologies skills will help them to find a job and 59% of them answered rather yes, 35% answered yes, while only 1 person answered no (Figure 42).

Figure 42. Using the 4.0 technology skills to find a job



Participants were also asked to express their opinion on how 4.0 technologies skills could develop in the future and some of the answers include replacing labour force with advanced technology to be less costly and more efficient; getting faster results and better understanding the environment; improving the furniture design and creation process; digitalisation and robotisation of work processes; digitalisation of construction industry; faster project development; time sensitive networking that will improve the developments in Internet speed; improved communication; and integration of 4.0 technologies in training centres in order to be able to train competent people for the new working models.

The following set of questions analyses the readiness of participants, their knowledge and skills to be a part of the digitalisation process.

Firstly, participants were asked if they have the knowledge to develop a thought-out strategy for online experiences of customers (Digital customer experience, DCX). Most of the respondents, 9 out of 17, answered rather yes, followed by 5 participants that answered yes.

Also, participants were asked if they have learned some communication skills such as active listening, empathy, verbal communication, etc., that could help them in the process of digital transformation. Most of the respondents, 7 out of 17 answered rather yes and 5 of them answered yes. Skills participants learned that are the most useful from their point of view include teamwork, verbal communication, active listening, presenting, public speaking, knowledge of communicating in foreign languages, leadership, negotiation, empathy, complementing, friendliness, communication through statistical data.

More than half of the respondents, 8 out of 17, are rather not aware of all the

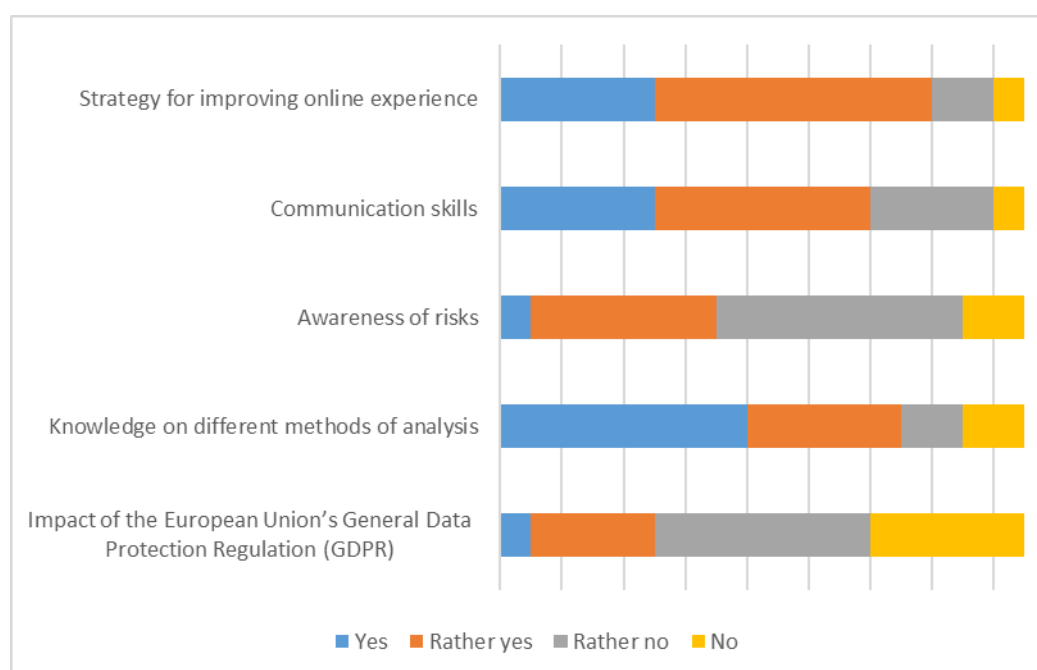
different risks that a company is exposed to, while 6 respondents are rather aware.

Most of the participants, 8 out of 17, know different methods of analysis, for example the SWOT analysis, that can support them in identifying the strategies for the development of a company that promise the most success.

On the other hand, most of the respondents are (rather) not familiar with the implications of the European Union's General Data Protection Regulation (GDPR) for a company.

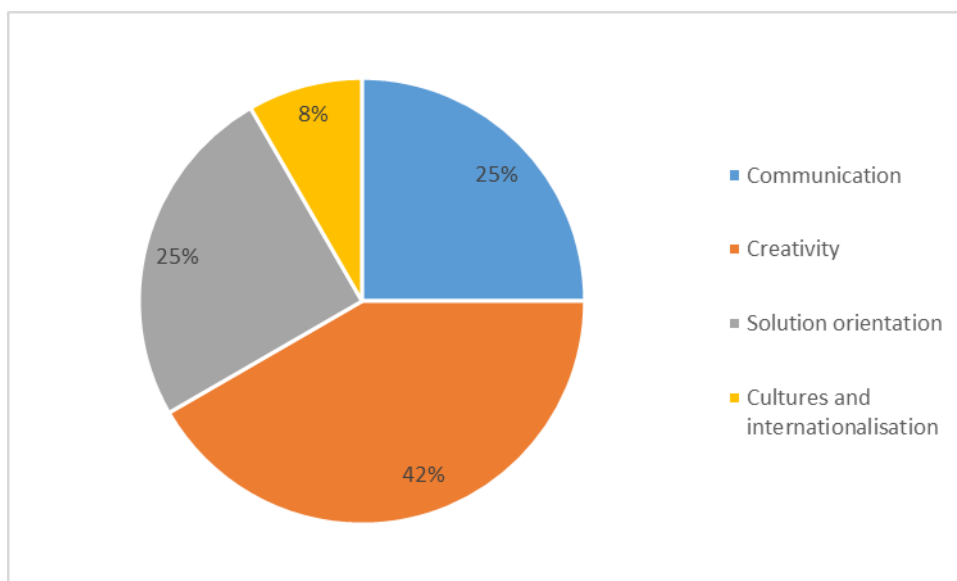
The results of the self-evaluation of participants regarding readiness for digitalisation are presented in Figure 43.

Figure 43. Readiness of participants for digitalisation (students and unemployed)



Finally, the last question asked the participants what are the main skills that a leader should have to help achieve a proper digital transformation and most of them (42%) answered creativity. One quarter of participants said it is communication and the same number of them thinks it is solution orientation (Figure 44). Other aspects that are considered relevant for a leader of an organisation to have, according to the participants are providing security for to company, knowledge, clear objectives, ability to detect problems and risks, modern approach, supportive attitude, presenting skills, adaptability, open approach, continuous training, openness to the possibilities offered by new technologies, knowledge in the field of digitalisation, friendliness, open mindedness, good sense of organisation, consistency and perseverance, leadership, problem-solving, empathy and business strategy skills.

Figure 44. Main skills needed to implement digital transformation (students and unemployed)



5. Conclusion

The goal of the GIST project is to develop and implement an innovative training programme for SMEs regarding 4.0 technologies. First step of the development of the programme was market research that was conducted in the form of three questionnaires – one for SMEs, one for VET providers, HE institutions and consultancy organisations, and one for students and unemployed.

Questionnaire intended for SMEs was completed by 30 participants from different sectors, different roles in organisations and different length of professional experience. The results of the questionnaire showed that most of the participants are familiar with 4.0 technologies and find it important. The most important technologies according to SMEs are robotics and 3D printing and custom manufacturing. Also, those are technologies most of the participants are familiar with and / or have experience with. However, even though they are rated as most important, these technologies are mostly not used by SMEs. Main barriers for the implementation of 4.0 technologies, according to SMEs are lack of skills and knowledge among staff and cost of technologies.

According to the SMEs, readiness for digitalisation process, that includes existence of thought-out strategy for improving the online experience of customers, culture of communication, awareness of risks, carrying out a comprehensive analysis of company's strengths and weaknesses, systematic inventory of all-important aspects of current business model, experience with methods of analysis, impact of GDPR, reaction of the company to the fears of

employees, as well as the being able to present ideas, preparation for future challenges and preparation for implementation of new business model, is at quite high level. Also, the fact that most of the SMEs have an expert for digitalisation also supports that they are ready for digital transformation.

The second questionnaire was completed by 24 participants from public bodies, non-governmental organisations, high education institutions, vocational education and training providers and consulting organisations. Most of the participants are familiar with 4.0 technologies and find them important for industry, especially traditional sectors, such as furniture. As the most important technologies, participants listed robotics, Internet of Things and 3D printing and manufacturing, while as a largest barrier for successful implementation of industry 4.0 technology, they find lack of digital transformation strategy and leadership.

For furniture and related industries, the most important technologies according to participants are robotics and 3D printing and manufacturing, while the most important technologies in traditional sectors are robotics and Cloud Services.

Regarding the experience of participant, the readiness of SMEs for digital transformation, that includes existing of a thought-out strategy for improving online experiences of customers, existence of a thought-out strategy to optimise and obtain benefits of social media, open culture of communication, awareness of risks, carrying out a comprehensive analysis of company's strengths and weaknesses, systematic inventory of all-important aspects of current business model and impact of GDPR, is still not at the satisfactory level, which is a contradiction to the results of questionnaire related to SMEs.

Last questionnaire was completed by 17 students and unemployed for different fields. As expected, the familiarity with 4.0 technologies is a little bit smaller in this group, but they are still found very important for industry, especially traditional sectors, such as furniture. The most important technologies according to this group of participants are 3D printing and custom manufacturing and robotics.

The analysis of the questionnaire showed that 4.0 technology skills are still not quite present in the educational system even though students find it helpful to find a job and important to apply in future work.

Even though students and unemployed are mostly lacking knowledge and skills regarding 4.0 technology, their self-assessment showed that they are rather experienced with a thought-out strategy for online experiences of customers, have good communication skills and know different methods of analysis.

The results of all three questionnaires show that 4.0 technologies and related skills are already important and will become of even greater importance. However, SMEs are still not completely ready for digital transformation.

Additionally, students still do not have enough knowledge on 4.0 technologies. Results of all three surveys are presented in table 1.

Table 1. Summary of results of all three surveys

	SMEs	Other organisations	Students and unemployed
No. of participants	30	24	17
Familiarity with 4.0 technologies	Yes	Yes	Rather yes
Importance of 4.0 technologies	Yes	Yes	Yes
The most important technology for furniture and related sectors	Robotics	Robotics	3D printing and custom manufacturing
Readiness for digital transformation	Rather yes	Rather no	Rather yes
Skills needed to implement digital transformation	Communication	Communication and Solution orientation	Creativity

Conclusion of the analysis of current skills, knowledge and qualifications regarding digitalisation is that the new and innovative programme regarding 4.0 technologies is necessary in order to use all of the advantages of digital transition, such as cost reduction and improved efficiency. This analysis showed that it is important to include 4.0 technologies in education and training to ensure having an educated and qualified workforce.

The next steps of the GIST project are:

- Definition of GIST learning outcomes (specific knowledge, skills and competences) based on the defined and endorsed knowledge gaps to be covered in terms of digitalization).
- Definition and design of the complete structure of the future GIST training course in the form of modules, units, methodology to be implemented, etc.
- Validation of the Joint Curriculum in order to guarantee the interest of associated partners, target groups and stakeholders regarding the training course before its development.

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- Annex 1: Questionnaire for SMSs

GIST's questionnaire: Analysis report on the current skills, knowledge and qualifications regarding digitalization

Dear Sir or Madam:

We invite you to participate in fill in the following questionnaire, an integral part of the "GIST: Fostering digitalisation and bionic transformation of SMEs through the development of a novel and innovative training material for overcoming COVID-19 crisis" project.

Project that is part of the Erasmus+ program, Key Action 2 (Strategic Partnership for Innovation and Exchange of Good Practices), funded by the European Commission and managed by an international Consortium composed of:

- Karlsruher Institut für Technologie (KIT) – Germany
- Institute for Development and International Relations (IRMO) – Croatia
- Asociación Empresarial de Investigación Centro Tecnológico del Mueble y la Madera de la Región de Murcia (CETEM) – Spain
- Globalnet sp. Z.o.o. – Poland
- Innovawood Asbl – Belgium
- Styrian Technology Park (STP) – Slovenia

The main objective of the GIST project is to develop and implement an innovative training material for SMEs to provide them the basic competences to reach a bionic status, namely a company which is capable of combining technological, transversal and leadership, achieving in turn more productive operations and greater innovation.

GIST will strengthen those key skills and competences through up/re-skilling of the current workers of traditional sectors, especially furniture (continuous VET) and students willing to focus on their professional career in such sectors (initial VET). GIST will not only focus on technical skills (4.0 key technologies); but also, will address the high lack of transversal skills under the current educational curricula for being creative, innovative, and entrepreneurial professionals capable of advancing research and strengthening the addressed sector apart from having an open leadership.

This questionnaire will help us to be aware of the level of digitalisation and the skills needed or mismatched in the furniture sector and other traditional ones distinguishing among technical and transversal.

Your contribution will be essential for completing the initial research phase of the project and for gathering the information needed to create a novel Joint Curriculum and its subsequent training material.

The data collected in this questionnaire will be treated anonymously and will be used solely for scientific purposes. Thank you for your collaboration.

GENERAL INFORMATION

Nationally

....

Gender

....

Level of education

- a) Diploma/ equivalent
- b) Bachelor's Degree
- c) Master's Degree
- d) Ph.D. Degree
- e) Professional qualification
- f) Others

Which is the sector of your organisation?

....

What type of enterprise are you working on?

- a) Micro enterprise (less than 10 employees)
- b) Small enterprise (10 – 49 employees)
- c) Medium enterprise (50 – 249 employees)

What is your role in the organisation?

How many years do you have of professional experience?

....

TECHNICAL QUESTIONS

Industry 4.0 refers to the fourth industrial revolution, which affects every manufacturing domain and comprises advanced manufacturing technologies that capture, optimise and deploy data. Such

technologies are the industrial Internet of Things, 3D printing, etc. and they provide companies with greater flexibility in processes, an increased productivity and revenue and higher-quality production.

Do you know 4.0 technologies?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Do you think that technologies 4.0 are important for your sector?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Which of these technologies are important for the sector? (Multiple choice question)

- a) Big Data
- b) Cloud Services
- c) 3D printing and custom manufacturing
- d) Internet of Things
- e) Artificial Intelligence
- f) Augmented Reality and Virtual Reality
- g) Robotics
- h) Blockchain
- i) Cybersecurity
- j) Others, for example:
- k) None of them

Which of these technologies are you personally already familiar/ you have experience with?

Big Data	YES	RATHER YES	NO	RATHER NO
Cloud Services	YES	RATHER YES	NO	RATHER NO

3D printing and custom manufacturing	YES	RATHER YES	NO	RATHER NO
Internet of Things	YES	RATHER YES	NO	RATHER NO
Artificial Intelligence	YES	RATHER YES	NO	RATHER NO
Augmented Reality and Virtual Reality	YES	RATHER YES	NO	RATHER NO
Robotics	YES	RATHER YES	NO	RATHER NO
Blockchain	YES	RATHER YES	NO	RATHER NO
Cybersecurity	YES	RATHER YES	NO	RATHER NO
Other:	YES	RATHER YES	NO	RATHER NO

Which of these technologies does your SME already implement?

Big Data	YES	RATHER YES	NO	RATHER NO
Cloud Services	YES	RATHER YES	NO	RATHER NO
3D printing and custom manufacturing	YES	RATHER YES	NO	RATHER NO
Internet of Things	YES	RATHER YES	NO	RATHER NO
Artificial Intelligence	YES	RATHER YES	NO	RATHER NO
Augmented Reality and Virtual Reality	YES	RATHER YES	NO	RATHER NO
Robotics	YES	RATHER YES	NO	RATHER NO
Blockchain	YES	RATHER YES	NO	RATHER NO
Cybersecurity	YES	RATHER YES	NO	RATHER NO
Other:	YES	RATHER YES	NO	RATHER NO

Choose the biggest three barriers for successfully implementing industry 4.0 technologies in the furniture and related sectors:

- a) Cost of technologies

- b) Insufficient financial resources
- c) Insufficient human capital (people responsible do not know enough about i4.0)
- d) Lack of skills and knowledge among staff
- e) Lack of technological solutions from suppliers
- f) Lack of a digital transformation strategy and leadership
- g) Some reluctance to changes and new technologies adoption
- h) Further adaptation of the technologies

TRANSVERSAL SKILLS QUESTIONS

More and more buying decisions are made online. Are your company equipped with a thought-out strategy for how you can improve the online experiences of your customers (Digital customer experience (DCX))? Are you easily accessible for your customers online, for example over social media channels?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Does your company have any online campaigns (online commercials, blogs,) for promoting your products/services?

- a) Yes
- b) No

If yes, how do you collect feedback from the target audience?

Through surveys (asking questions to people who look us up)

Through comments (looking for comments about our products)

Through events (such as rewards for suggestions, opinions)

Processes of change such as a process of digital transformation present companies and organisations with significant challenges. Is your company equipped with an open culture of communication so that challenges and successes in the course of the process of change can be quickly and transparently made accessible to all those involved?

- a) No
- b) Rather No

- c) Rather Yes
- d) Yes

Do you know all of the different risks that your company is exposed to? Have they ever listed these risks systematically and assessed them in relation to their relevance for the future of your company?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Is your company regularly carrying out a comprehensive analysis of all of your company's strengths and weaknesses?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Before you can digitally transform a company, you need to precisely analyse its current business model. Are your company equipped with a systematic inventory of all-important aspects of their current business model, for example on the basis of the CANVAS method?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Do your company already have experience with methods of analysis, for example the SWOT analysis, that can support you in identifying the strategies for the development of your company that promise the most success?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Digital transformation brings new challenges and opportunities. Legislators may perhaps react to this with new laws and regulations. Has, for example, the European Union's General Data Protection Regulation (GDPR) impacted your company?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

If yes – how?

LEADERSHIP QUESTIONS

Do you consider that the fears that employees have concerning digital transformation are listened to by the leaders and tried to analyse their significance for a proper digital transformation process in your company?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Are you able to communicate your idea of what success looks like for your company clearly to your team?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Your company is exposed to many different external factors. Have you systematically prepared for optimisation and upgrade of technology you use?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

It is important that you understand what your customers want in the digital age, which services they expect from you in the future and how you can meet new customer needs. Have your company already paid thorough attention to the question of what a new, digital business model for your company could look like and which customers you would like to address in the future?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Does your company already have an inhouse expert for digitalization?

- a) YES, works exclusively on this issue
- b) YES, but works on other topics too
- c) No, but we are looking for one
- d) No, but we are training somebody
- e) NO, we use external experts
- f) NO, we do not digitalize
- g) We would like to, but cannot afford it.
- h) We would like to, but cannot find one.

Do you think that your manager would support their employees if they choose to pursue a degree program towards digitalisation?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

What are the main skills that a leader should have for achieving a proper digital transformation of the company and also its workers?

- a) Creativity
- b) Communication
- c) Solution orientation
- d) Cultures, internationalisation
- e) Others

Any other aspect that you consider relevant for a leadership of an organisation which want to be in front of digitalisation and new trends (skills, competences or any other information that you consider relevant):

...

END

Thank you for your time and inputs.

We are collecting answers from various stakeholders around Europe and will collate and synthesise the results in order to define a training path and a Joint Curriculum.

Do you accept to join a mailing list of GIST project contacts to receive a periodical newsletter with the last project progress and final results?

If yes, please provide us your email:

With your approval, we will contact you again around December 2021 to review the Joint Curriculum and identify potential weakness and points of improvement.

- Annex 2: Questionnaire for other organisations

GIST's questionnaire: Analysis report on the current skills, knowledge and qualifications regarding digitalization

Dear Sir or Madam,

We invite you to participate in filling in the following questionnaire, an integral part of the "GIST: Fostering digitalisation and bionic transformation of SMEs through the development of a novel and innovative training material for overcoming COVID-19 crisis" project.

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This questionnaire will help us to be aware of the level of digitalisation and the skills needed or mismatched in the furniture sector and other traditional ones distinguishing among technical and transversal.

Your contribution will be essential for completing the initial research phase of the project and for gathering the information needed to create a novel Joint Curriculum and its subsequent training material.

The data collected in this questionnaire will be treated anonymously and will be used solely for scientific purposes. Thank you for your collaboration.

GENERAL INFORMATION

Nationally

....

Gender

....

Studies

- g) Diploma/ equivalent
- h) Bachelor's Degree
- i) Master's Degree
- j) Ph.D. Degree
- k) Professional qualification
- l) Others

Type of organisation

- a) Technological centre
- b) Consultant
- c) Cluster
- d) Public body
- e) Others

Which is the sector of action of your organisation?

....

What is your role in the organisation?

How many years do you have of professional experience?

....

TECHNICAL QUESTIONS

Industry 4.0 refers to the fourth industrial revolution, which affects every manufacturing domain and comprises advanced manufacturing technologies that capture, optimise and deploy data. Such technologies are the industrial Internet of Things, 3D printing, etc. and they provide companies with greater flexibility in processes, and increase productivity and revenue and higher-quality production.

Do you know 4.0 technologies?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Do you think that technologies 4.0 are important for industry and especially traditional sectors, such as furniture?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Which of these technologies are more important from your point of view?

- l) Big Data
- m) Cloud Services
- n) 3D printing and custom manufacturing
- o) Internet of Things
- p) Artificial Intelligence
- q) Augmented Reality and Virtual Reality
- r) Robotics
- s) Blockchain
- t) Cybersecurity
- u) Others, for example:
- v) None of them

What do you consider the biggest three barriers for successfully implementing industry 4.0 technologies in the furniture and related sectors?

- i) Cost of technologies
- j) Insufficient development resources
- k) Lack of skills and knowledge among staff
- l) Lack of technological solutions from suppliers
- m) Lack of a digital transformation strategy and leadership
- n) Some reluctance to changes and new technologies adoption
- o) Further adaptation of the technologies

What technologies do you consider important for furniture and related industries?

	Least Important	Less Important	Neutral	Important	Very Important
Big Data					
Cloud Services					
3D printing and custom manufacturing					
Internet of Things					
Artificial Intelligence					
Augmented Reality and Virtual Reality					
Robotics					
Blockchain					
Cybersecurity					
Other:					

Do you know what technologies are more implemented in these kinds of traditional sectors?

Big Data	YES	RATHER YES	NO	RATHER NO
----------	-----	------------	----	-----------

Cloud Services	YES	RATHER YES	NO	RATHER NO
3D printing and custom manufacturing	YES	RATHER YES	NO	RATHER NO
Internet of Things	YES	RATHER YES	NO	RATHER NO
Artificial Intelligence	YES	RATHER YES	NO	RATHER NO
Augmented Reality and Virtual Reality	YES	RATHER YES	NO	RATHER NO
Robotics	YES	RATHER YES	NO	RATHER NO
Blockchain	YES	RATHER YES	NO	RATHER NO
Cybersecurity	YES	RATHER YES	NO	RATHER NO
Other:	YES	RATHER YES	NO	RATHER NO

TRANSVERSAL SKILLS QUESTIONS

Do you consider that companies, mainly from furniture and related sectors, are equipped with a thought-out strategy for improving their online experiences with customers (Digital customer experience (DCX))?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Do you consider that companies, mainly from furniture and related sectors, are equipped with a thought-out strategy for optimising and obtaining benefits from social media?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Do you consider that companies, mainly from furniture and related sectors, are equipped with an open culture of communication so that challenges and successes in the course of the process of digital change can be quickly and transparently made accessible to all those involved?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Do you think that companies, mainly from furniture and related sectors, are aware of all the different risks they are exposed to and they assess them in relation to their relevance for the future of your company?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Do you think that companies, mainly from furniture and related sectors, are regularly carrying out a comprehensive analysis of all of your company's strengths and weaknesses?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Before you can digitally transform a company, you need to precisely analyse its current business model. Do you think companies, mainly from furniture and related sectors, are equipped with a systematic inventory of all-important aspects of their current business model, for example on the basis of the CANVAS method?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Digital transformation brings new challenges and opportunities. Legislators may perhaps react to this with new laws and regulations. Do you consider that companies, mainly from furniture and

related sectors, know, for example, the implications of the European Union's General Data Protection Regulation (GDPR)?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

LEADERSHIP QUESTIONS

Do you consider that the fears that employees have concerning digital transformation are listened to by the leaders and tried to analyse their significance for a proper digital transformation process in your company?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Do you consider that companies paid systematic attention to all of the technological changes that could shape their branch of business in the future?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Do you consider that companies already paid thorough attention to the question of what a new, digital business model for their company could look like and which customers you would like to address in the future?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Do you think that your managers would support their employees if they choose to pursue a degree program towards digitalization?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

What are the main skills that a leader should have for achieving a proper digital transformation of the company and also its workers?

- f) Creativity
- g) Communication
- h) Solution orientation
- i) Cultures, internationalisation
- j) Others

Any other aspect that you consider relevant for a leadership of an organisation which want to be in front of digitalisation and new trends (skills, competences or any other information that you consider relevant):

.....

END

Thank you for your time and inputs.

We are collecting answers from various stakeholders around Europe and will collate and synthesize the results in order to define a training path and a Joint Curriculum.

Do you accept to join a mailing list of GIST project contacts to receive a periodical newsletter with the last project progress and final results?

If yes, please provide us your email:

With your approval, we will contact you again around December 2021 to review the Joint Curriculum and identify potential weakness and points of improvement.

- Annex 3: Questionnaire for students and unemployed

GIST's questionnaire: Analysis report on the current skills, knowledge and qualifications regarding digitalization

Dear Student,

We invite you to participate in fill in the following questionnaire, an integral part of the "GIST: Fostering digitalisation and bionic transformation of SMEs through the development of a novel and innovative training material for overcoming COVID-19 crisis" project.

Project that is part of the Erasmus+ program, Key Action 2 (Strategic Partnership for Innovation and Exchange of Good Practices), funded by the European Commission and managed by an international Consortium composed of:

- Karlsruher Institut für Technologie (KIT) – Germany
- Institute for Development and International Relations (IRMO) – Croatia
- Asociación Empresarial de Investigación Centro Tecnológico del Mueble y la Madera de la Región de Murcia (CETEM) – Spain
- Globalnet sp. Z.o.o. – Poland
- Innovawood Asbl – Belgium
- Styrian Technology Park (STP) – Slovenia

The main objective of the GIST project is to develop and implement an innovative training material for SMEs to provide them the basic competences to reach a bionic status, namely a company which is capable of combining technological, transversal and leadership, achieving in turn more productive operations and greater innovation.

GIST will strengthen those key skills and competences through up/re-skilling of the current workers of traditional sectors, especially furniture (continuous VET) and students willing to focus on their professional career in such sectors (initial VET). GIST will not only focus on technical skills (4.0 key technologies); but also, will address the high lack of transversal skills under the current educational curricula for being creative, innovative, and entrepreneurial professionals capable of advancing research and strengthening the addressed sector apart from having an open leadership.

This questionnaire will help us to be aware of the level of digitalisation and the skills needed or mismatched in the furniture sector and other traditional ones distinguishing among technical and transversal.

Your contribution will be essential for completing the initial research phase of the project and for gathering the information needed to create a novel Joint Curriculum and its subsequent training material.

The data collected in this questionnaire will be treated anonymously and will be used solely for scientific purposes.

Thank you for your collaboration.

GENERAL INFORMATION

Nationally

....

Gender

....

Studies

- m) XX
- n) Degree
- o) Master
- p) Doctorate
- q) Others

Are you a learner?

What type of studies are you doing now?

Do you have any professional experience related to furniture and other related sectors?

If yes, how much time? (not compulsory question)

If yes, what was your role? (not compulsory question)

TECHNICAL QUESTIONS

Industry 4.0 refers to the fourth industrial revolution, which affects every manufacturing domain and comprises advanced manufacturing technologies that capture, optimise and deploy data. Such technologies are the industrial Internet of Things, 3D printing, etc. and they provide companies with

greater flexibility in processes, and increase productivity and revenue and higher-quality production.

Do you know 4.0 technologies.0?

- i) No
- j) Rather No
- k) Rather Yes
- l) Yes

Do you think that technologies 4.0 are important for traditional sectors such as furniture?

- i) No
- j) Rather No
- k) Rather Yes
- l) Yes

Which of these technologies do you consider important for the furniture and other related traditional sectors?

- w) Big Data
- x) Cloud Services
- y) 3D printing and custom manufacturing
- z) Internet of Things
- aa) Artificial Intelligence
- bb) Augmented Reality and Virtual Reality
- cc) Robotics
- dd) Blockchain
- ee) Cybersecurity
- ff) Others, for example:
- gg) None of them

Do you know some courses on 4.0 technologies?

- a) No
- b) Rather No

- c) Rather Yes
- d) Yes

If yes, how many?

- a) 1
- b) 1-5
- c) >5

If yes, which is the main methodology of those courses?

- a) Online
- b) In person
- c) Mixed training (online + some physical classes)

Have you attended any course of 4.0 technologies?

- a) No
- b) Yes

If yes, could you describe the main content of the course

....

Do you think that 4.0 technologies skills are taught by your training institution?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

If yes, could you mark which topics are addressed and their importance in terms of knowledge required

	Least Important	Less Important	Neutral	Important	Very Important
Big Data					

Cloud Services					
3D printing and custom manufacturing					
Internet of Things					
Artificial Intelligence					
Augmented Reality and Virtual Reality					
Robotics					
Blockchain					
Cybersecurity					
Other:					

Do you think you will use 4.0 technologies skills in your working life?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Do you think having 4.0 technologies skills will help you to find a job?

- a) No
- b) Rather No
- c) Rather Yes
- d) Yes

Please tell us how you think 4.0 technologies skills could develop in the future?

...

TRANSVERSAL SKILLS QUESTIONS

More and more buying decisions are made online. Could you have the knowledge to develop a thought-out strategy for online experiences of customers (Digital customer experience (DCX))?

Could be you easily accessible for your theoretical online customers, for example over social media channels?

- i) No
- j) Rather No
- k) Rather Yes
- l) Yes

Processes of change such as a process of digital transformation present companies and organisations with significant challenges. Have you learned some communications skills such as active listening, empathy, verbal communication, etc?

- i) No
- j) Rather No
- k) Rather Yes
- l) Yes

If yes, please detail which skills have you learnt and what are the most useful from your point of view

...

Do you know all of the different risks that a company is exposed to? Could you list these risks systematically and assess them in relation to their relevance for the future?

- i) No
- j) Rather No
- k) Rather Yes
- l) Yes

Do you know different methods of analysis, for example the SWOT analysis, that can support you in identifying the strategies for the development of a company that promise the most success?

- e) No
- f) Rather No
- g) Rather Yes
- h) Yes

Digital transformation brings new challenges and opportunities. Legislators may perhaps react to this with new laws and regulations. Do you know, for example, the implications of the European Union's General Data Protection Regulation (GDPR) for a company?

- i) No
- j) Rather No
- k) Rather Yes
- l) Yes

LEADERSHIP QUESTIONS

What are the main skills that a leader should have for achieving a proper digital transformation of the company and also its workers?

- k) Creativity
- l) Communication
- m) Solution orientation
- n) Cultures, internationalisation
- o) Others

Any other aspect that you consider relevant for a leadership of an organisation which want to be in front of digitalisation and new trends (skills, competences or any other information that you consider relevant):

.....

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