STIKK
KOSOVO ICT ASSOCIATION

KOSOVO IT BAROMETER 2020

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EXECUTIVE SUMMARY

This study was conducted by STIKK - Kosovo ICT Association with the purpose of gathering data on the operation and development of the Information Technology (IT) sector in Kosovo. The survey is a follow up to the "IT Barometer" report, which is carried out yearly by STIKK since 2014.

To gather information for this survey, a sample of 42 IT companies operating in Kosovo was used. The data gathering and analysis of IT Barometer took place between September 2020 and March of 2021.

KEY FINDINGS

The ICT sector in Kosovo is relatively new, however it is developing fast, as the IT Barometer discovers year after year.

As a considerable amount of companies are working in the international market, the potential and experience in the international market seems to be of immense importance for the ICT sector in Kosovo. Namely 91.18% of the IT companies participating in the research, export their services/products to international markets, compared to the 5.88% of companies that work only locally.

Companies have found different ways to do business with international companies. According to the responders, by far the most popular way is direct exports from Kosovo to the client abroad. Others are doing business through a subsidiary / branch office in the target market, as a distribution partner / local Partner (sales agent), with a representative office, as well as, a joint venture.

The most popular horizontal markets are Custom Development / Outsourcing, followed by IT Consulting, Web design development, Mobile Solutions, E-commerce, Software Quality Assurance etc.

According to the companies participating in this research, Central Europe and North America have the highest potential to export to, specifically Switzerland and Germany, followed by USA and Canada, and the United Kingdom. East Asia, the Middle East and Africa, are seen as markets with little to no potential to export.

Despite the increase in the average number of employees from 27 in 2019 to 33 in 2020, the IT industry does not have many difficulties in retaining their employees as almost more than half of the companies (61.29%) have had a turnover rate of less than 10 percent. Nevertheless, companies also believe that they can easily find new employees. More than half of the interviewed companies believe that they will find a new employee in less than 3 months, 41.94% believe that they will find a new employee in 3-6 months, while 6.45% in more than 6 months.

The positive trend in the rise of average number of employees and their salaries is expected to continue in 2021.

In terms of how IT companies in Kosovo operate, they mainly provide Software as a Service (SaS)/IT Consulting, followed by services for hardware products and software reselling. They mainly use Big Data and AI technologies to deliver services. JAVASCRIPT, HTML, XML and PHP are the most used programing languages. While the most popular database technologies amongst the respondents are MSQL/MYSQL, followed by MS SQL Server.

2020, characterized by the Covid-19 pandemic, has had its impact in IT industry as well. More than half of the participating companies declared a moderate negative impact. Nonetheless, the operating capacities compared to one year ago, have not incurred any changes (41.94%), or have in some cases increased. Based on the responses, 22.58% have stated an increase of less than 50% on their operating capacity, while 19.35% have stated an increase of more than 50%. It is interesting to state that more than half of the participating companies (51.61%) have increased their number of employees while, 29.03% have had no changes during this time. Only 19.35% of the participating companies, have decreased their number of paid employees due to the pandemic.
Covid-19, has been contributing to a lot of changes in the way of doing business, business processes, as well as, changes in services and products delivered by the companies. According to the research, 64.29% of the participating companies have introduced new or significantly changed services in 2020, while 35.71% haven't done so.

While the innovation was mostly funded by the companies themselves, the drivers for change and innovation haveincreased efficiency and improved quality. According to the respondents, the greatest promoting factors for innovation were: the way they collaborate across the team (50.00%), new technology (40.90%), collaboration with external partners (36.36%), their focus on the reliability of their team (24.78%) and the way companies deal with errors (31.82%). On the other hand, the greatest hinderers towards innovation were stated to be: limited financial resources (26.08%), collaboration with external partners (18.18%) and new technologies (13.64%).

INTRODUCTION

Information and Communication Technology (ICT) is playing a major role in the economic growth of Kosovo, since it has become a destination of regional and international companies seeking for outsourcing services. Being a strategic sector of the country, governmental institutions and international institutions operating in Kosovo have provided their support towards the growth of the ICT sector by ensuring the empowerment of the sector's main actors.

Considering that the IT sector in Kosovo is relatively new, with most companies founded after the 2000s, it has had a rapid growth and it is quickly moving towards global ICT trends. Established in 2008, STIKK remains one of the biggest supporters of the ICT sector and ICT community, as it continuously bases its activity in promoting the ICT Sector of Kosovo. STIKK's goals are achieved by implementing activities, based on its main pillars of Export Promotion, Improving Company Excellence & Quality, Investment Promotion, Domestic Market Development and IT Promotion Policy.

IT Barometer is a vehicle of STIKK to support the Kosovo ICT sector with the aim to:

- Provide an overview on the development of the IT sector;
- Support the export capacities of ICT companies in Kosovo;
- Provide recent trends in the IT industry;

STIKK commissioned two external consultants, Fjolla Cavolli and Fjolla Azemi, to perform the data processing, data analysis, and to prepare the 2020 Kosovo IT Barometer report, whereas the data collection was conducted by STIKK itself.

This basic information on ICT companies in Kosovo, is meant to provide an insight of the value of the national ICT market, including the export capacity.

IT Barometer Kosovo 2020 focuses on exploring the following issues related to the IT sector in Kosovo:

- General overview on the companies and the IT sector in Kosovo;
- Comparative analysis;
- Recent export trends between targeted countries (export potential, export activities, international cooperation, export barriers);
- Analysis of Human Resources;
- Covid-19 impact;
- Recent innovations and changes to the working environment.

RESEARCH METHODOLOGY

The research approach for IT Barometer 2020 was implemented through a quantitative survey, and complimented by the computer assisted web interviewing (CAWI) technique.

The sample frame consists of the list of IT companies in Kosovo composed by STIKK. The overall sample consists of 42 IT companies.

The questionnaire for "IT Barometer" is a standardized questionnaire used in South East Europe, more precisely The South Europe IT Barometer (SEE ITIB). The questionnaire was updated and adapted by the STIKK project team to accomodate the local IT scene. The questionnaire was then loaded to the "Survey Monkey survey management system" and sent out to companies to fill out.

The data collection for this survey was completed between September and December of 2020.

FINDINGS

KOSOVO IT COMPANIES INFORMATION

In order to better understand the state of IT companies in Kosovo, the survey asked some general information about where and how they are registered.
The data reveals that the vast majority of the IT companies operating in Kosovo were founded in the country (34), whilst a few companies originate from other countries. As such two (2) participating companies originate from USA, one (1) from Swit-

zerland and one (1) from Croatia (see Figure 1).

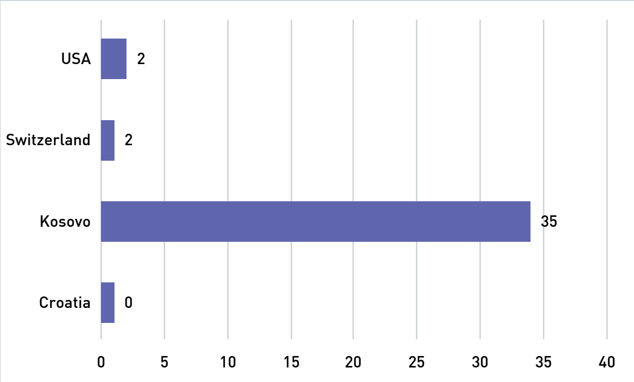

FIGURE 1: COUNTRY OF ORIGIN? (N=38)

The majority of the companies (69.23% of them) have national ownership, whereas 20.51% of the participating companies have stated mixed ownership. In regards to foreign ownership, 7.69% of the companies are under foreign ownership, while of 2.56% are companies that are branches of foreign companies (see Figure 2).

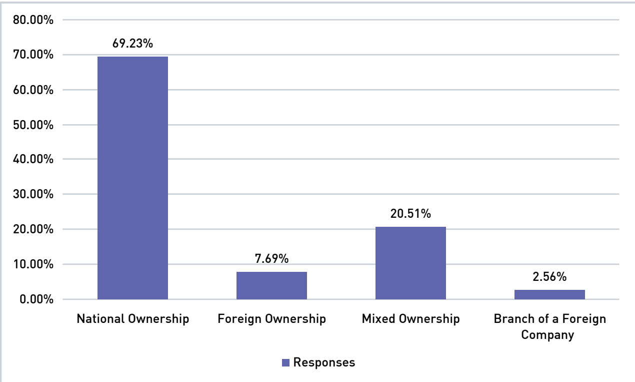

FIGURE 2: WHICH TYPE OF OWNERSHIP STRUCTURE APPLIES TO YOUR COMPANY? (N=39)

When it comes to associations, 84.62% of the participating companies in IT Barometer 2020 are members of STIKK, whereas 2.56% are members of Bosnia-Herzegovina's BIT Alliance, 2.56% are members of MASIT in Macedonia, 2.56% are members of BCC (Business Consultant Council) and KAEF; and 2.56% are members of Croatian Artificial Intelligence Association. 15.38% of the participating companies do not have an ICT association membership (see Figure 3).

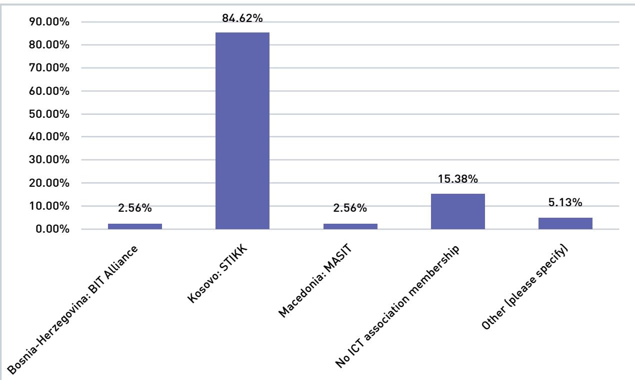

FIGURE 3: YOUR COMPANY IS A MEMBER OF WHICH ASSOCIATION: (N=39)

TRENDS IN THE INDUSTRY

In order to have an overview on the products and services and to understand the recent developments, we have asked the companies about the products/services that they provide.

Software/IT services are on top of the list and are provided by 51.28% of the IT companies, followed by software products (20.51%) and services for hardware products (2.56%). 25.64% of them, provide other services and products, stated by the participants as: Professional services, Software / Business Consulting Services, Networking and Telecommunication HW and SW provider, ICT Services and Auditing, System Integration and Implementation, Cloud Services, Cybersecurity, Digital Marketing, Software and Hardware / IT Services and Automation, and education, as part of Programming School and Tech Education through Franchising (see Figure 4).

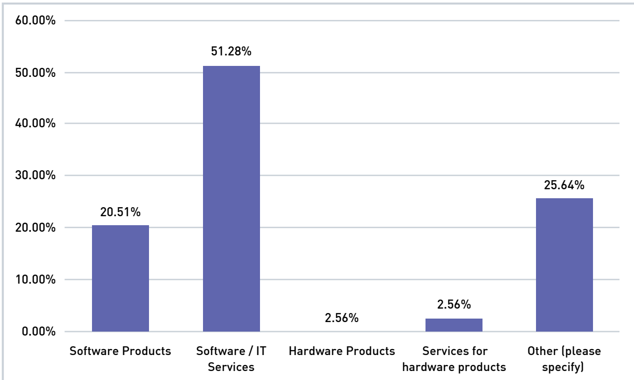

FIGURE 4: WHICH PRODUCTS AND/OR SERVICES DOES YOUR COMPANY PROVIDE? (N=39)

When it comes to the usage of operating systems, the majority of the IT companies in Kosovo use Windows (94.29%), followed by MAC-OS (71.43%), Linux (65.71%), Android (62.86%), iOS (60%) and only a limited number of companies (25.71%) use UNIX as an operating system (Figure 5).

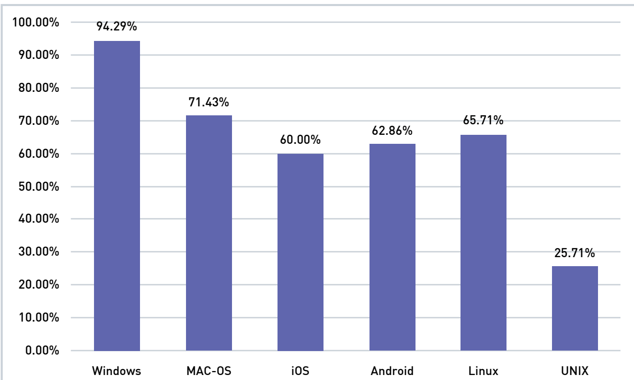

FIGURE 5: WHAT KIND OF OPERATING SYSTEMS AND PLATFORMS DO YOU USE? (N=35)

The list of technologies used to deliver services is rather long. The main one is Big Data, used by 39.29% of the sample, whereas the other ones presented on the graph below are also used often, such as Artificial Intelligence 35.71%, Cognitive Cloud Computing 35.71%, Blockchain 17.86%, and VR/AR 10.71%. The list of technologies is extended by 28.57% of the IT companies participating in this survey which mentioned many other technologies they use such as: Web tech stack, Tech and Programming, Geographical Information Systems, CAD, Penetration Testing, Gamification and IoT (see Figure 6).

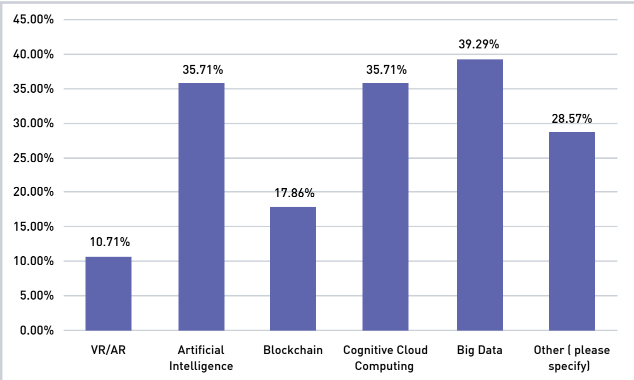

FIGURE 6: WHICH TECHNOLOGIES DO YOU USE TO DELIVER SERVICES/DEVELOP PRODUCTS? (N=38)

To better understand the working environment in terms of technology usage, we have asked the companies to indicate which programing languages and development tools do they use.

The most popular programing language is JavaScript, followed by HTML, XML, HTML/CSS, Java, Angular, React, PHP, .NET, C#, nodejs, Python, PL/SQL, MVC, C++, C, Swift, Flutter

Many have declared other programming languages (8.57%) such as: SCALA, Golang, Assembly, .netcore. Whereas, 5.71% have declared that they don't use any programing language (Table 1).

PROGRAMING LANGUAGES AND DEVELOPMENT TOOLS	PERCENTAGE OF USERS
JavaScript	74.29%
HTML, XML	68.57%
HTML/CSS	65.71%
Java	60.00%
Angular	60.00%
React	60.00%
PHP	57.14%
.NET	54.29%
C#	51.43%
nodejs	48.57%
Python	42.86%
PL/SQL	31.43%
MVC	31.43%
C++	28.57%
C	17.14%
Swift	17.14%
Flutter	8.57%
Other (please specify)	8.57%
We don't use any	5.71%
R	2.86%

Table 1: WHICH PROGRAMMING LANGUAGES AND DEVELOPMENT TOOLS DO YOU USE? (N=35)

The most popular Database Technologies amongst the IT companies are MS SQL Server, followed mSQL/mySQL, MongoDB, Oracle, noSQL, Apache, Firebase.

The database technologies (8.57%) used are: Cassandra, PostgreSQL / PostGIS, SQL Azure. Some 2.86% of the sample, have declared that they do not use any database technologies (Table 2).

DATABASE TECHNOLOGY	PERCENTAGE OF USERS
MS SQL Server	77.14%
mSQL / mySQL	68.57%
MongoDB	54.29%
Oracle	31.43%
noSQL	31.42%
Apache	25.71%
Firebase	25.71%
Other (please specify)	8.57%
We don't use any	2.86%

Table 2: WHICH DATABASE TECHNOLOGIES DO YOU USE? (N=35)

The table below presents in detail the IT sub-sectors where the companies are engaged in.

There is also a difference on whether the companies are working for the local or international market with work related to the specific sub-sectors of interest.

The most popular sector for the local needs is the it Services and Outsourcing by 70% of the sample, followed by Financial Services, Education (E-learning) and Banking, whereas the most popular sector for the international market is the IT Services and Outsourcing at 64.71% followed by Education (E-learning), Financial services and Manufacturing/Distribution/Retail (Table 3).

Sectors	KOSOVO	INTERNATIONAL MARKET
Automotive	6.67%	74.29%
Defence	3.33%	68.57%
Education (E-Learning)	36.67%	65.71%
Financial Services	43.33%	60.00%
Gaming and Entertainment	3.33%	60.00%
Healthcare Services	16.67%	60.00%
Home Automation	6.67%	57.14%
Industry Application and Automation	16.67%	54.29%
IT Services and Outsourcing	70.00%	51.43%
Manufacturing, Distribution, Retail	10.00%	48.57%
Marketing and Communication	3.33%	42.86%
Media and Publishing	10.00%	31.43%
Non-profit organizationg	23.33%	31.43%
Public sector (E-Government)	20.00%	28.57%
Real Estate	3.33%	17.14%
Services (HR, Accounting, Legal)	13.33%	17.14%
Utilities	6.67%	8.57%
Telecommunications (Wireless and Mobile)	23.33%	8.57%
Telematics	0.00%	5.71%
Tourism and Hospitality	6.67%	2.86%
Trade, Transportation and Logistics	6.67%	8.57%
Banking	30.00%	8.57%
Energy Sector	16.67%	5.71%
Other (please specify)	23.33%	2.86%

Table 3: WHICH SECTORS DO YOU CURRENTLY OPERATE IN KOSOVO AND INERNATIONAL MARKETS? (N=34)

In order to operate in different international markets in many cases companies seek international quality standards, which seems not to be the case for a lot of IT companies, since more than a half (65.71%) of the companies have declared that they have not obtained any quality standards.

Out of the responding companies, 31.43% of them have obtained ISO 9001 certification, ISO 27001 is obtained by 25.71% of the participating companies, whereas ISO 20000 is obtained by only 2.86% of the participating companies (Figure 7).

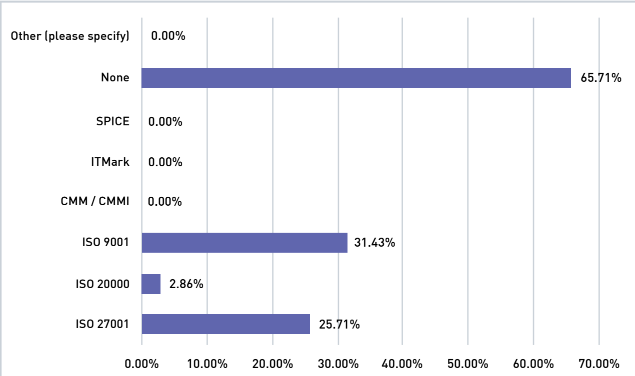

FIGURE 7: WHICH OF THE FOLLOWING QUALITY STANDARDS DOES YOUR COMPANY OBTAIN? (N=35)

Whereas when asked what were the reasons that they had obtained quality standards, 26.47% of them stated that quality standards improve processes in the companies, 5.88% of them stated that it was required by clients/potential clients, 5.88% of them stated that they obtained them because it would improve the image and reputation of their company (Figure 8).

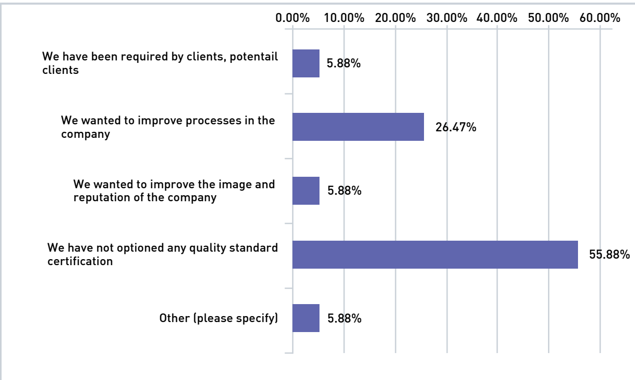

FIGURE 8: WHICH IS THE PRIMARY REASON OF OBTAINING A QUALITY STANDARD FOR YOUR COMPANY? (N=34)

EXPORT OF IT SERVICES AND PRODUCTS

As a considerable number of companies are working in international markets, the potential and experience in the international markets has been explored further in the following section.

91.18% of the IT companies participating in the research, export their services/products to international markets, compared to 5.88% of companies that work only locally (Figure 9).

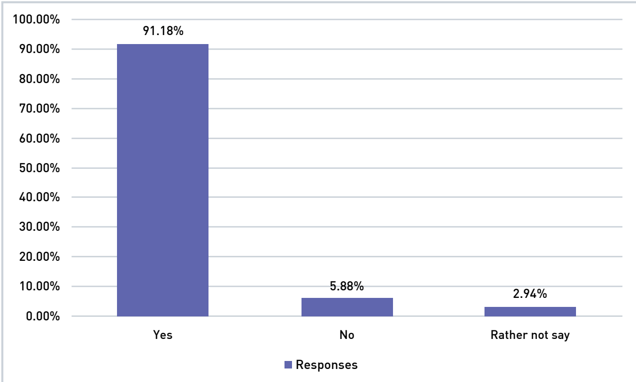

FIGURE 9: DOES YOUR COMPANY EXPORT SERVICES/PRODUCTS? (N=31)

When compared to the percentage of local and the international market, on average 75.56% of the IT companies work in international markets, compared to the local market which is an average of 24.44% of their income (see Figure 10).

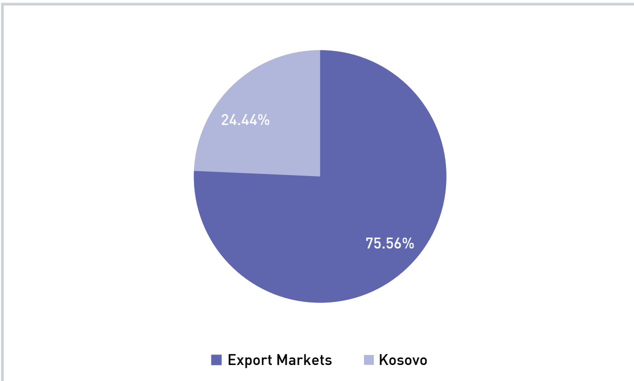

FIGURE 10: WHAT IS THE PERCENTAGE OF THE MARKET LOCALLY AND INTERNATIONALLY? (N=27)

The participating companies have found different ways to do business with international companies. By far the most popular way is direct exports to the client abroad (73.53%). Others are doing business by a subsidiary / branch office in the target market 20.59%, as a distribution partner / local Partner (sales agent) 20.59%%, as a joint venture 14.71%, and with a representative office 11.76% (see Figure 11).

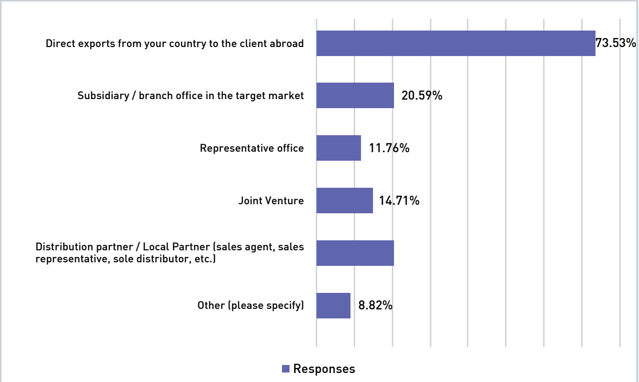

FIGURE 11: HOW DO YOU DO BUSINESS IN EXPORT MARKETS? (N=34)

The following table presents in detail, the horizontal markets where the companies are engaged in.

The most popular horizontal markets are Custom Development / Outsourcing (68.75%), followed by IT Consulting (65.71%), Web design development (65.71%), Mobile Solutions (57.14%), E-commerce (48.57%), and Software Quality Assurance (48.57%) (see Table 4).

HORIZONTAL MARKET	PERCENTAGE
Business Intelligence / Data Warehousing	34.29%
Business Process Optimization	37.14%
Corporate Security	22.86%
Custom Development / Outsourcing	68.57%
Costumer Management (CRM)	45.71%
Document Management	28.57%
E-Commerce	48.57%
Embedded Engineering and Development	11.43%
ERP / Supply Chain	34.29%
IT Consulting	65.71%
IT Project Management	40.00%
Knowledge Management / Operations	11.43%
Mobile Solutions	57.14%
Navigation Applications	14.29%
New Media Production (Multimedia/Web animations)	8.57%
Product maintenance , Support and Costumization	37.14%
Software Quality Assurance	48.57%
Tools/COTS	11.42%
Web design; development	65.71%
Other (please specify)	17.14%

TABLE 4: WHICH HORIZONTAL MARKET DO YOU CURRENTLY PROVIDE IT PRODUCTS AND/OR SERVICES? (N=35)

The companies were also asked to state the current export market and evaluate the export potential for different countries in the world. The graph below represents the current export market versus the potential of the same markets for export. According to the companies participating in this research, all markets that they actually export have much higher potential for export as well.

The countries where the respondents export the most currently are Germany (46.88%), followed by North America (USA and Canada) with 46.88% and Switzerland (37.50%). In regards to the market potential, companies rated that the countries with the highest export potential are Germany (83.87%), USA and Canada (64.52%) and Switzerland (58.06%) (see Figure 12).

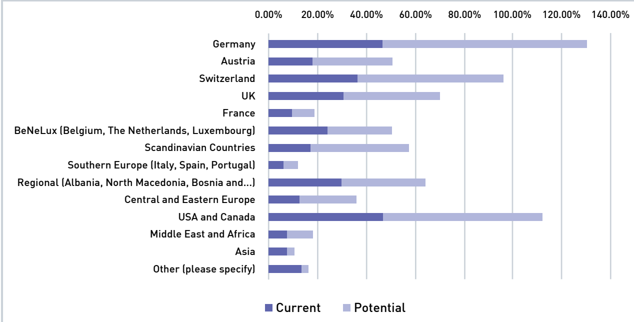

FIGURE 12: CURRENT EXPORT MARKETS AND POTENTIAL EXPORT MARKETS (N=32-31)

During export evaluation, the participating companies had the chance to state the main obstacles in doing business in export markets. The following graph represents some of the pre-defined obstacles, from which the main obstacle stated by 64.71% of the companies was visa requirements, followed by finding the right business partner (61.76%). Furthermore, other obstacles include the lack of qualified staff to conduct export activities (38.24%), market information (lack of suitable information on export markets) by 32.35%, lack of support by government institutions (export financing schemes, etc.) by 32.35%, lack of business contacts in target markets (29.41%) and lack of branding of the local IT industry abroad (29.41%) (see Figure 13).

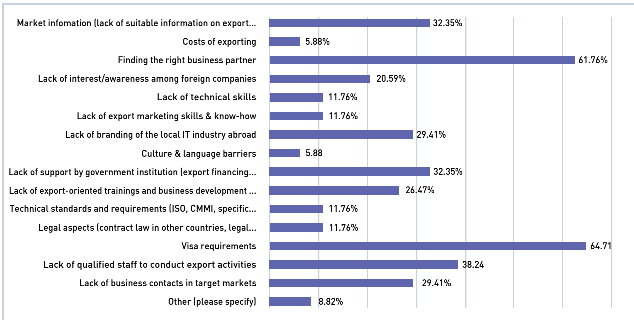

FIGURE 13: WHICH ARE THE MAIN OBSTACLES IN DOING BUSINESS IN EXPORT MARKETS: (N=34)

According to most of the companies (94.12%), the quality of their work is their main advantage on the market. A considerable number of companies (81.18%) stated that technical know-how (knowledge of the methods or techniques of doing something, especially something technical or practical) is an advantage. More than half (58.82%) of the companies stated that sector know-how (knowledge of specific sector focuses and requirements) is an advantage, 55.88% of the companies mentioned horizontal know-how (the ability of adopting across many different types of industry by many different types of customers) as an advantage, 55.88% believed that the cultural knowledge is an advantage, 44.12% believed that the prices that they provide are an advantage, whereas 32.35% believed that the knowledge of languages is an advantage (see Figure 14).

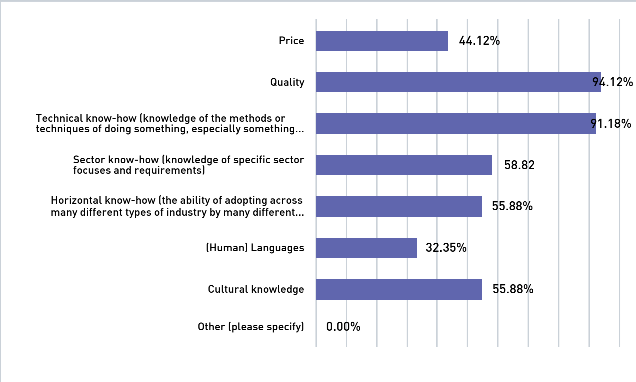

FIGURE 14: WHICH ARE THE CORE COMPETITIVE ADVANTAGES OF YOUR COMPANY? (N=34)

HUMAN RESOURCES

Kosovo is the country with the youngest population in Europe. More than 70 percent of its people are under the age of 35, according to the Kosovo Agency of Statistics.

These young people work with a lot of passion, and with their potential companies are outscoring their services more and more everyaday.

Companies have had an increase of 22% in regards to the number of eomplyees within their companies from 2019 to 2020. The average number of employees from 2019 to 2020, has increased from 27 to 33 employees (Figure 15).

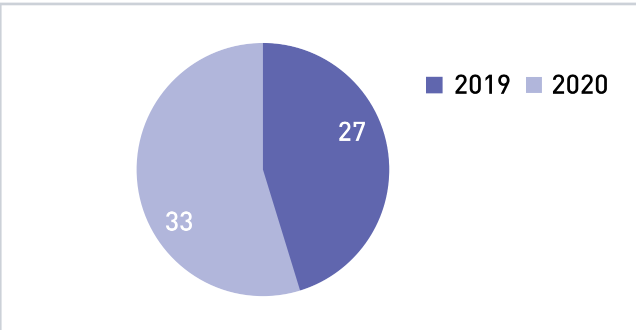

FIGURE 15: PLEASE PROVIDE THE NUMBER OF EMPLOYEES AND ASSOCIATES (IF APPLICABLE) FOR THE FOLLOWING YEARS. (N=31)

Out of the average 33 employees, most of the staff works in technical duties with an average of 14 employees, followed by other specific duties (6 employees), C-level (4 employees) and administration and finance with an average of 3 employees.

When we consider the gender of those employees, the biggest difference is in the technical duties and the C-level management employees. According to the data, men dominate 33% more than women in technical duties, while in C-level the gap is higher (200%) (see Figure 16).

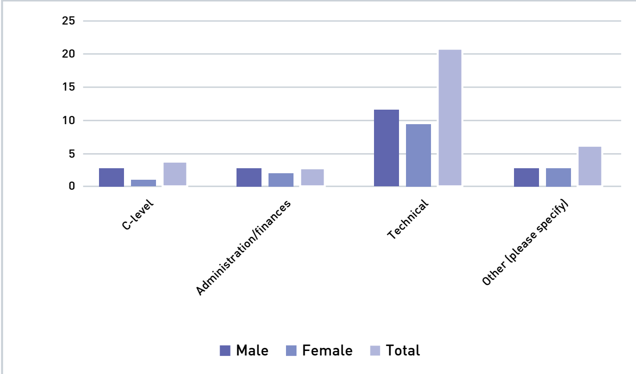

FIGURE 16: EMPLOYEE STRUCTURE (N=31)

We have also asked the companies to estimate the employee turnover rate, where 61.29% of them declared below 10% turnover rate, 32.26% of the companies declared a 10-25% turnover rate and only 6.45% declared that they have a 25% or higher turnover rate (see Figure 17).

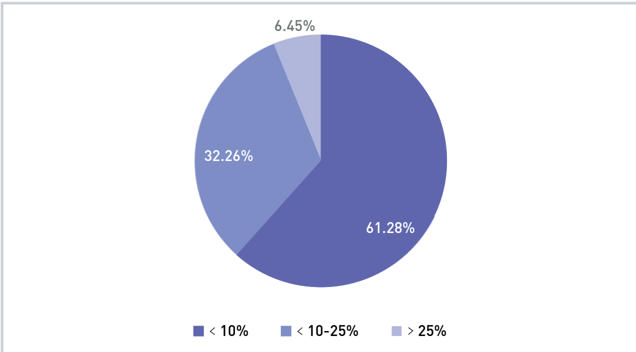

FIGURE 17: WHICH IS YOUR EMPLOYEE TURNOVER RATE? (N=31)

Although the turnover rate is not that high, companies also believe that they can easily find new employees. More than half of the companies (51.61%) believe that they can find a new employee in less than 3 months, 41.94% believe that they can find a new employee in 3-6 months, and 6.45% in more than 6 months (Figure 18).

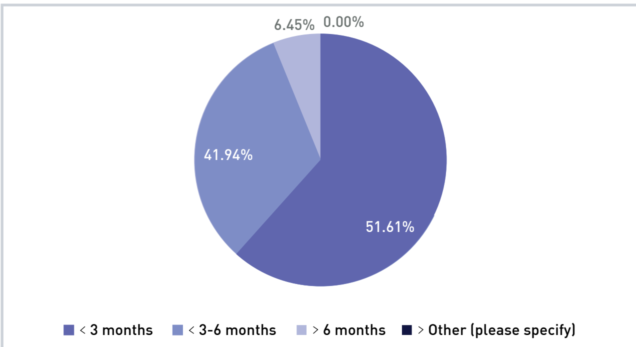

FIGURE 18: HOW LONG DOES IT TAKE FOR YOU TO REPLACE EXISTING EMPLOYEES? (N=31)

Companies have also declared average monthly salaries for different job titles of their employees.

The highest average salary for 2020 of 1,047 EUR is received by Developers, followed by Business Development Managers who receive on average 975 EUR, and Project Managers who receive on average 906 EUR (see Figure 19).

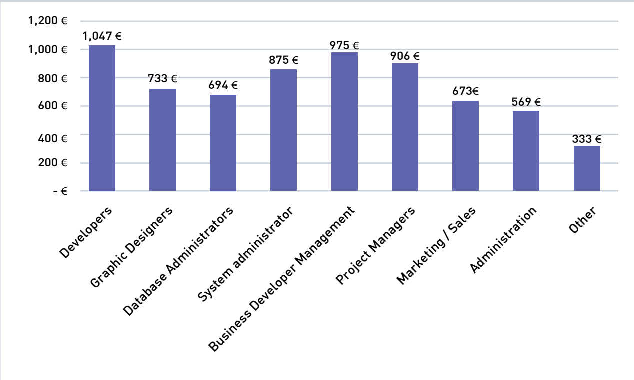

FIGURE 19: WHAT HAVE BEEN THE AVERAGE MONTHLY SALARIES FOR THE YEAR 2020 (AS PER LABOR CONTRACT) FOR THE FOLLOWING POSITIONS? (N=31)

When asked about the need for skilled/qualified workers, the majority (87.10%) of companies declared that they face a deficit of skilled/qualified workers (see Figure 20).

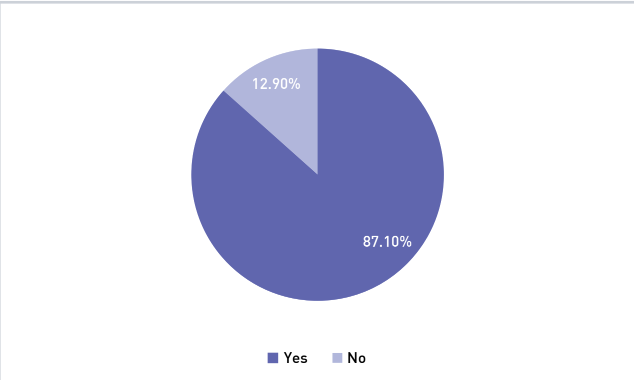

FIGURE 20: DOES YOUR COMPANY FACE A DEFICIT OF SKILLES/QUALIFIED WORKFORCE? (N=31)

Whereas, in terms of the ways in which these companies cope with the deficit of skilled workers, they invest in training and certifications. The most popular investment is in-house trainings with an average of 5,033 EUR annually, followed by external consultant-based trainings with an estimated 3,361 EUR annually. Investments are also made in special certification programs with an estimated 3,350 EUR, and job shadowing with an estimated 2,000 EUR annually (see Figure 21).

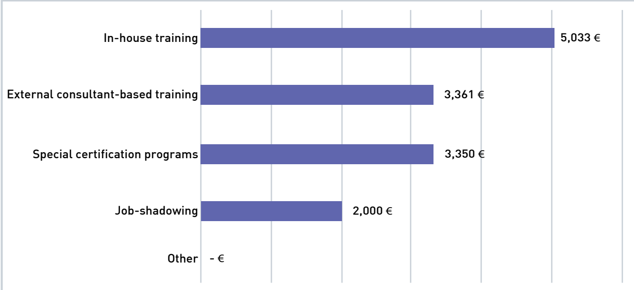

FIGURE 21: HOW DO THEY COPE WITH DEFICIT OF SKILLED/QUALITIFED WORKFORCE? (N=31)

We have asked companies to estimate changes in terms of number of employees for the next year. Companies in general expect an increase in number of employees for 2021, 20% of the participating companies expect to have an increase of 10%, 40% of the participating companies expect to have +25% employees, and 30% of the participating companies expect to have an increase of 50% of employees. The graph below represents in more detail the expectations of the participating companies (Figure 22).

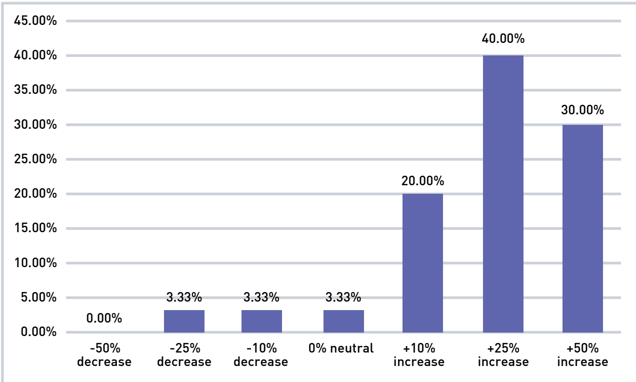

FIGURE 22: HOW DO YOU EXPECT YOUR NUMBER OF EMPLOYEES TO CHANGE IN THE NEXT YEAR? (N=30)

Furthermore, companies were asked to estimate changes in terms of salaries of their employees. Expectations are similar for salaries. Companies in general expect increases of salaries for people working in the IT sector. More than half of the companies expect that salaries will be increased by 10%, while 23.33% of the companies expect that salaries will be increased by 25%. A small percentage (13.33%) of the companies expect that the salaries will remain the same, while only 3.33% of the participating companies believe that the salaries will decrease by 10% (Figure 23).

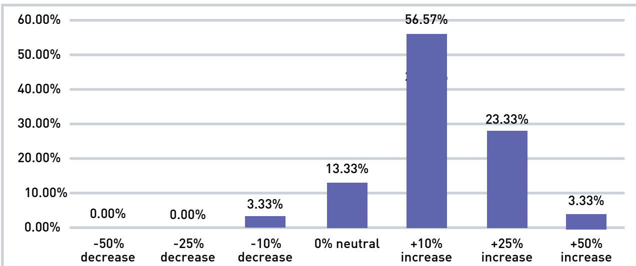

FIGURE 23: HOW DO YOU EXPECT THE SALARIES OF FOLLOWING PROFILES TO CHANGE IN THE NEXT YEAR? (N=30)

At the end of this section the companies were asked to express their opinion on the factors that can influence their business.

According to them, the factors that might have the highest influence on their businesses are quite diverse. Some companies, namely 70% believe that Brain Drain has the highest negative influence on their business, while 30% are neutral on this matter. The second factor with high negative influence based on the participating companies was the national economic situation (58.06%), while only 3.23% of the participants believe it had positive impact. In regards to the factors that had positive impact, companies rated intensified competition (22.58%) and global economic situation (22.58%) (Figure 24).

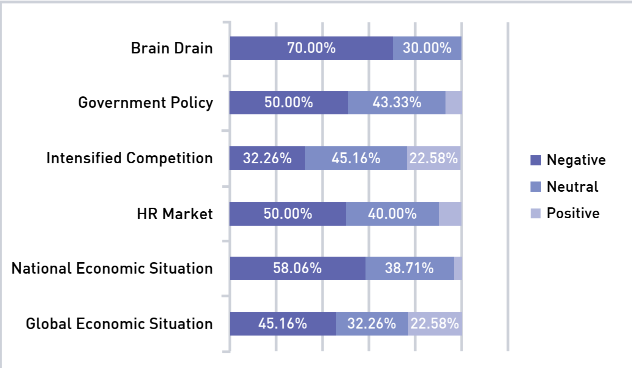

FIGURE 24: GIVEN THE CURRENT CIRCUMSTANCES, WHAT IS YOUR EXPECTED INFLUENCE OF THE FOLLOWING FACTORS IN THE DEVELOPMENT OF YOUR BUSINESS? (N=31)

IMPACT OF COVID-19 PANDEMIC

2020 is considered to have had a lot of impact on the shifts and changes in the business sector due to the Covid-19 pandemic. IT Barometer 2020 covers a whole section on the impact of Covid-19 on the changes of the business sector of IT industry.

The respondents were asked to rate the effect of the pandemic in their business. More than half of the participating companies have declared a negative effect, 6.45% stated a large negative effect, while 58.06% have stated a moderately negative effect. On the other hand, 16.13% of the participating companies have had a little to no effect at all, while 12.90% have had moderately positive effect ,and 6.45% have had a large positive effect on their business (Figure 25).

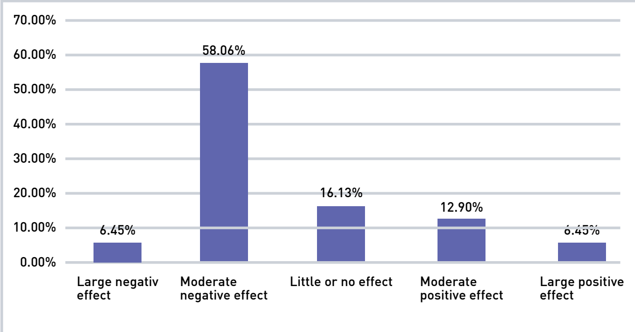

FIGURE 25: OVERALL, HOW HAS THIS BUSINESS BEEN AFFECTED BY THE CORONAVIRUS PANDEMIC? (N=31)

In regards to the changes in operational hours, shifts, workdays or wages, 87.10% of the participating companies have had no changes due to the pandemic, whilst 12.90% of the companies have reduced their operational hours, shifts, work days and/or wages (see Figure 26).

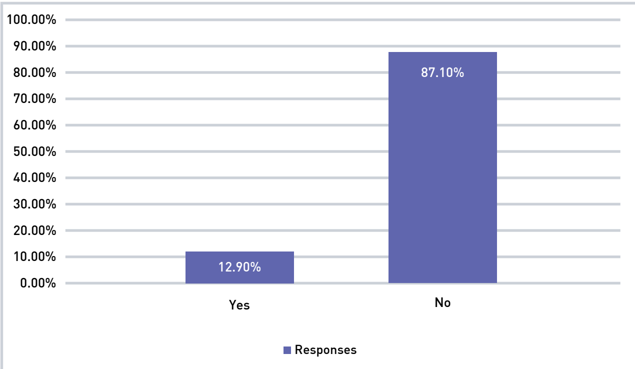

FIGURE 26: HAS YOUR BUSINESS REDUCED OPERATIONAL HOURS, SHIFTS, WORK DAYS, OR WAGES? (N=31)

According to the participating companies, the operating capacity compared to one year ago, has not incurred any changes (41.94%) or has increased. 22.58% have stated an increase of less than 50% in their operating capacity, while 19.35% have stated an increase of more than 50%. A small number of participating companies have stated decreases on less than 50% (12.90%) and decrease of more than 50% (3.23% of the participating companies) (Figure 27).

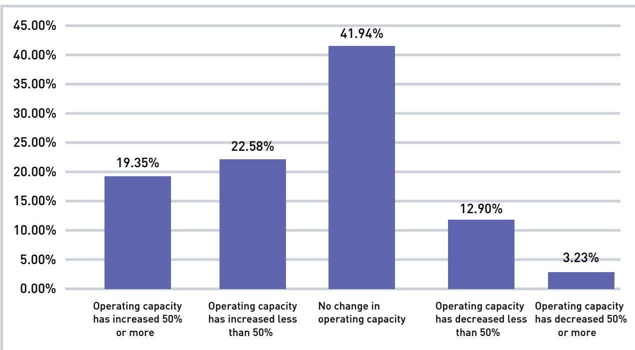

FIGURE 27: HOW WOULD YOU DESCRIBE THIS BUSINESS'S CURRENT OPERATING CAPACITY RELATIVE TO ONE YEAR AGO? (N=31)

Data was gathered on the impact of the pandemic in changes in the number of paid employees. It is interesting to state that more than half of the participating companies (51.61%) have increased their number of employees while 29.03% have had no changes during this time. 19.35% of the participating companies have decreased their number of paid employees due to the pandemic (Figure 28).

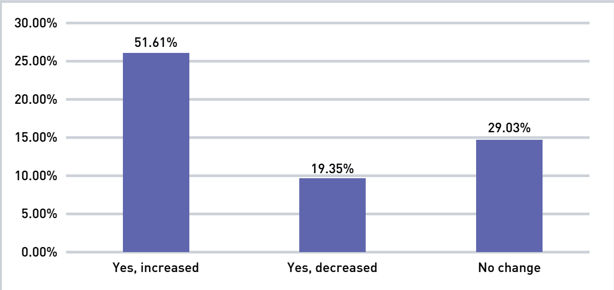

FIGURE 28: IN THE LAST MONTHS (MARCH-OCTOBER), DID YOUR COMPANY HAVE A CHANGE IN THE NUMBER OF PAID EMPLOYEES? (N=31)

Covid-19 at its early phases in Kosovo and its management from the government have had a lot of impact on the working methods of a lot of businesses in Kosovo. Businesses were forced to shift to working from home, thus a special emphasis during the research was given to the effect on the morale and commitment of employees during the crisis. None of the companies rated the morale of their employees as low, while 16.13% of them rated their morale as moderately lower. 29.03% of the participating companies had no changes in employee morale, 29.03% rated their employees as having a moderate higher morale, while 25.81% rated their employees as having high morale working remotely (Figure 29).

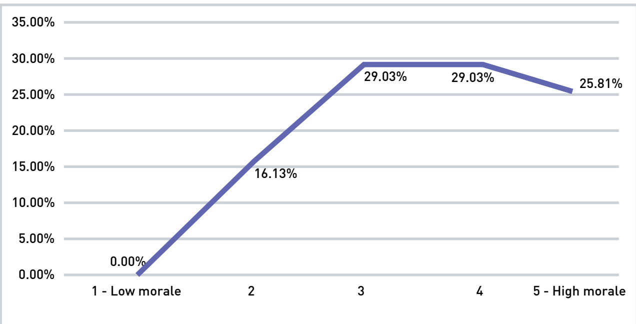

FIGURE 29: ON A SCALE OF 1-5, HOW WOULD YOU RATE EMPLOYEE MORALE AND COMMITMENT DURING THE COVID-19 CRISIS, ESPECIALLY WITH REMOTE WORK? (N=31)

Data was gathered on the plans of the companies to reduce staff or lay off employees as a result of the impact from Covid-19. 83.87% of the participating companies stated that they do not expect to reduce staff, while 16.13% stated that they expect to reduce staff due to the effect of the pandemic (see Figure 30).

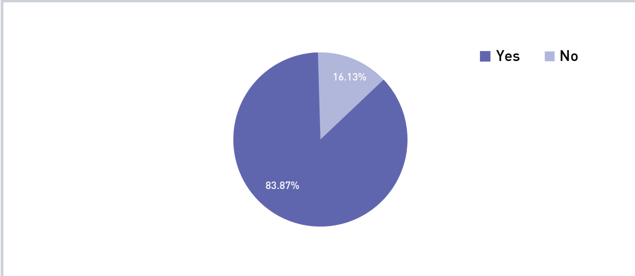

FIGURE 30: DO YOU EXPECT TO REDUCE STAFF OR LAY OFF EMPLOYEES AS A RESULT OF IMPACT FROM COVID-19? (N=31)

In contrary to the previous question, the next question was aimed at identifying actions that companies needed to do in the next 6 months. It is evidenced that 80.65% of the participating companies stated the need to identify and hire new employees and the same amount of companies stated the need to identify new markets in the next 6 months. More than half of the participating companies (67.74%) stated an increase in marketing or sales as an action that should be completed in next 6 months (Figure 31).

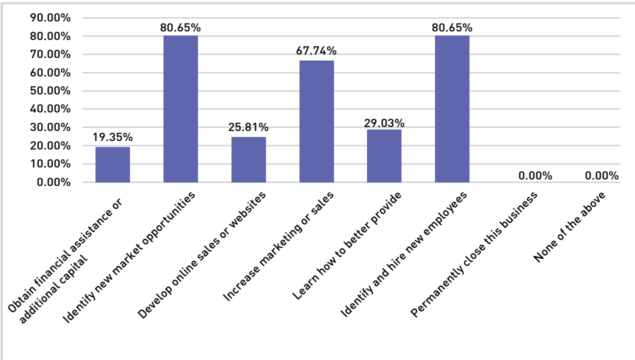

FIGURE 31: IN THE NEXT 6 MONTHS, DO YOU THINK THIS BUSINESS WILL NEED TO DO ANY OF THE FOLLOWING? (N=31)

Respondents were asked to show their opinion on how much time do they think will pass before the business returns to its normal level of operations relative to one year ago. The responses varied from 4-5 months (16.67%) to more than 6 months (46.67%). A considerate amount of respondents (30%) believe that there has not been any effect on the business normal level of operations, while 3.33% of respondents stated that business has already returned to its normal level of operations. A small amount of respondents (3.33%) do not believe that business will return to its normal level of operations (see Figure 32).

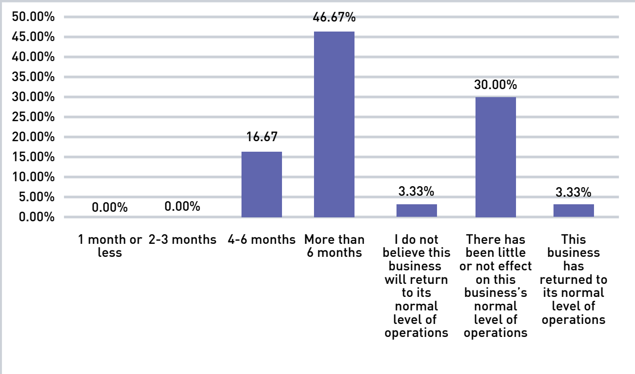

FIGURE 32: IN YOUR OPINION, HOW MUCH TIME DO YOU THINK WILL PASS BEFORE THIS BUSINESS RETURNS TO ITS NORMAL LEVEL OF OPERATIONS RELATIVE TO ONE YEAR AGO? (N=30)

To recover from the pandemic, respondents were asked to state the best form of assistance from the government. The majority of the respondents (60%) stated that financial assistance is the best course of action, followed by Employee resources (16.67%) and Technical assistance (6.67%). The participating companies stated other forms of assistance as well such as: Growth-oriented policies and their enactment, Facilitate auction of frequencies bands, Change of laws and Visa liberalization (Figure 33).

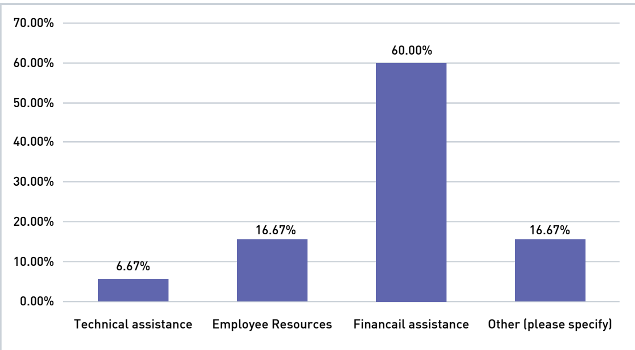

FIGURE 33: WHAT BUSINESS ASSISTANCE FROM GOVERNMENT WOULD BE MOST BENEFICIAL? (N=30)

The respondents were also asked regarding their partnership with any international R&D partner/institution, while 86.21% do not have any, 13.79% have joint venture and Franchising agreements (see Figure 34).

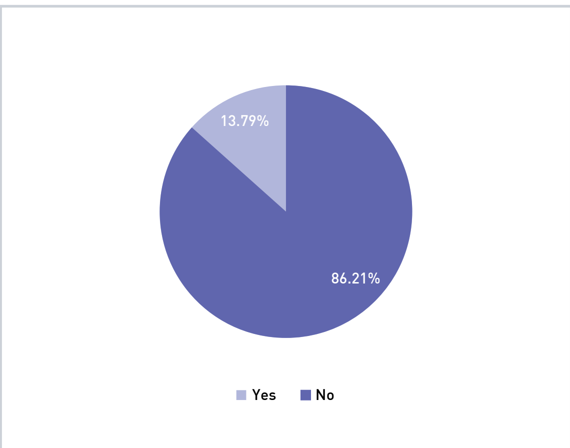

FIGURE 34: HAS YOUR COMPANY PARTNERED WITH ANY INTERNATIONAL R & D PARTNER/INSTITUTION? (N=29)

In terms of further advancing and developing innovation, R&D and Internationalization, companies stated that all factors are important: professional facility support to interlink with professional bodies and partners (57.14%), joint networking to international opportunities and partners like Enterprise Europe Network - EEN (53.57%) and taking part in EEN actions, programs, instruments and grants (53.57%) (see Figure 35).

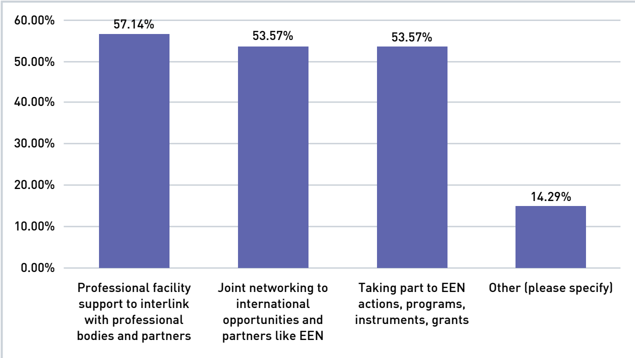

FIGURE 35: WHAT WOULD YOU NEED OR REQUEST, IN TERMS OF FURTHER DEVELOPING AND ADVANCING YOUR INNOVATION, R & D AND INTERNATIONALIZATION? (N=29)

The research gathered data from the respondents on whether their companies initiated or reached any intellectual property rights (IPR) accreditation of related services/status, while the data show that 89.66% haven't done so, only 10.34% of the participating companies have accredited their services/status on organizations such as EUIPO, have become registered trademark; and gained accreditation for delivering computer programming for kids and teens from the Ministry of Education in Kosovo (see Figure 36).

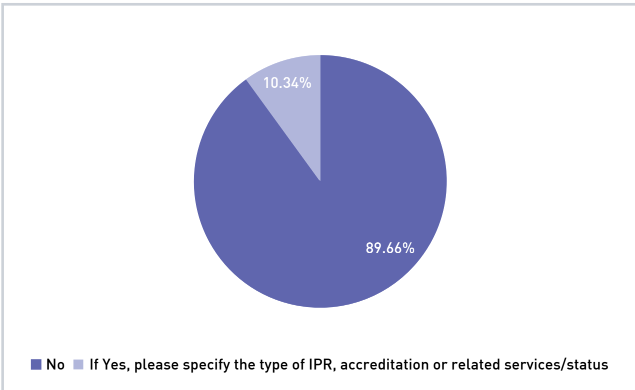

FIGURE 36: HAS YOUR COMPANY INITIATED OR REACHED ANY INTELLECTUAL PROPERTY RIGHTS (IPR), ACCREDITATION OF RELATED SERVICES/ STATUS? (N=29)

As the last question to this section, the participating companies were asked about the kinds of ICT Business Management and Leadership training their senior management would need and commit itself to attend in order to develop further. The majority of participants (77.78%) declared that Export development and Innovation training would suit their management, followed by Business Leadership training selected by 62.96% of respondents and Business Management training by 55.56% (see Figure 37).

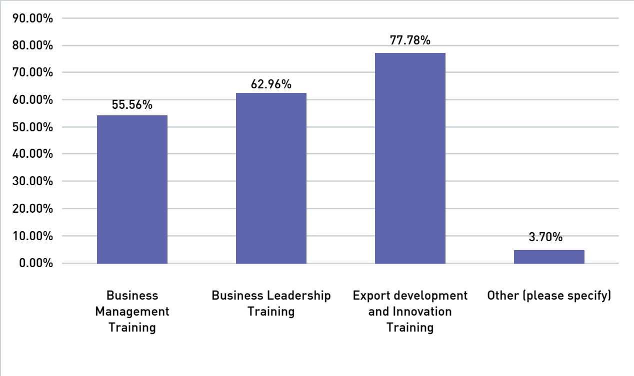

FIGURE 37: WHAT KIND OF ICT BUSINESS MANAGEMENT AND LEADERSHIP YOUR SENIOR MANAGEMENT WOULD NEED AND COMMIT ITSELF TO ATTEND AND DEVELOP FURTHER? (N=29)

INNOVATION AND BUSINESS DEVELOPMENT

Covid-19 apart from being a pandemic disease, have been contributing to a lot of changes in the way of doing business, business processes as well as changes in services and products delivered by the companies. According to the research 64.29% of the participating companies have introduced any new or significantly changed services in 2020, while 35.71% haven't done so (Figure 38).

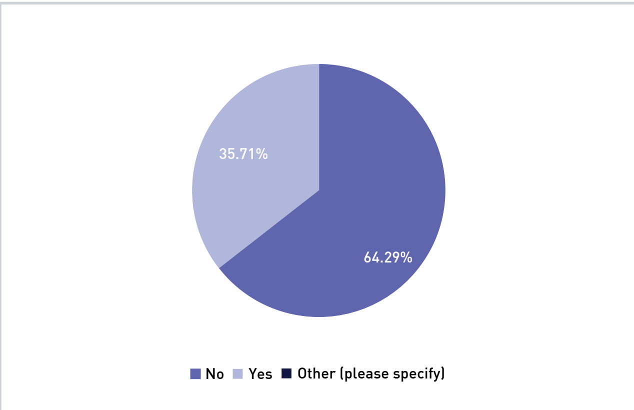

FIGURE 38: HAS YOUR COMPANY IN THE PERIOD 2019-2020 INTRODUCED ANY NEW OR SIGNIFICANTLY CHANGED SERVICES? (N=28)

Within the same trend companies also introduced any new or significantly changed processes or ways of organizing the work. Data reveals that 71.43% of the participating companies have changed their processes or the ways of organizing the work, while 28.57% have been using the old processes (see Figure 39).

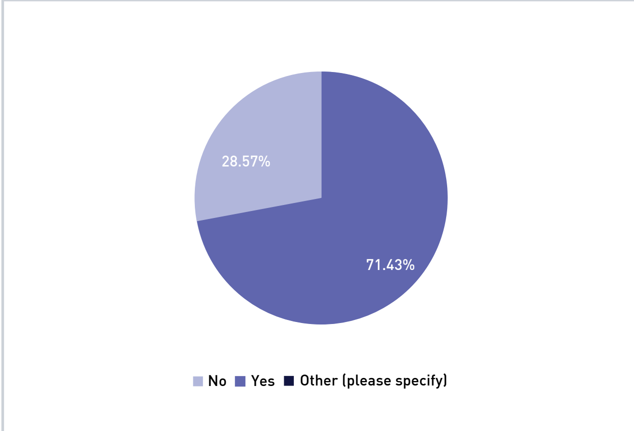

FIGURE 39: HAS YOUR COMPANY IN THE PERIOD 2019-2020 INTRODUCED ANY NEW OR SIGNIFICANTLY CHANGED PROCESSES OR WAYS OF ORGANIZING THE WORK? (N=28)

The changes are evidenced in the way of communicating with external parties as well. More than half of participating companies (57.14%) declared that they had to introduce new or significantly changed ways of communicating with external parties, while 42.86% of the companies haven't had a chance or did not have to (Figure 40).

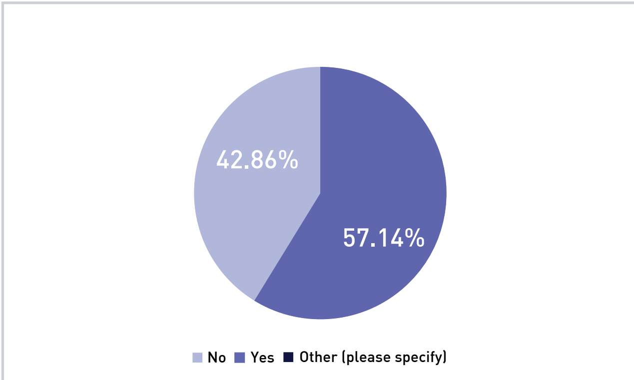

FIGURE 40: HAS YOUR COMPANY IN THE PERIOD 2019-2020 INTRODUCED ANY NEW OR SIGNIFICANTLY CHANGED WAYS OF COMMUNICATING WITH EXTERNAL PARTIES? (N=28)

As changes have been done it is evidenced that these changes and innovations have impacted the company processes more compared to the services and communication methods. Most of the participating companies 64.00% stated that they have new or significantly changed processes or ways of organizing work, 52.00% of participating companies stated that they have new or significantly changed services, 40.00% have new or significantly changed their products, while 23.00% have new or significantly changed ways of communicating with external partners (Figure 41).

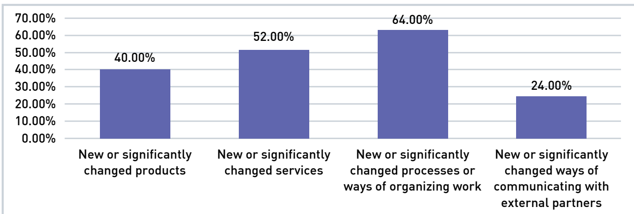

FIGURE 41: WHICH TYPE(S) OF INNOVATION IS YOUR COMPANY'S MOST RECENT INNOVATION? (N=25)

For their most recent innovation, 41.67% of the participating companies stated that the innovation was inspired by other people's solutions but was adapted to suit their company/workplace, while 33.33% of the companies have introduced the innovation (see Figure 42).

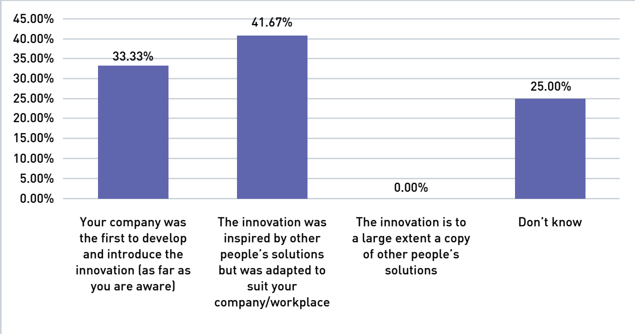

FIGURE 42: FOR THE MOST RECENT INNOVATION... (N=24)

In terms of innovation, the companies have had support from different sectors, while a considerate percentage (37.50%) haven't had any collaboration from outside their companies. Support and collaboration was taken from other private companies (e.g. consultant, suppliers, partners by 37.50% of the participating companies, 33.33% of them had collaboration with their foreign partners, 20.83% with central government institutions, 16.67% with higher education and research institutions, 12.50% with organizations or associations, 8.33% from funds and 4.17% with citizens/community (see Figure 43).

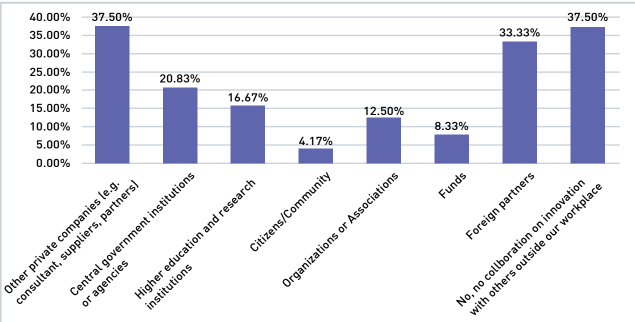

FIGURE 43: DURING THE DEVELOPMENT OF THE MOST RECENT INNOVATION, DID YOUR COMPANY COLLABORATE WITH ANY OF THE FOLLOWING: (N=24)

Data were gathered on the funding channels of innovations of the companies. The majority of the participating companies have funded their innovation themselves by having no any other support 79.17%, while a small percentage had support from national public fund or grant scheme 8.33% or had private investors 8.33% (see Figure 44).

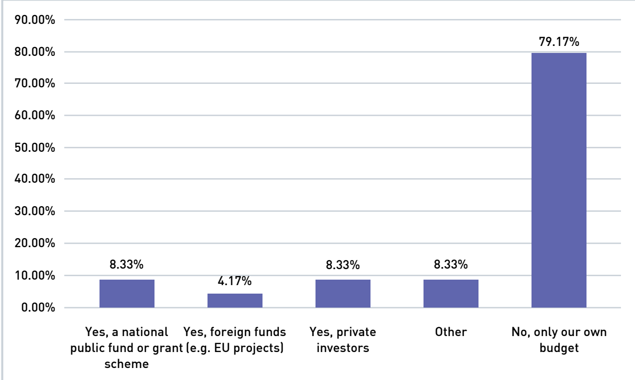

FIGURE 44: IS THE MOST RECENT INNOVATION COMPLETELY OR PARTIALLY FINANCED BY SOURCES OUTSIDE YOUR COMPANY'S OWN BUDGET? (N=24)

From all innovations, rather if funded by the companies or by other means, 37.04% of the respondents declared that it is no applicable for others to reuse the solution, while 33.33% of the respondents declared that they have actively done things to spread the innovation so others can reuse the solution. Almost one third of the respondents declared that they did not do anything to offer the solution to others for reuse (Figure 45).

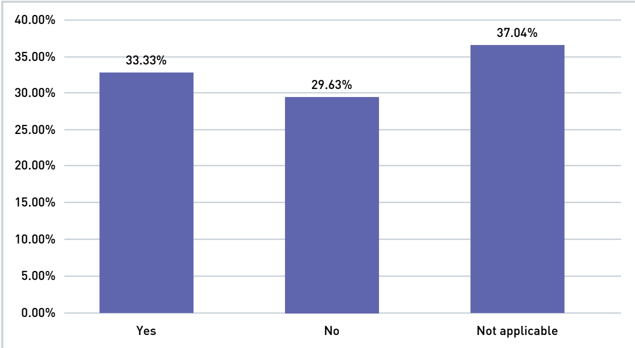

FIGURE 45: HAVE YOU ACTIVELY DONE ANYTHING TO SPREAD THE INNOVATION SO OTHERS ARE ABLE TO REUSE YOUR SOLUTION(S)? (N=27)

Increased efficiency (80.00%) and improved quality (64.00%) were the drives for the innovations according to the research. Other outcomes that participating companies have achieved with the most recent innovation include: Delivery upon a demand from the clients (40.00%) and Increased employee satisfaction (36.00%) (Figure 46).

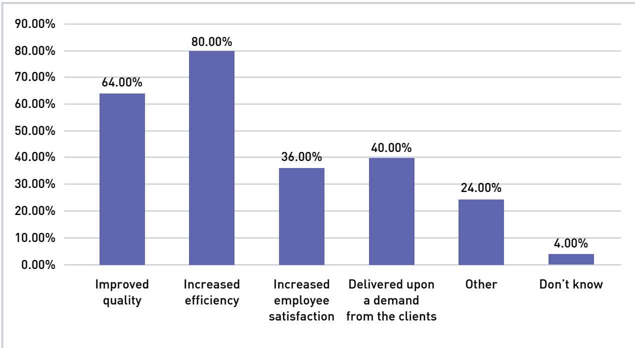

FIGURE 46: OVERALL, WHAT OUTCOMES HAVE YOU ACHIEVED WITH THE MOST RECENT INNOVATION? (N=25)

As valuable as it is, according to the research, only 29.63% have evaluated their most recent innovation themselves within the company, 7.41% have evaluated with external help, while 18.52% have not evaluated but are currently evaluating, 22.22% have not but plan to evaluate it and 22.22% have not evaluated their recent innovation at all (see Figure 47).

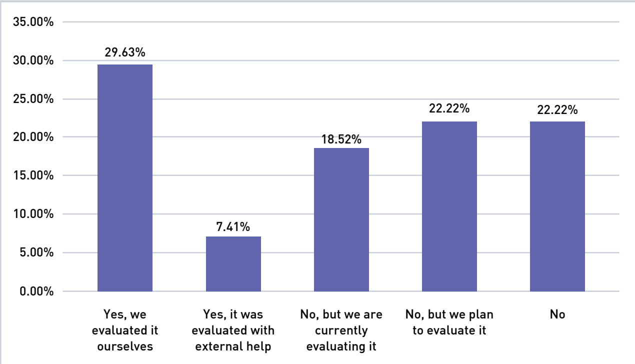

FIGURE 47: HAS YOUR COMPANY EVALUATED THE MOST RECENT INNOVATION? (N=27)

As the last question to the section, the research evaluated the factors which promoted or hindered the companies' recent innovation. According to the respondents the factors that promoted the innovation to a great extend were: the way they collaborate across the team (50.00%), new technology (40.90%), collaboration with external partners (36.36%), their focus on reliability of their team (24.78%) and the way companies deal with errors (31.82%). On the other hand, the greatest hinderers towards their innovation were stated as: limited financial resources (26.08%), collaboration with external partners (18.18%) and new technology (13.64%) (see Figure 48).

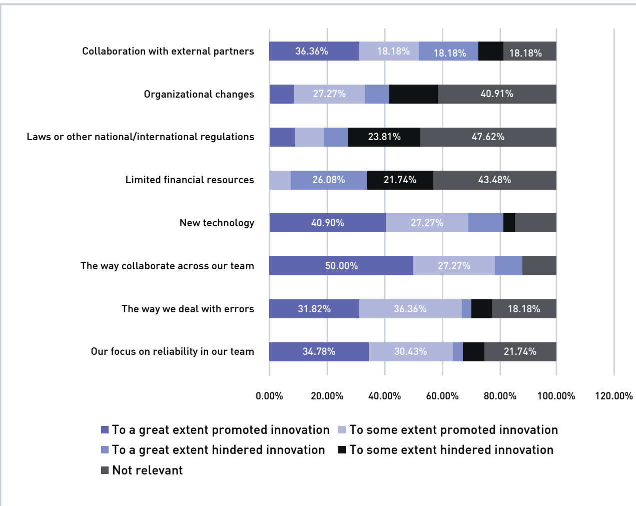

FIGURE 48: THINK SPECIFICALLY ABOUT THE MOST RECENT INNOVATION AT YOUR COMPANY, WHICH OF THE FOLLOWING FACTORS PROMOTED OR HINDERED THE INNOVATION? (N=24)

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