STIKK

SHOQATA PËR TEKNOLOGJI TË INFORMACIONIT
DHE TË KOMUNIKIMIT TË KOSOVËS

KOSOVO ASSOCIATION OF INFORMATION
AND COMMUNICATION TECHNOLOGY

KOSOVO IT BAROMETER 2018

NOVEMBER 2018

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KOSOVO IT BAROMETER 2018

FINAL REPORT

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ubo CONSULTING

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EXECUTIVE SUMMARY

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

To gather information for this survey, a sample of 36 IT companies operating in Kosovo was used. The survey took place between September and November of 2018.

KEY FINDINGS

The ICT sector is currently considered as one of the few sectors with a positive trade balance, in Kosovo. This fact was also proved in the findings of this report, whereas three out of four interviewed Information Technology (IT) companies in Kosovo (74%) export their services and products. This is a considerable rise from last year when a smaller share of 58 percent of the firms said they conduct export activities. Companies in the IT sector believe that their success in export markets can be attributed largely to their advantages in terms of quality (90%), technical know-how (83%) and prices (76%).

The countries/regions of the world with the highest potential to export to are Germany (44%), North America (42%) and Switzerland (24%). Information Technology firms in Kosovo are mainly engaged in export markets by providing services and products to the international IT Services and Outsourcing sector (56%) and the Technology sector (41%).

This year's IT Barometer results reveal positive trends in terms of revenues and salaries in the IT industry. Firms are expecting to generate average revenues in the amount of €912,045 in 2018, more than double the average of €435,990 reported for 2017. Monthly salaries for IT professionals have also seen a steady growth over the last two years. On average, salaries for IT professions have gone up by four percent. Business Development Managers (9%), Developers (8%) and Administrators (8%) have seen the largest rise in this regard.

Despite the increase in the average number of employees from 16 in 2017 to 21 in 2018, the IT industry faces difficulties in retaining their employees as more than half of the companies have had a turnover rate of 10 to 25 percent. In 2017's IT Barometer, the vast majority of IT firms (77%) reported a turnover rate of less than 10 percent. Nevertheless, most firms (56%) claim that they are able to replace existing employees within three months.

The positive trend in the rise of average number of employees and their salaries is expected to continue in 2019. Twenty five percent of IT companies interviewed foresee an increase of 50 percent in the number of their employees and another 42 percent of companies believe they will increase their number of employees by 25 percent. In addition, more than half of IT firms (55%) believe that there will be a 10 percent increase in the salaries of IT Specialists and another 35 percent believe that IT Specialists will benefit in salary increase of 25 percent or more. Despite expectations of rise in the number of employees in 2019, IT companies complain about the deficit of skilled and qualified workforce (78%) and claim that their businesses are affected by brain drain (92%).

INTRODUCTION

Information and Communication Technology (ICT) has started to play 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 IT sector in Kosovo is relatively new, with most companies being created after 2000s, it is having a rapid growth and 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 in Kosovo. STIKK's goals are achieved by implementing activities based in its main pillars as Export Promotion, Improving Company Excellence & Quality, Investment Promotion, Domestic Market Development and IT Promotion Policy.

On June 2018, STIKK issued a call for proposals for the implementation of "IT Barometer 2018". The aim of the IT Barometer is to:

- **Get an overview on the development of the IT sector in Kosovo;**
- **Support the export capacity of ICT companies in Kosovo;**
- **Analyse recent trends in IT industry;**

For the purpose of gathering information from which the performance of the activities conducted over the past few years is measured, STIKK commissioned UBO Consulting to conduct a study on Kosovo's IT sector. 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.

This South East Europe IT Industry Barometer (SEE ITIB) for Kosovo has been carried out since 2014, supported by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). SEE ITIB Kosovo 2018 focuses on exploring the following issues related to the IT sector in Kosovo:

- **General state overview on the IT development in Kosovo;**
- **Comparative analysis;**
- **Recent export trends between targeted countries (export potential, export activities, international cooperation, export barriers);**
- **Analysis of Human Resources;**
- **Qualitative analysis on recent trends in IT industry.**


RESEARCH
METHODOLOGY

"IT Barometer 2018" was conducted using the computer assisted personal interviewing (CAPI) technique. Given the geographical distribution of ICT companies in Kosovo, the majority of interviews for "IT Barometer" 2018 took place in the Prishtina region.

To construct the sample, UBO Consulting contacted the list of ICT companies in Kosovo obtained from STIKK team. The overall sample consisted of 36 interviews with IT companies. In addition, this year's IT Barometer methodology included six in-depth interviews with relevant stakeholders in the field of IT in Kosovo.

Taken into consideration that the questionnaire for "IT Barometer 2018" was already drafted and standardized, it was only updated by the STIKK project team and UBO Consulting research team, where needed. The approved questionnaire was then loaded to ASKIA survey management system along with the sampling plan with quotas for each criterion.

The majority of the interviews were conducted in-person using the CAPI (computer-assisted personal interviewing) technique, whereas the others were carried out online. The fieldwork for this survey was completed between September and November of 2018.

The majority of the interviewed IT companies have their main location in Kosovo (32).

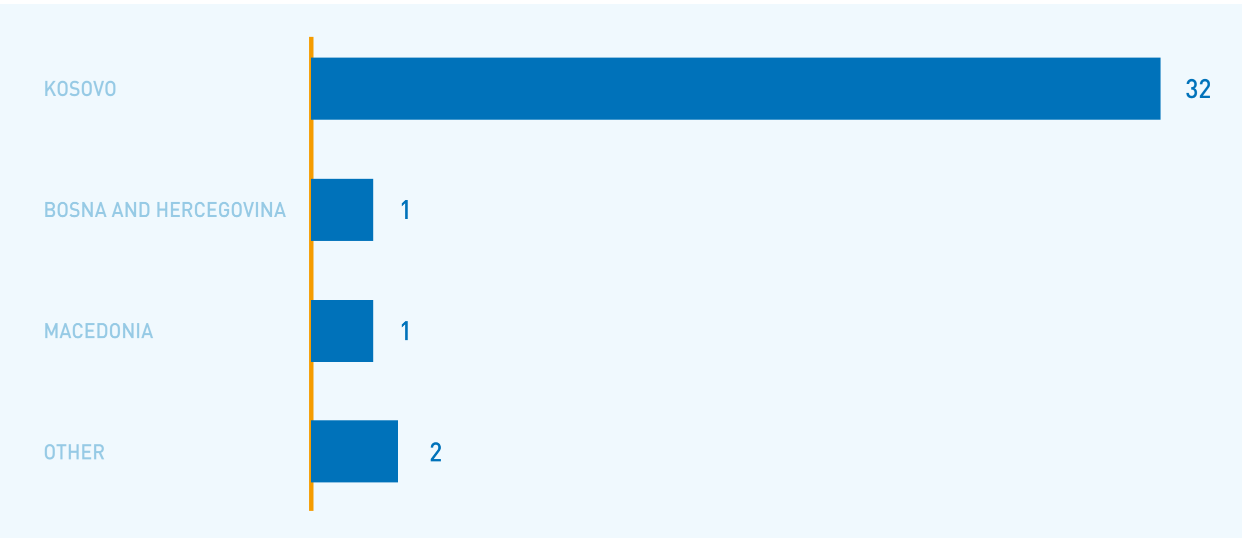


FIGURE 1: WHERE IS YOUR COMPANY LOCATED? (N=36)

Furthermore, 25 of the interviewed IT Companies in Kosovo have more than 50% national ownership, five companies are a branch of a foreign company and one company has more than 50% foreign ownership.

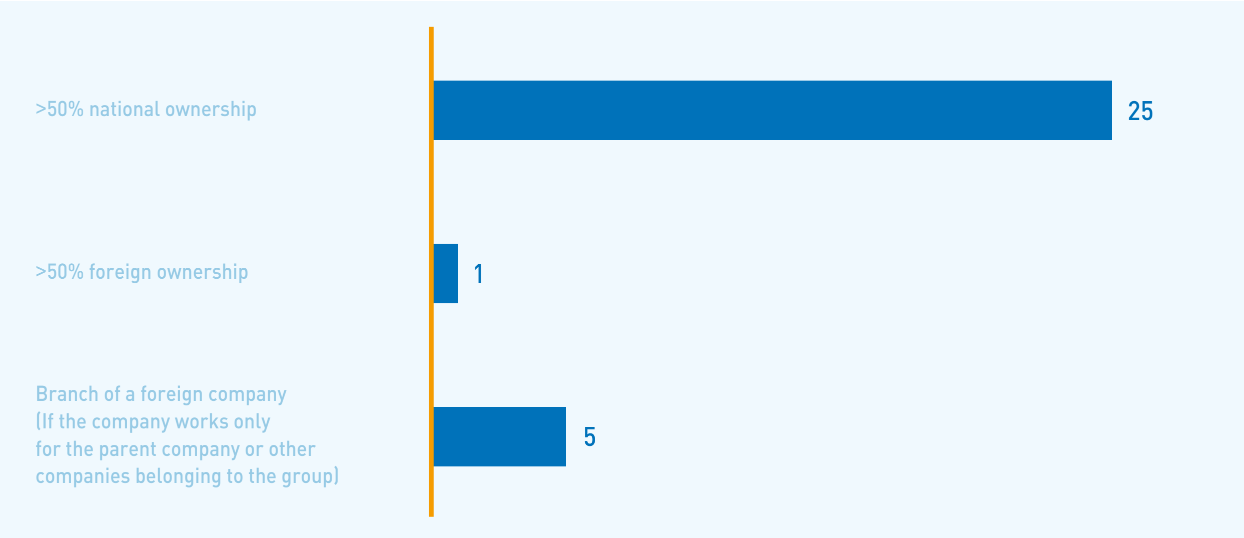


FIGURE 2: WHICH TYPE OF OWNERSHIP STRUCTURE APPLIES TO YOUR COMPANY? (N=31)

Eighty-six percent of the interviewed IT companies are members of STIKK. As per other countries, six percent of IT companies in Kosovo are members of MASIT from Macedonia and three percent are members of BIT Alliance from Bosnia-Herzegovina. Six percent belong in other ICT associations, whereas around 11 percent are not members of any ICT association.

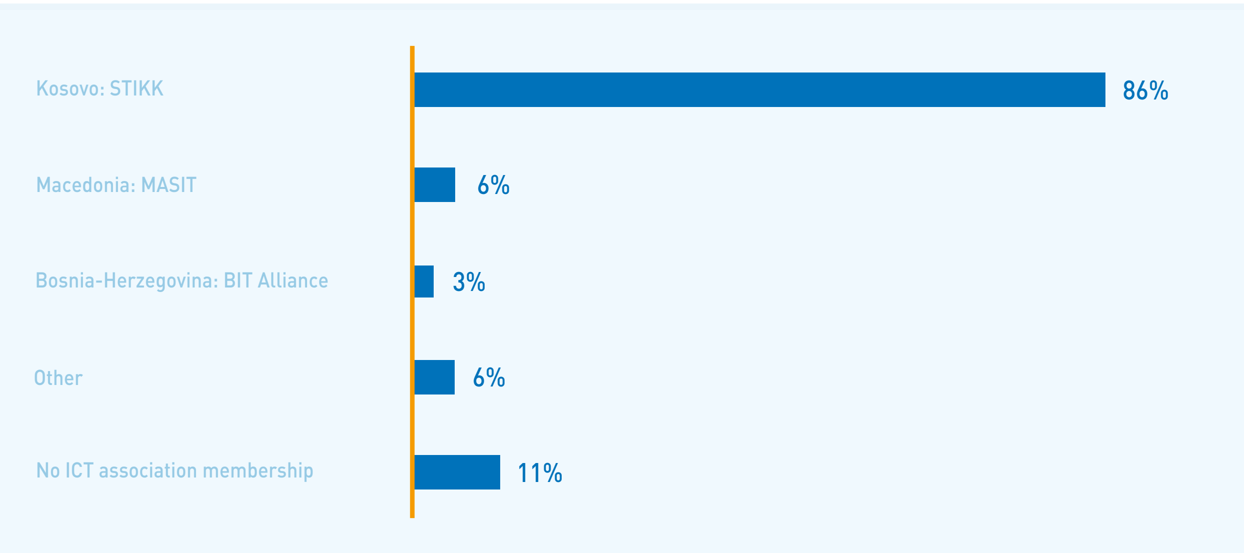
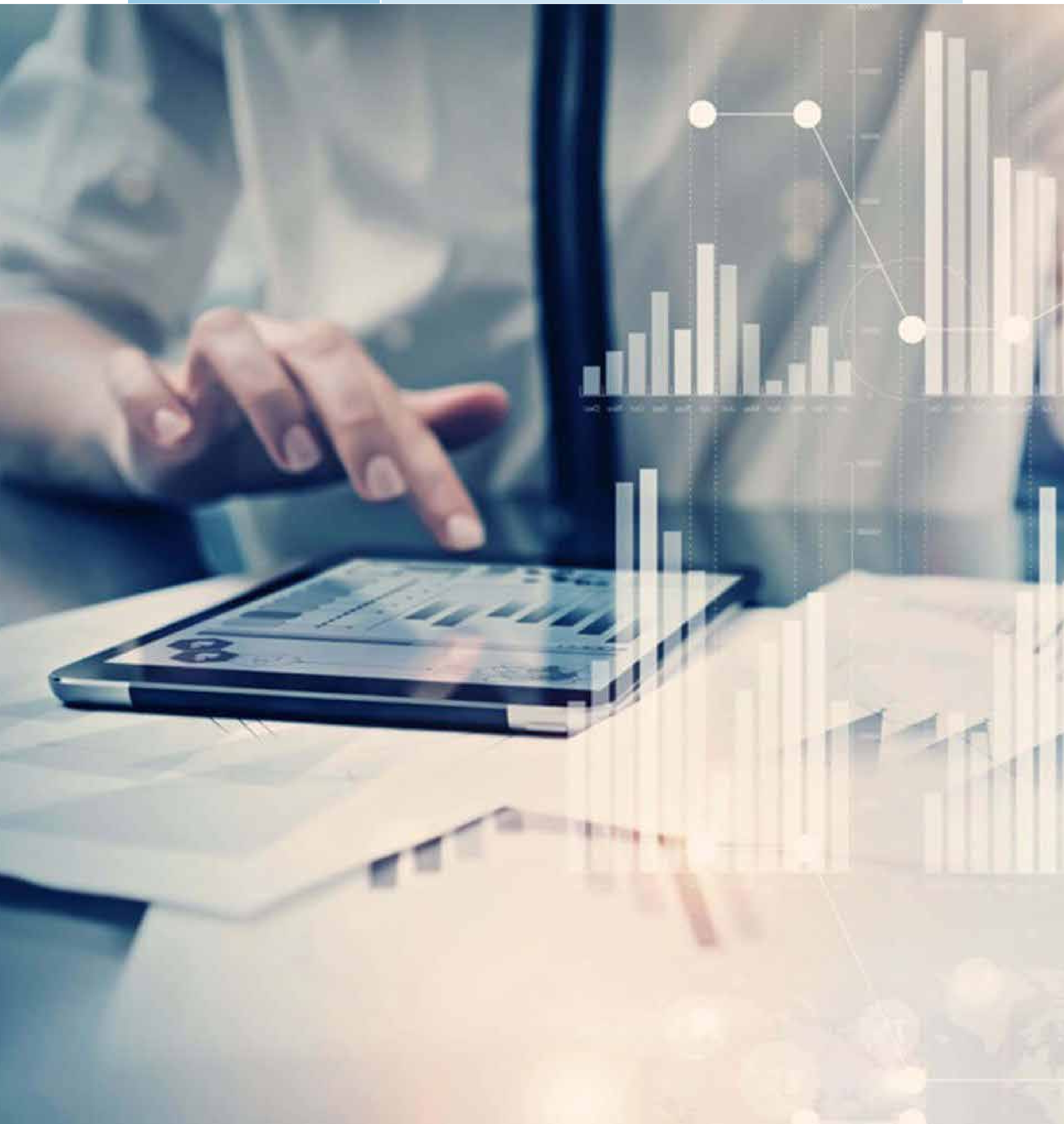


FIGURE 3: YOUR COMPANY IS A MEMBER OF: (N=36)

In addition to the quantitative survey, UBO Consulting carried out six in-depth interviews with relevant stakeholders in the IT Sector. The table below shows the list of interviewed stakeholders:

FIRST AND LAST NAME	INSTITUTION/ORGANIZATION/COMPANY
Bardh Kadiu	Coda Tech
Driton Hapçiu	CACTTUS
Ilir Rexha	GIZ
Vigan Budima	Asseco
Agim Kukaj	Ministry of Economic Development
Bardh Ahmeti	Ministry of Innovation and Entrepreneurship



ITIB KOSOVO 2018 FINDINGS

TRENDS IN THE INDUSTRY

The majority of the interviewed IT companies in Kosovo provide Software/IT services (83%) and Software products (75%). Three out of every 10 firms sell hardware products, and 11 percent provide services for hardware products.

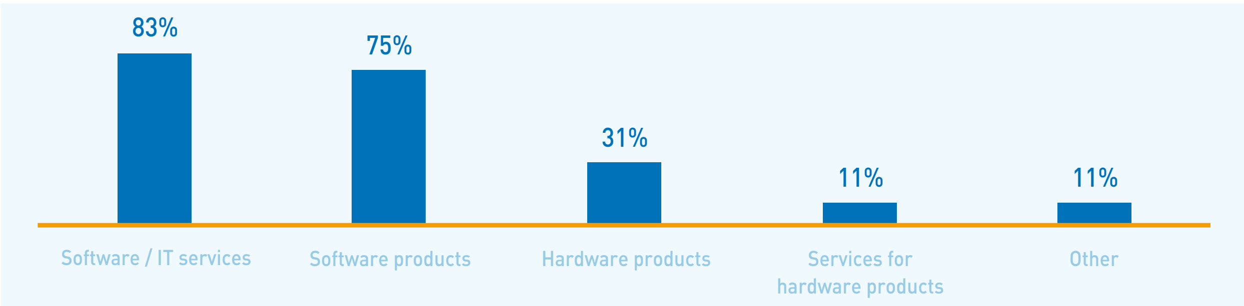


FIGURE 4: WHICH PRODUCTS AND/OR SERVICES DOES YOUR COMPANY PROVIDE? (N=36)

Survey findings show that a typical IT company in Kosovo uses four different operating systems (OS) and platforms on average, with over 41 percent of them using five or more operating systems and platforms. In this sense, Windows continues to be the dominant OS that the companies use (92%). Three out of four IT companies in Kosovo also use Android (75%) and two out of three use iOS (67%). The least popular OSs and Platforms are SUN OS – Solaris, used only by six percent of companies, and OS/400, used by three percent of the companies.

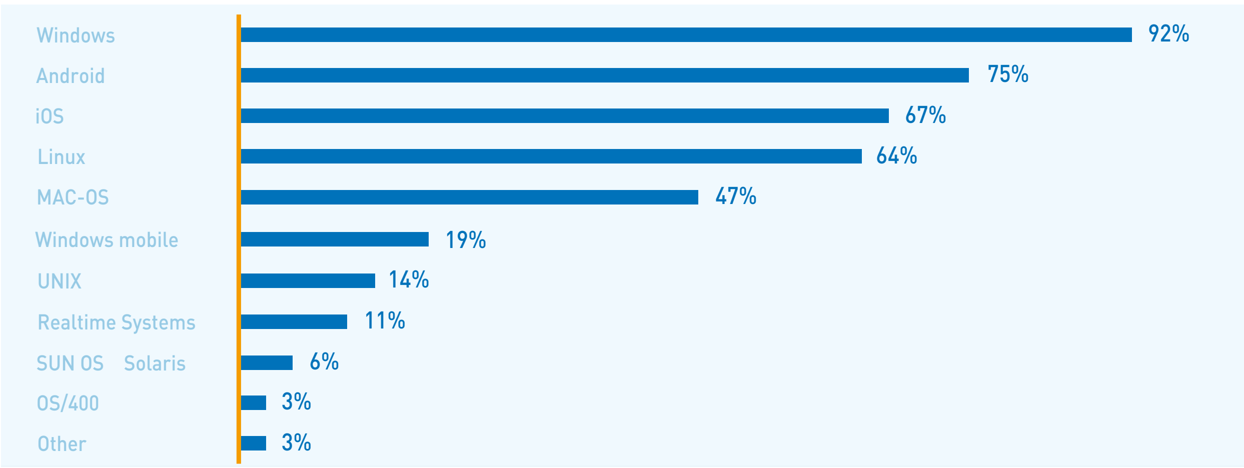


FIGURE 5: WHAT KIND OF OPERATING SYSTEMS AND PLATFORMS DO YOU USE? (N=36)

There is an increase in the share of companies that use modern technologies to deliver services and develop products. While in last year's IT Barometer, 44 percent of the companies claimed to not use any of the technologies shown in the graph below, this percentage dropped to 31 percent this year. The biggest change in this regard concerns Artificial Intelligence. The technology was not being used by any of the companies interviewed last year, whereas this year 37 percent of them said to be using it. Blockchain technology saw an increase in usage, going from 8% in 2017 to 14% in 2018. Thirty-one percent of the interviewed companies use other technologies such as Big Data.

Over 2/3 of IT companies utilize new technologies in their work (69%), up by 15 percentage points from 2017.

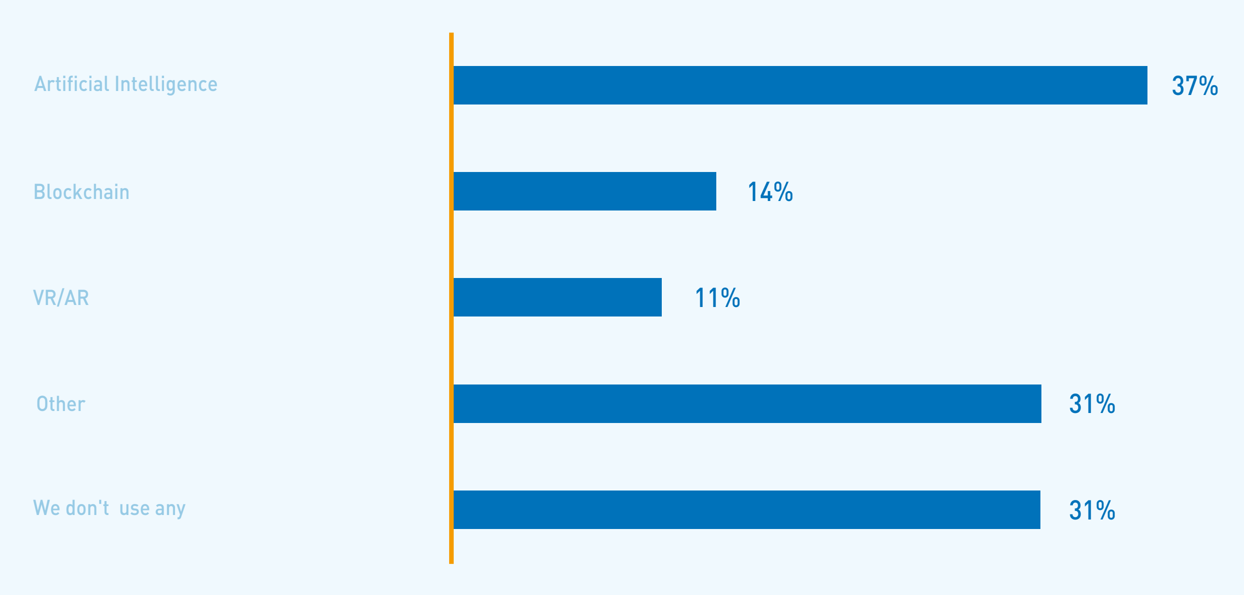


FIGURE 6: WHICH TECHNOLOGIES DO YOU TO DELIVER SERVICES/DEVELOP PRODUCTS? (N=35)

While there is interest and progress in the integration of new technologies in their work, the general view of the interviewed stakeholders is that Kosovo companies are still early in the adoption of these technologies. According to them, there are some companies that deal with new technologies in Kosovo, mainly experimenting with technologies such as Augmented Reality (AR), Virtual Reality (VR), Artificial Intelligence (AI) and Blockchain.

The stakeholders claimed that with the increase of demand in the export market, IT companies tailor their services to fit that demand. The current demand from the export market is not very focused around new innovative technology, considering that international clients understand that the IT sector in Kosovo has still not matured and that most of the companies in Kosovo are new and unexposed to the newest technology.

As seen from the table below, the most popular Programming Languages and Development Tools continue to be JavaScript (69%), Java (67%), HTML, XML (64%), and PHP (58%). The least popular ones are Eiffel (3%), JCL (3%), and VRML (3%). Eight percent said they do not use any Programming Languages and Developing Tools, down from 15 percent in 2017.

PROGRAMING LANGUAGES	PERCENTAGE OF USERS
JavaScript	69%
Java	67%
HTML, XML	64%
PHP	58%
.NET	56%
Python	39%
C++	39%
C	36%
Script Languages - others	33%
PL/SQL	33%
Basic – Visual Basic, VBA etc.	22%
Objective C	22%
SAS	11%
Delphi	6%
ESQL/C	6%
Macro Languages - others	6%
Pascal	6%
Perl	6%
Shell – C-Shell, K-Shell, Bourne-Shell	6%
Eiffel	3%
JCL	3%
VRML	3%
Yacc/lex	3%
Other	19%
We don't use any	8%

TABLE 1: WHICH PROGRAMMING LANGUAGES AND DEVELOPMENT TOOLS DO YOU USE? (N=36)

SQL-related database technologies continue to dominate the Kosovo IT market. Around 69 percent of IT Companies interviewed for this study use MS SQL Server as their Database Technology, followed by 61 percent who use MSQL/MySQL, and 56 percent who use SQL. Every third company is using Access and/or Oracle databases. A new entry among the more popular databases is MongoDB, a NoSQL database program mentioned by 27 percent of the companies as a database technology that they utilize in their work. The least used Database Technologies are IDMS (3%), Informix (3%), SAS (3%), and Sybase (3%).

DATABASE TECHNOLOGY	PERCENTAGE OF USERS
MS SQL Server	69%
mSQL/MySQL	61%
SQL	56%
Access	33%
Oracle	33%
MongoDB	28%
noSQL	19%
ODBC	17%
Apache	17%
CouchDB	11%
Redis	11%
Cassandra	11%
Progress	8%
DB2	6%
JDBC	6%
IDMS	3%
Informix	3%
SAS	3%
Sybase	3%
Other	3%
We don't use any	8%

TABLE 2: WHICH DATABASE TECHNOLOGIES DO YOU USE? (N=36)

More than half (53%) of the companies have not been asked to provide any quality standard, up to date. From those who have been asked to provide such standards, 36 percent have been asked to provide ISO 9001, and 28 percent have been asked to provide ISO 27001 quality standard.

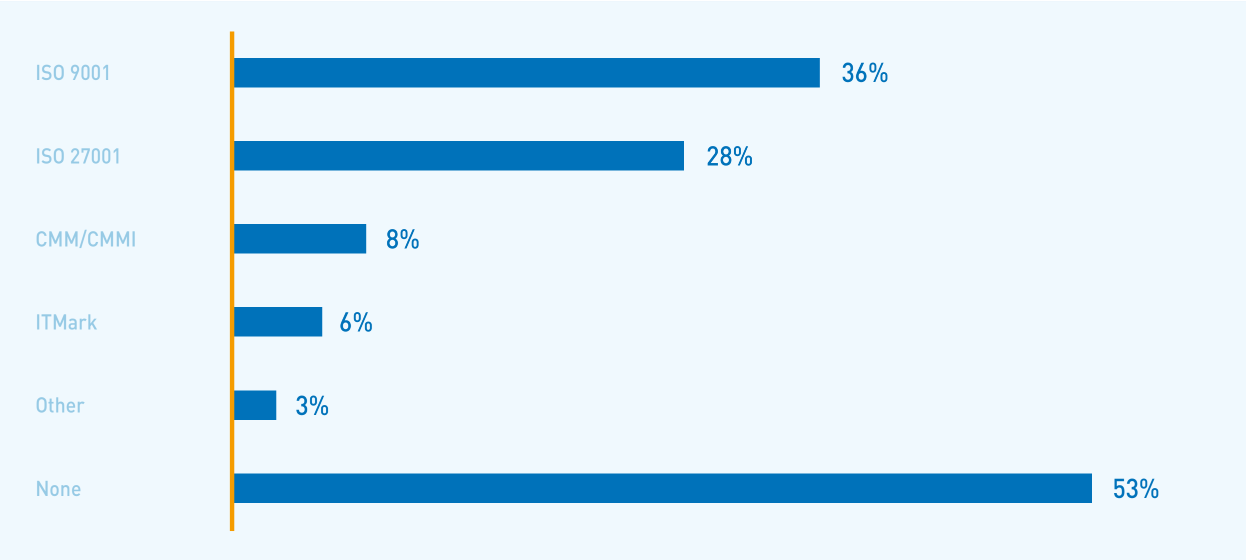


FIGURE 7: WHICH OF THE FOLLOWING QUALITY STANDARDS HAS YOUR COMPANY BEEN ASKED TO PROVIDE? (N=36)

Similar to last year, half (50%) of the interviewed companies have not optioned any quality standard certification. From companies that have obtained a quality standard, the primary reason for 26 percent is to improve processes in the company, for 12 percent it is to improve the image and reputation of the company and for 12 percent it is because clients require it.

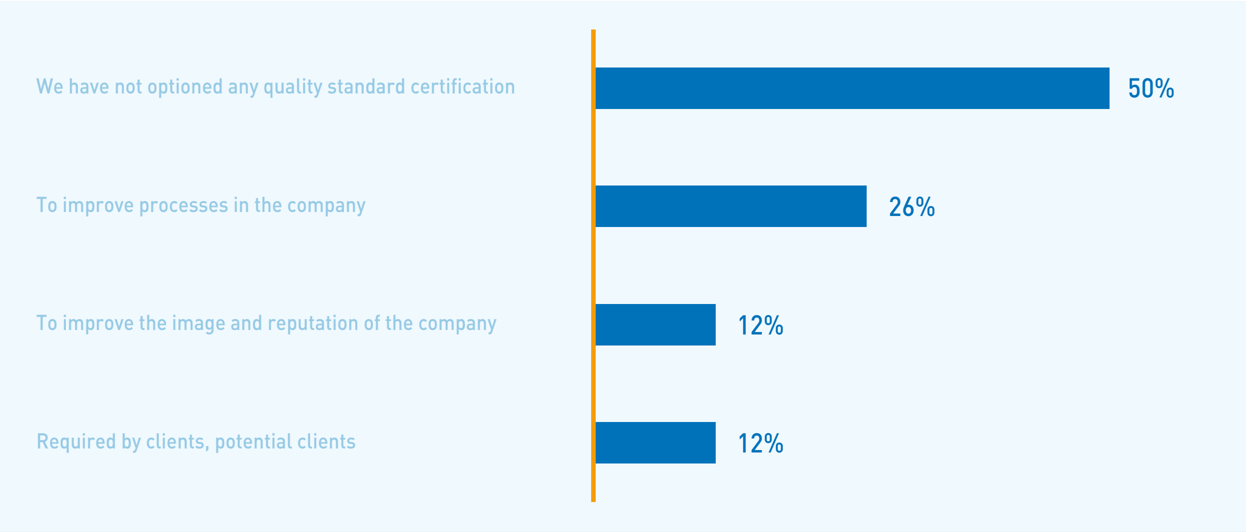


FIGURE 8: WHICH IS THE PRIMARY REASON OF OBTAINING A QUALITY STANDARD FOR YOUR COMPANY? (N=36)

When asked on which technical certification applies to their employees, the most popular one (58%) was Agile/Scrum, followed by PMP (36%), and Microsoft certificates (36%). This is a considerable change from last year's results, where all three certifications stood between 38 and 42 percent. Another change is that only 17 percent of companies have employees without technical certifications, compared to 35 percent last year.

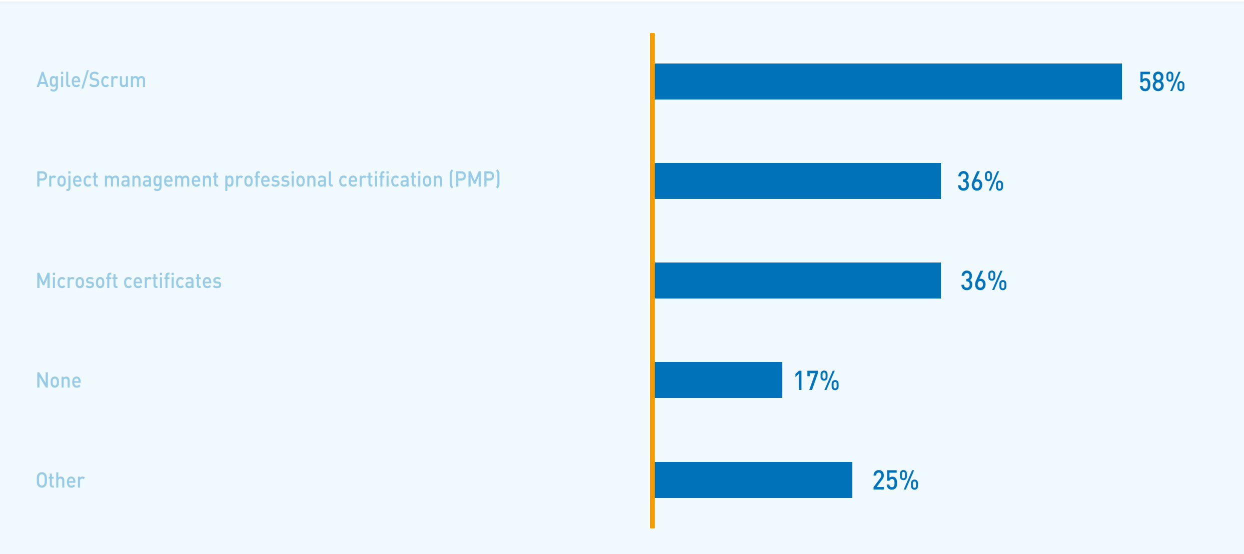


FIGURE 9: WHICH OF THE FOLLOWING TECHNICAL CERTIFICATIONS APPLY TO YOUR EMPLOYEES? (N=36)

While 42 percent of IT companies said that to them both the export and the domestic market are of equal importance, this year they seem to focus more in one of the two. Forty-four percent focus in export markets, 42 percent focus in Kosovo, and only 14 percent say that both are of equal importance.

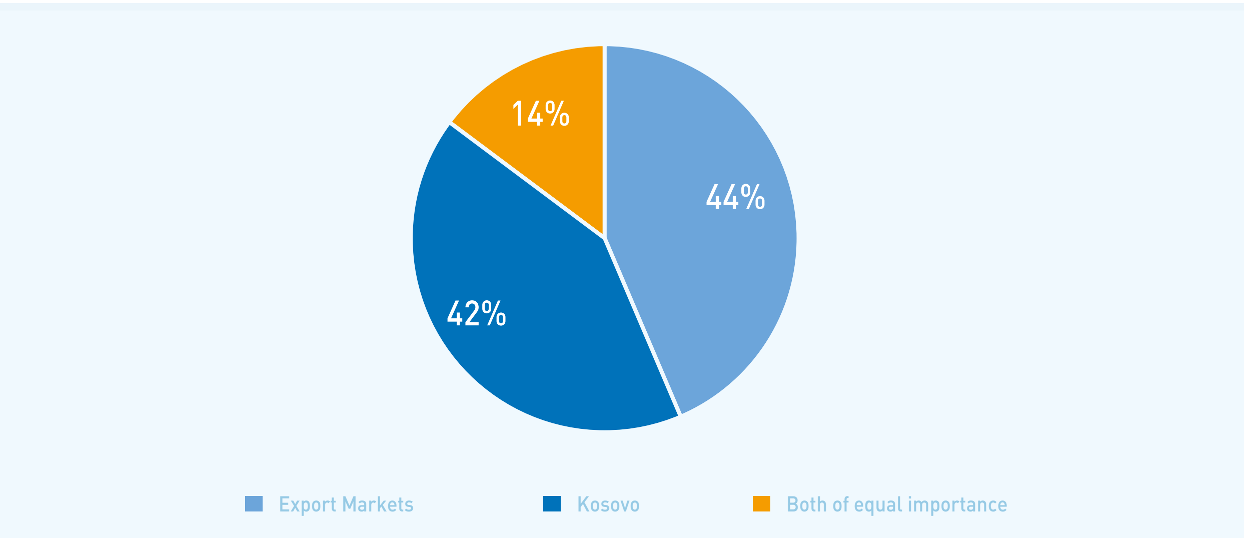


FIGURE 10: WHICH IS YOUR COMPANY'S PRIMARY MARKET? (N=36)

According to Kosovo IT companies, their two core competitive advantages in the domestic market are quality (92%) and technical know-how (81%). More than half of the companies (56%) also see price as one of their competitive advantages.

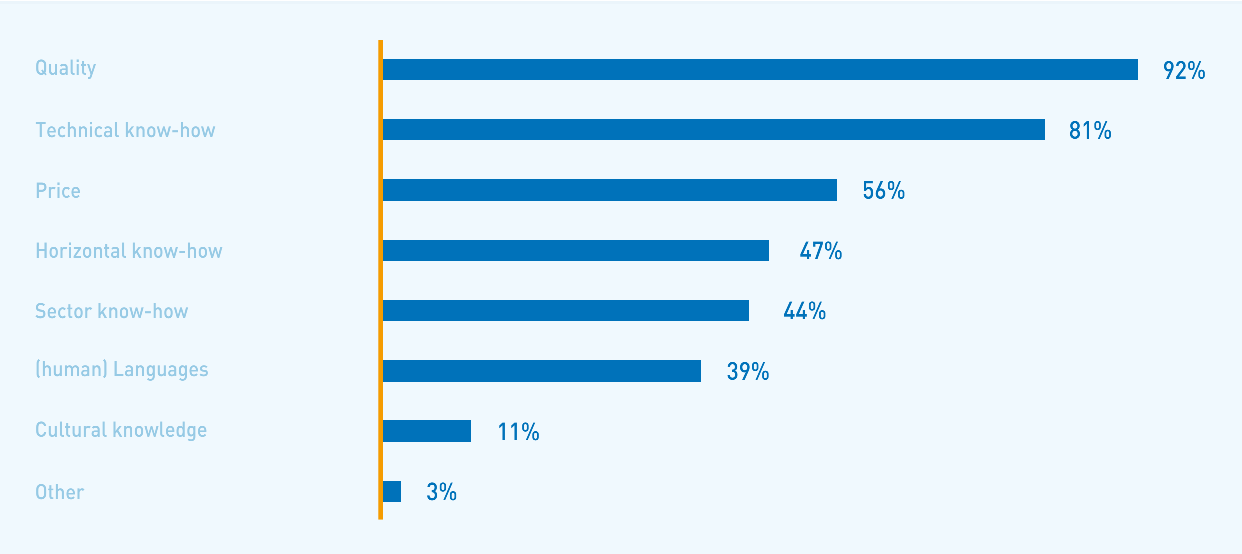


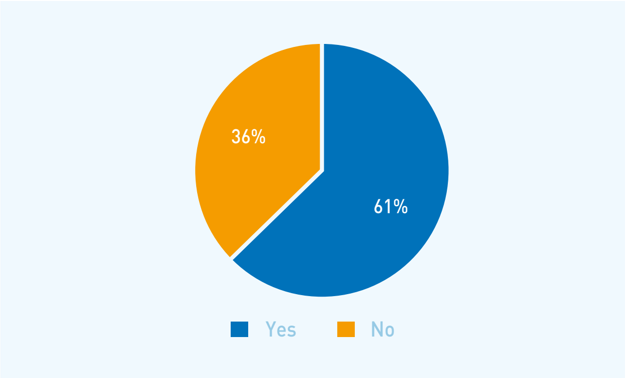
FIGURE 11: WHICH ARE THE CORE COMPETITIVE ADVANTAGES OF YOUR COMPANY IN KOSOVO? (N=36)

In comparison to countries of the region, interviewed stakeholders believe that the main advantage Kosovo has is its young workforce - skilled in foreign languages. Young people that obtain their education in EU countries and the United States of America and the large Diaspora is considered an asset for Kosovo as they can use their professional network to pave the way for Kosovo companies to work in international markets. Another advantage companies in Kosovo have is that they are more willing to integrate new technologies, which is very important when competing in export markets. The two interviewed governmental representatives believe that state policies in place are a significant advantage for IT firms in Kosovo in comparison to countries in the region, especially in terms of tax incentives provided to them. Apart from a reduced Value Added Tax (VAT) rate of eight percent on ICT products, this year, Kosovo' government abolished the tax on imports of most information technology equipment.

In terms of disadvantages Kosovo has when compared to the countries of the region, stakeholders believe that the lack of qualified workforce is a considerable shortcoming. According to the interviewed stakeholders, educational institutions need to invest more in developing young workforce that is qualified to meet the demands of the labour market. One representative of the private IT sector in Kosovo also claimed that the cost of the workforce is higher than in most of the countries in the region, which is a disadvantage for Kosovo firms when competing for international projects. Again, the issue of visa liberalization is considered by all stakeholders as a huge disadvantage for IT firms in Kosovo in relation to the other countries of the region.

Sixty-one percent of companies provide services to international organizations/ clients in Kosovo, a drop of eight percentage points from last year's 69 percent.

FIGURE 12: DOES YOUR COMPANY PROVIDE SERVICES TO INTERNATIONAL ORGANIZATIONS/CLIENTS IN KOSOVO? (N=35)



61% of companies provide services to international organizations/clients in Kosovo, a drop of eight percentage points from last year's 69 percent.

The results from the survey reveal that a typical IT company in Kosovo operates in three sectors (47%). Around 14 percent operate in more than three sectors, whereas 11 operate in two sectors and 28 percent operate in a single sector.

As seen from table below, almost half (47%) of the companies operate in IT Services and Outsourcing sector, followed by Technology (33%) and Public Sector (E-Government) (25%). The least popular sectors for IT companies in Kosovo are Utilities (3%) Services (HR, Accounting, Legal) (6%) and Real Estate (8%).

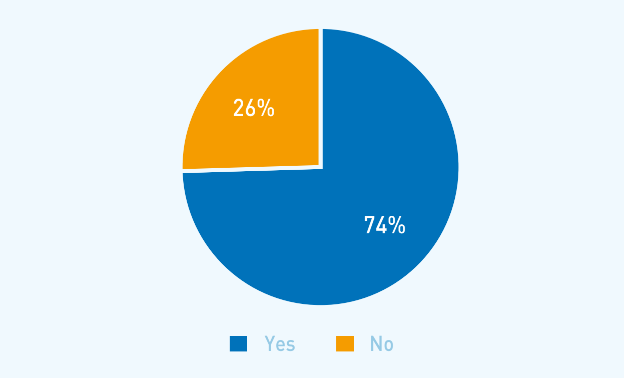
OPERATING SECTORS IN KOSOVO	PERCENTAGE OF OPERATORS
IT Services and Outsourcing	47%
Technology	33%
Public sector (E- Government)	25%
Financial Services	22%
Marketing and Communications Media and Publishing	19%
Telecommunications (Wireless and Mobile)	19%
Education (E-Learning)	17%
Non-profit Organizations	17%
Healthcare Services	11%
Manufacturing, Distribution, Retail	11%
Telematics	11%
Trade, Transportation and Logistics	11%
Automotive	8%
Defence	8%
Gaming and Entertainment	8%
Industry Application and Automation	8%
Real Estate	8%
Services (HR, Accounting, Legal)	6%
Utilities	3%
Don't Know	6%
Other	11%

TABLE 3 WHICH ARE THE SECTORS YOUR COMPANY CURRENTLY OPERATES IN KOSOVO? (N=36)

EXPORT OF IT SERVICES AND PRODUCTS

The share of IT companies that export their services and/or products has increased significantly, from 58 percent last year to 74 percent this year.

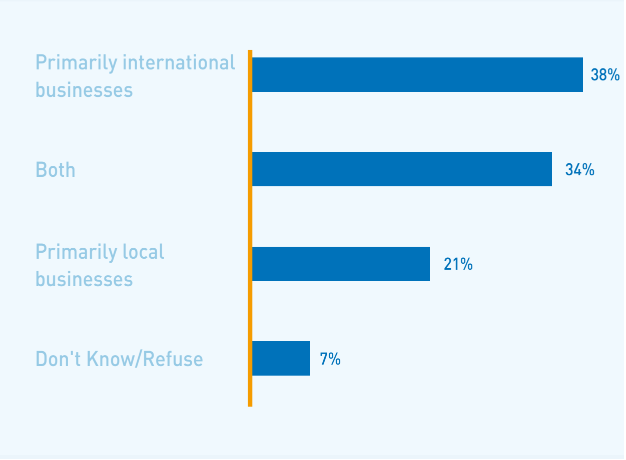
FIGURE 13: DOES YOUR COMPANY CONDUCT EXPORT ACTIVITIES? (N=35)



74 percent of Kosovo IT companies export their services and products, up by 16 percentage points from 2017.

As per the type of businesses or organizations their company works within export markets, 38 percent said they work primarily with international businesses, 34 percent said they work with both local and international businesses, and 21 percent said they work primarily with local businesses.

FIGURE 14: WHAT TYPE OF BUSINESSES OR ORGANIZATIONS DOES YOUR COMPANY WORK WITHIN EXPORT MARKETS? (N=29)



The countries with the highest potential markets to export in are Germany (44%), North America (42%) and Switzerland (24%). On the other hand, regions rated with no potential to export to are East Asia (52%), Middle East and Africa (42%).

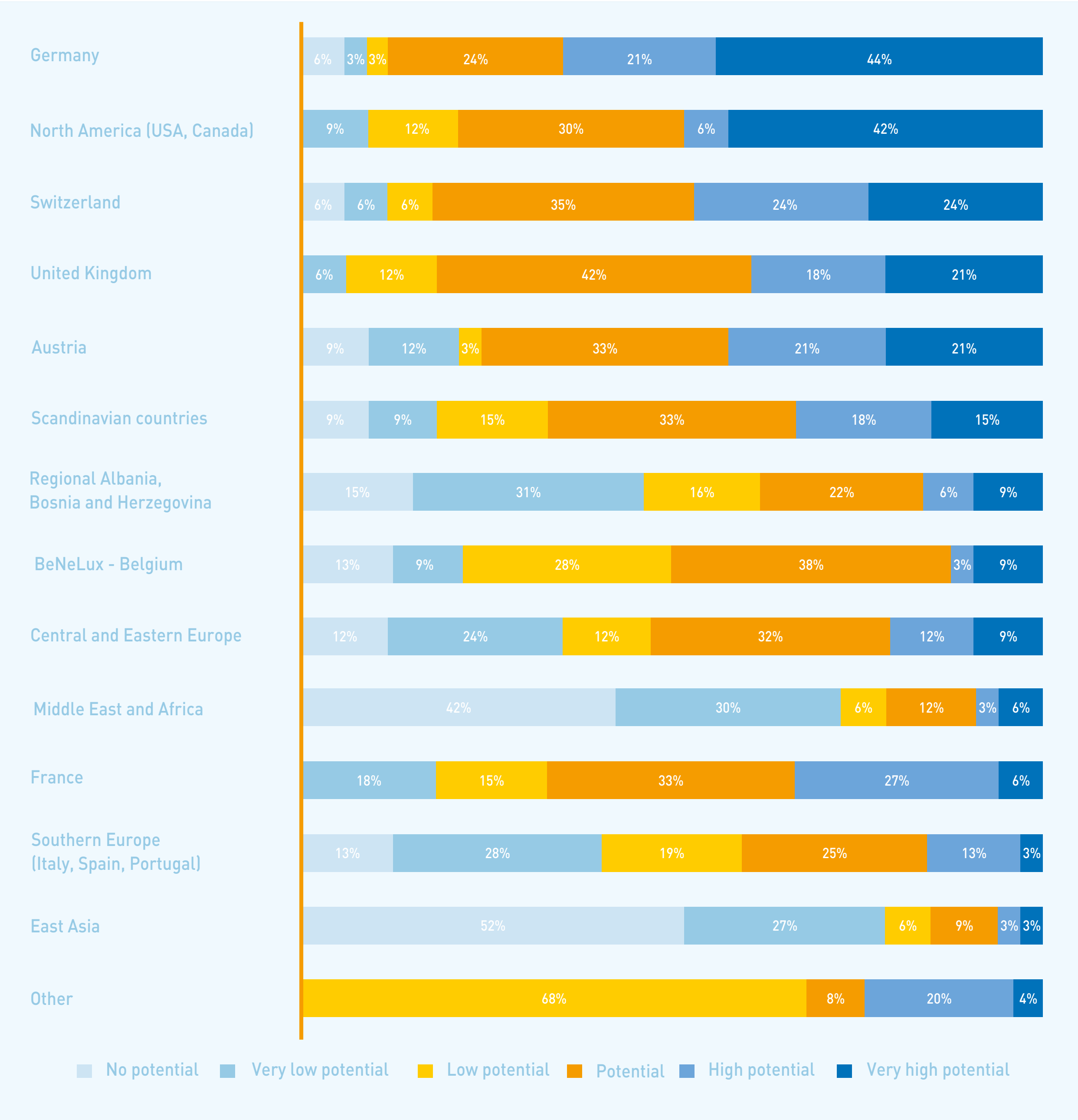


FIGURE 15: PLEASE RATE THE FOLLOWING POTENTIAL MARKETS TO DO EXPORT IN: (N=36)

Stakeholders see the biggest potential to export IT services and products to German-speaking EU countries and Scandinavia. They all share the opinion that there is big gap in supply of IT professionals in these markets, one that could be partially filled by IT companies in Kosovo. According to them, Kosovo has two main advantages in this regard as a lot of young professionals speak the languages of these countries and Kosovo is in the same time zone as Scandinavia and German-speaking EU countries. Stakeholders also rated the potential of the American and Canadian markets as promising, especially with the high number of English-speaking young professionals in Kosovo. The main difficulty in these two markets is the big difference in time zones. In general, the stakeholders believe that the biggest barrier in exporting IT services remains the low number of qualified professionals in the field. They believe that with proper education and training, the country's youth can make Kosovo one of the destinations for clients in EU and North America for their IT-related needs.

In that sense, nine out of every 10 interviewed IT business believe that quality is one of the core competitive advantages in international markets. Following quality are technical know-how (83%) and Price (76%).

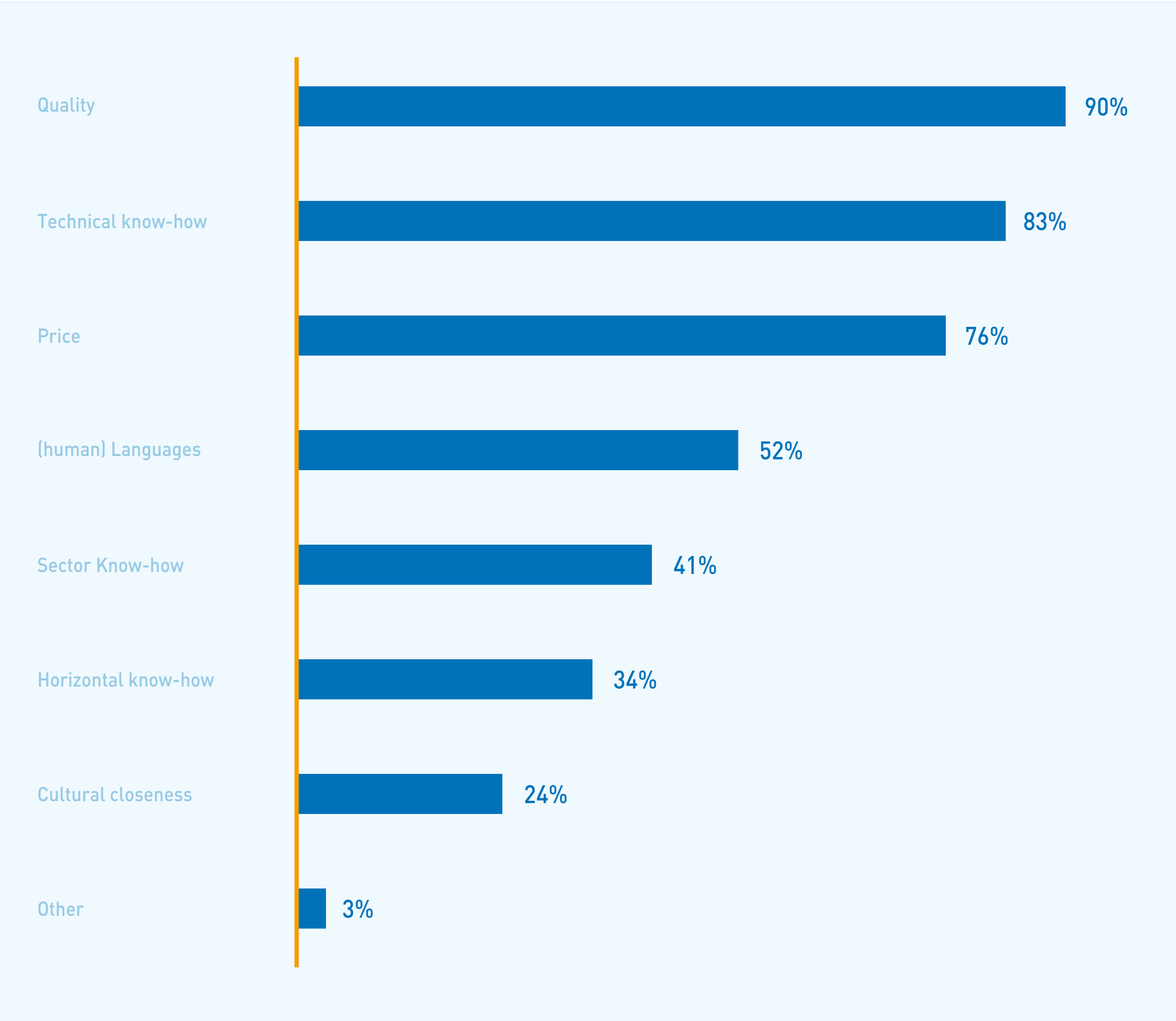


FIGURE 16: WHICH ARE THE CORE COMPETITIVE ADVANTAGES OF YOUR COMPANY IN INTERNATIONAL MARKETS? (N=29)

Human languages are considered as an advantage in international markets by more than half of the firms (52%). As was the case in last year's survey, the most frequent foreign language skills that apply to employees in IT companies in Kosovo are English (97%), German (61%), and Turkish (47%).

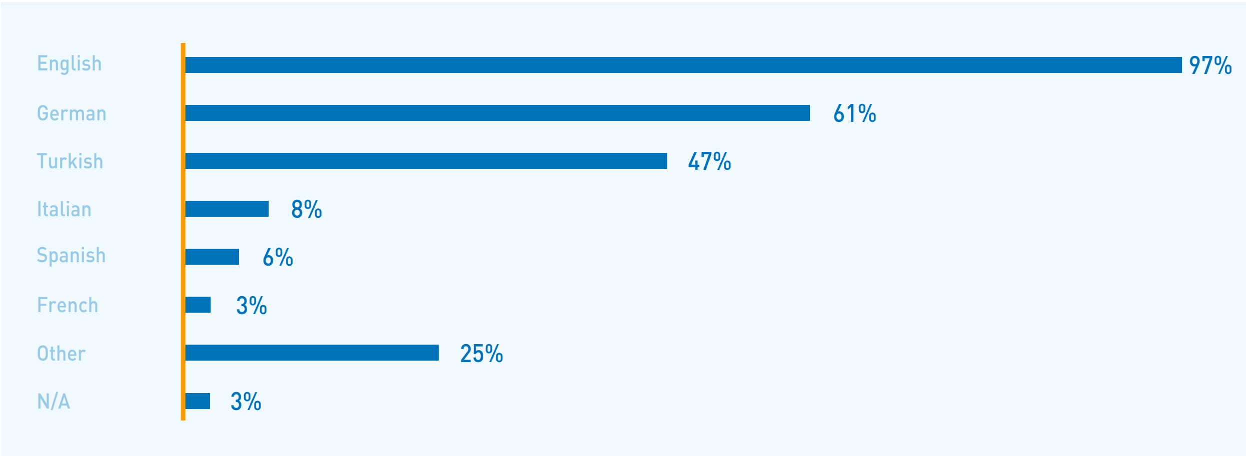


FIGURE 17: WHICH OF THE FOLLOWING LANGUAGE SKILLS APPLY TO YOUR EMPLOYEES? (N=36)

When engaging in export activities, two-thirds of IT companies engage in direct exports from their country to the client abroad, and 37 percent serve as a subsidiary. Working as a subsidiary/branch office in the target market (37%) is considerably more common that it was last year (19%).

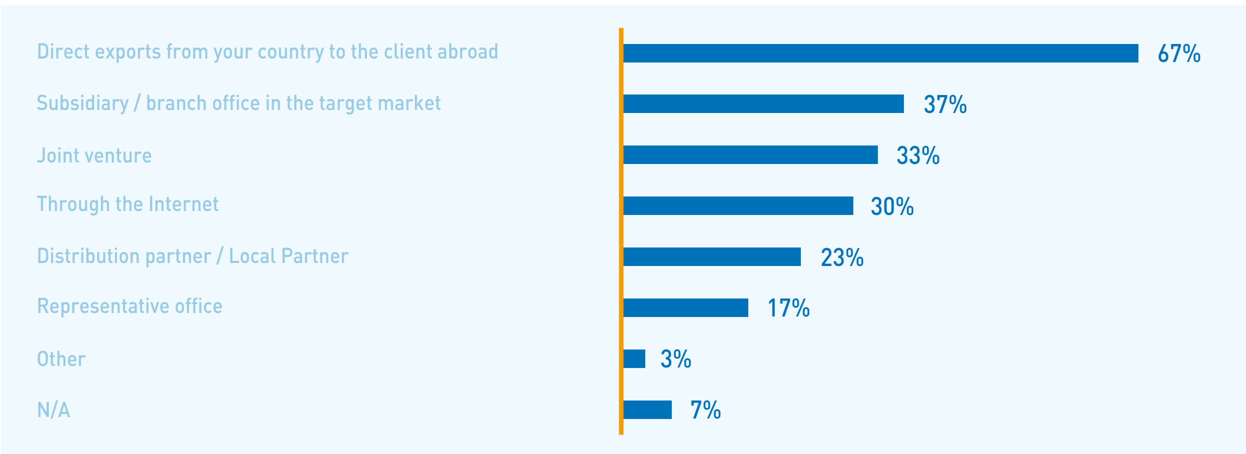


FIGURE 18: HOW DO YOU DO BUSINESS IN EXPORT MARKETS? (N=30)

Visa requirements is the single biggest obstacle in doing business in export markets according to the interviewed firm. Two-thirds (68%) of the firms rate the issue of visas as highly problematic and another 11 percent rate it as very problematic. Lack of business contacts in target markets (61%) and difficulties in finding the right business partners (61%) are also significant obstacles for IT firms in Kosovo. On the other hand, culture and language barriers (11%), technical standards and requirements (19%) and the cost exporting (24%) were considered to be less problematic in terms of exporting services and products.

Visa requirements (68%), lack of business contacts in target markets (61%) and difficulties in finding the right business partners (61%) are seen as the biggest obstacles in doing business in export markets.

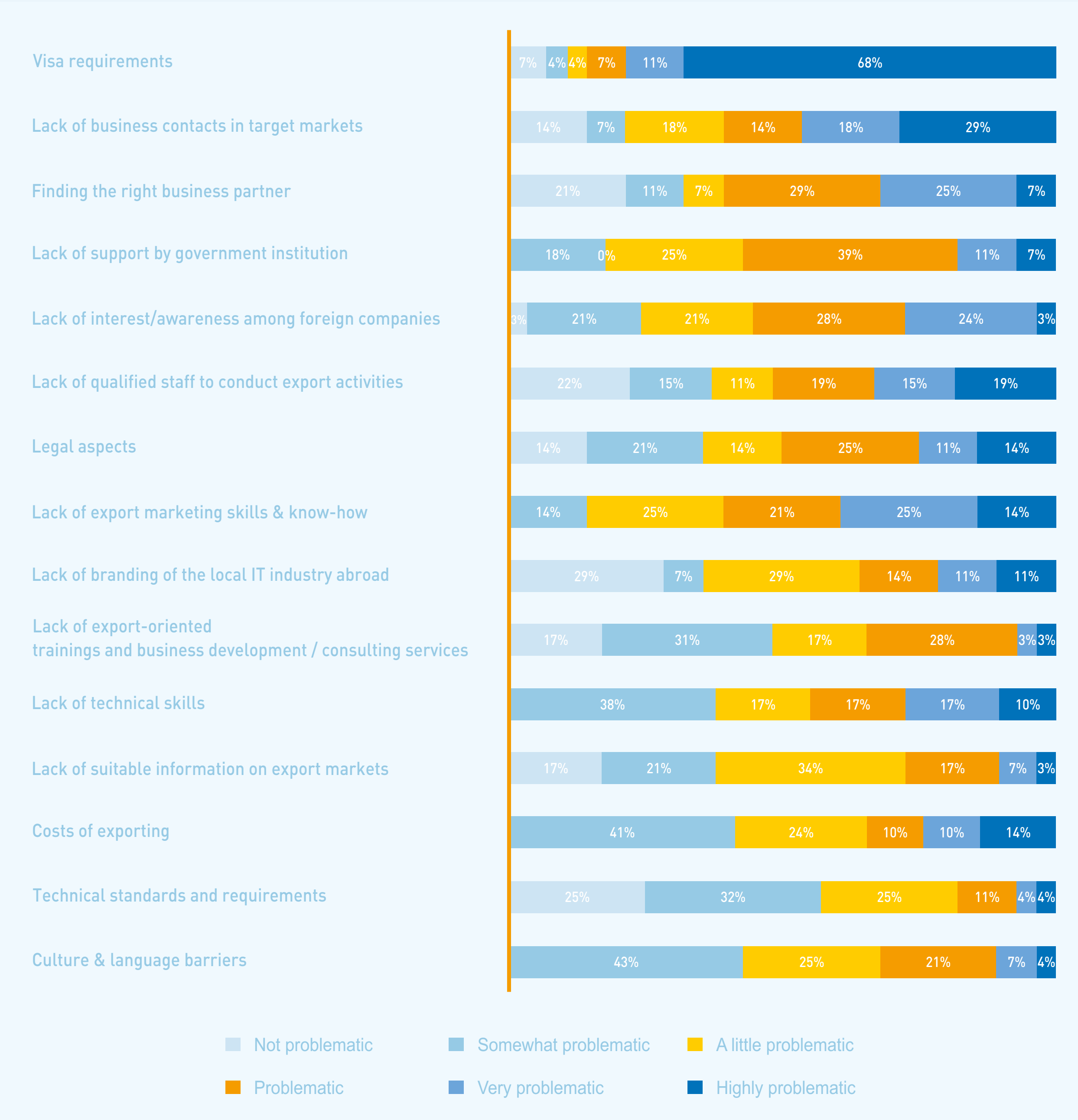


FIGURE 19: PLEASE RATE THE FOLLOWING OBSTACLES IN DOING BUSINESS IN EXPORT MARKETS

The gap in skilled IT professionals and the issue of visa liberalization are regarded by relevant stakeholders as the two biggest challenges local companies face in exporting their services and products. An interviewed stakeholder from the private sector believes that lack of qualified professionals is a two-fold problem, as not only does this issue make it hard for companies to provide quality services to the export market, it also increases their cost as they have to pay qualified professionals more than what they are paid in the countries of the region.

Representatives of the private sector also discussed about the country's policies in promoting the development of the IT sector in Kosovo. They stated that they are partially satisfied in this regard.

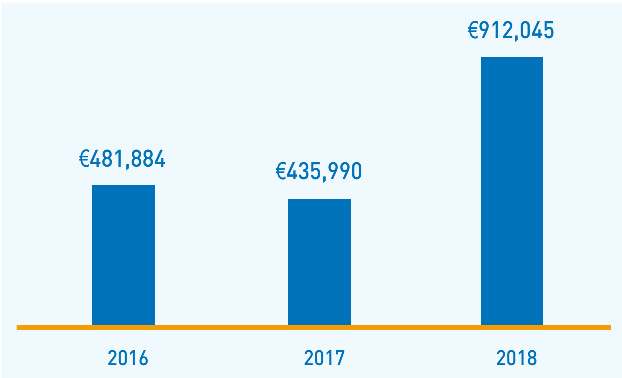
While all of them agree that the IT strategy, developed in coordination with the private and the non-governmental sectors, is a solid document that can help the IT sector develop significantly, they are of the opinion that its implementation has been very slow. Despite tax incentives provided for IT products, according to them, the IT industry develops and changes constantly and state actors need to do more to draft proper policies and have mechanisms in place for immediate implementation of these policies.

Nevertheless, the majority of the interviewed stakeholders agreed that the government sees IT as one of the most strategic sectors for the development of the country and with the establishment of the Ministry of Innovation, significant work has been done in support of promotion of IT companies, both existing ones and start-ups.

FINANCIAL PERFORMANCE

As can be seen from the graph below, the IT sector in Kosovo has had a tremendous growth in one single year regarding annual revenues. For the year of 2017, IT firms reported average revenues of €435,990, whereas in 2018 the sector's average revenues are expected to double to €912,045.

FIGURE 20: WHAT WAS YOUR ANNUAL REVENUE IN EUR? (N=20-22)



Information Technology firms' average revenues are expected to double this year. Firms reported average revenues of €435,990 for 2017, whereas in 2018 average revenues are expected to be at €912,045.

Penetration in export markets and young workforce are considered as the two main factors which have helped IT companies in Kosovo to be successful. In addition, several stakeholders mentioned the investment in IT infrastructure as a factor of Kosovo IT firms' success.

From the graph below, it can be seen that there is an increasing trend of exports in the IT Sector in Kosovo. Total export as a percentage of total revenues, has increased from 52 percent in 2016 to 64 percent in 2018. A similar trend has followed Export in EU as a percentage of total revenues. In 2016, export in EU was 24 percent whereas in 2018 it increased to 30 percent.

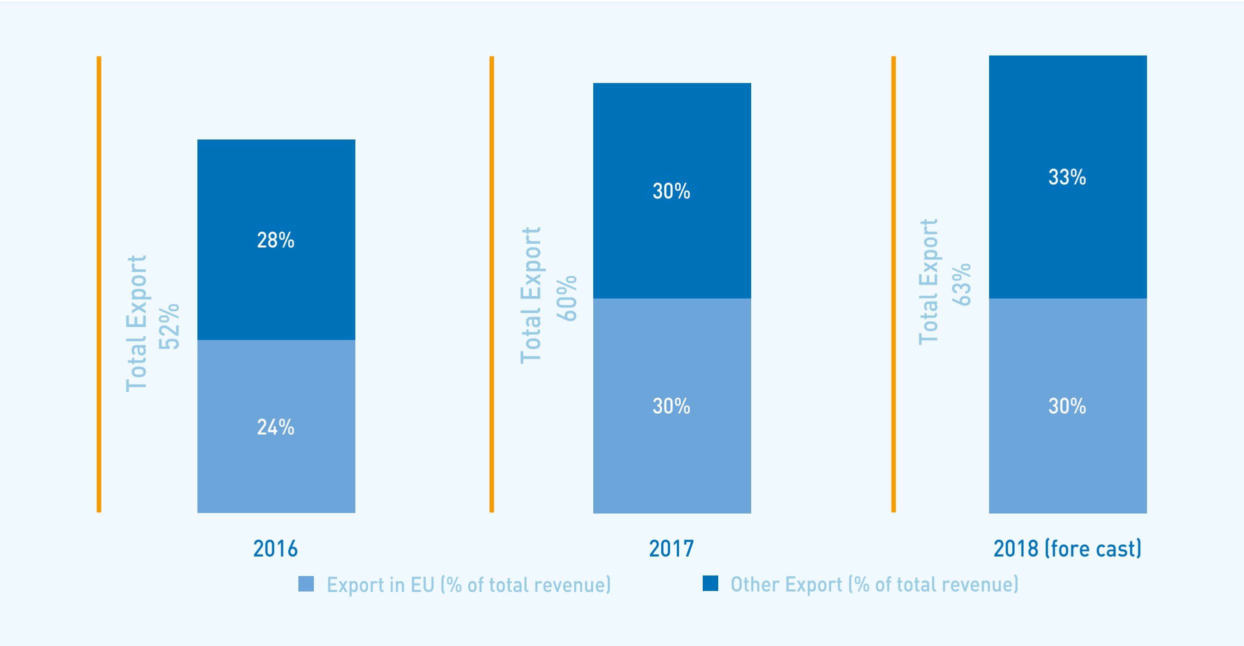


FIGURE 21: WHAT WAS THE EXPORT FOR THE YEAR ...? (N=33)

> Business generated from export activities is expected to account for 64 percent of revenues of IT firms in 2018, up by 12 percentage points from 2016.

Similar to last year, IT firms report that in export markets they engage in the sector of IT Services and Outsourcing (56%) and Technology (41%). The least popular sectors in the export market are Defence (4%) and Real Estate (4%).

ENAGED SECTORS IN EXPORT MARKETS	PERCENTAGE OF USERS
IT Services and Outsourcing	56%
Technology	41%
Financial Services	22%
Marketing and Communications Media and Publishing	22%
Non-profit organizations	19%
Manufacturing, Distribution, Retail	15%
Telecommunications (Wireless and Mobile)	15%
Industry Application and Automation	11%
Services (HR, Accounting, Legal)	11%
Trade, Transportation and Logistics	11%
Automotive	7%
Education (E-Learning)	7%
Gaming and Entertainment	7%
Healthcare Services	7%
Public sector (E- Government)	7%
Tourism and Hospitality	7%
Utilities	7%
Defence	4%
Real Estate	4%
Other	7%

TABLE 4: IN WHICH OF THE FOLLOWING SECTORS ARE YOU CURRENTLY ENGAGED IN EXPORT MARKETS? (N=27)

As per IT Products and/or Services offered domestically in horizontal markets, 38 percent of companies offer Custom Development/Outsourcing, 25 percent offer Business Process Optimization, 25 percent offer E-Commerce, and 25 percent offer IT Consulting. The least popular service is Tools/COTS offered by only 3 percent of companies. For the exports in horizontal markets, 70 percent of companies offer Web design; development and 30 percent offer Business Process Optimization. The least popular IT Products and/or services are Embedded Engineering and Development (4%), New Media Production (Multimedia/Web animations) (4%), and Product maintenance, Support and Customization (4%).

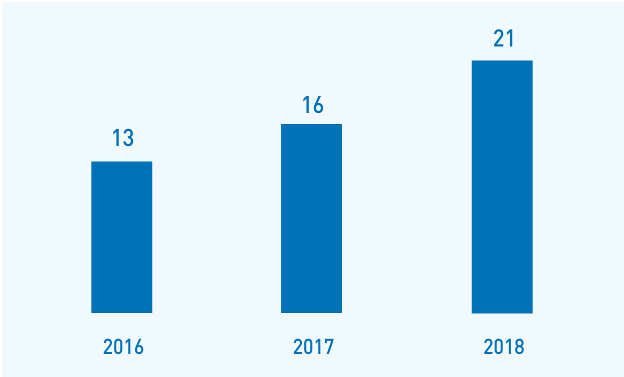
	DOMESTIC MARKET	EXPORT MARKET	DIFFERENCE BETWEEN THE DOMESTIC AND THE EXPORT MARKET
Business Intelligence / Data Warehousing	13%	19%	**-6%**
Business Process Optimization	25%	30%	**-5%**
Corporate Security	16%	11%	**5%**
Custom Development / Outsourcing	38%	70%	**-33%**
Customer Management (CRM)	19%	15%	**4%**
Document Management	19%	7%	**11%**
E-commerce	25%	22%	**3%**
Embedded Engineering and Development	6%	4%	**3%**
ERP / Supply Chain	16%	19%	**-3%**
IT Consulting	25%	26%	**-1%**
IT Project Management	16%	15%	**1%**
Knowledge Management / Operations	0%	7%	**-7%**
Mobile Solutions	22%	26%	**-4%**
Navigation Applications	9%	15%	**-5%**
New Media Production (Multimedia/Web animations)	6%	4%	**3%**
Product maintenance, Support and Customization	19%	4%	**15%**
Tools/COTS	3%	0%	**3%**
Web design; development	16%	37%	**-21%**
Software Quality Assurance	0%	19%	**-19%**
Other	16%	7%	**8%**

TABLE 5: IN WHICH OF THE FOLLOWING HORIZONTAL MARKETS DO YOU CURRENTLY PROVIDE IT PRODUCTS AND/OR SERVICES? (N=36)

HUMAN RESOURCES

As can be seen from the graph below, there is an increasing trend of the average number of employees throughout the years. This number has increased from 13 employees on average in 2016 to 16 in 2017 and again to 21 employees in 2018.

FIGURE 22: PLEASE PROVIDE THE NUMBER OF EMPLOYEES AND ASSOCIATES (IF APPLICABLE) FOR THE FOLLOWING YEARS. (N=29)



> Average number of employees has risen from 16 in 2017 to 21 in 2018. More than half of companies had an employee turnover rate between 10 and 25 percent, whereas in 2017 around 77 of firms said this rate was at less than 10 percent.

For most (53%) IT companies, their employee turnover rate is 10-25%. Additionally, 11 percent of IT companies have a turnover rate of more than 25%. This is worrisome, especially considering that in 2017 the vast majority (77%) of the interviewed IT reported an employee turnover rate of less than 10%. However, for most (56%) IT companies it takes less than three months to replace existing employees, in contrast to 14 percent who need more than six months to find replacements.

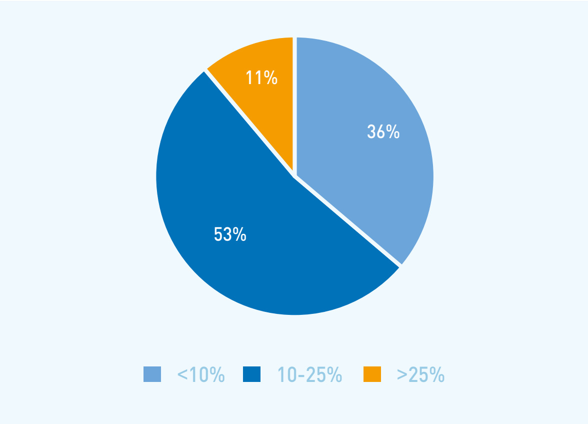


FIGURE 23: WHICH IS YOUR EMPLOYEE TURNOVER RATE? (N=36)

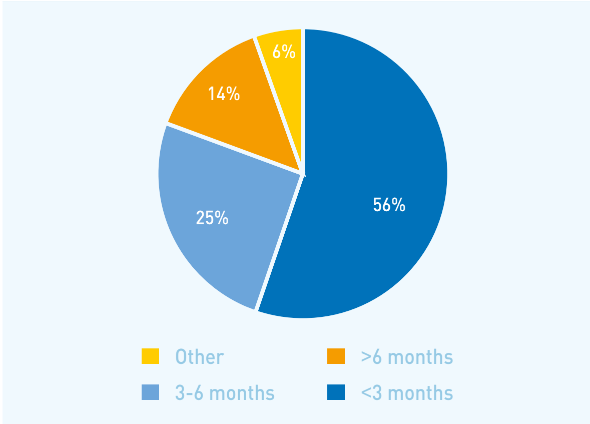


FIGURE 24: HOW QUICK DOES IT TAKE YOU TO REPLACE EXITING EMPLOYEES? (N=36)

Survey findings reveal that the two highest paid professions in Kosovo's IT sector are Business Development Manager (€1,091) and Developer (€923). All professions within the IT industry have seen growth in salaries from 2016 to 2018.

Percentage-wise, Business Development Managers (9%), Developers (8%) and Administrators (8%) have seen the largest increase in their monthly salaries from 2017 to 2018.

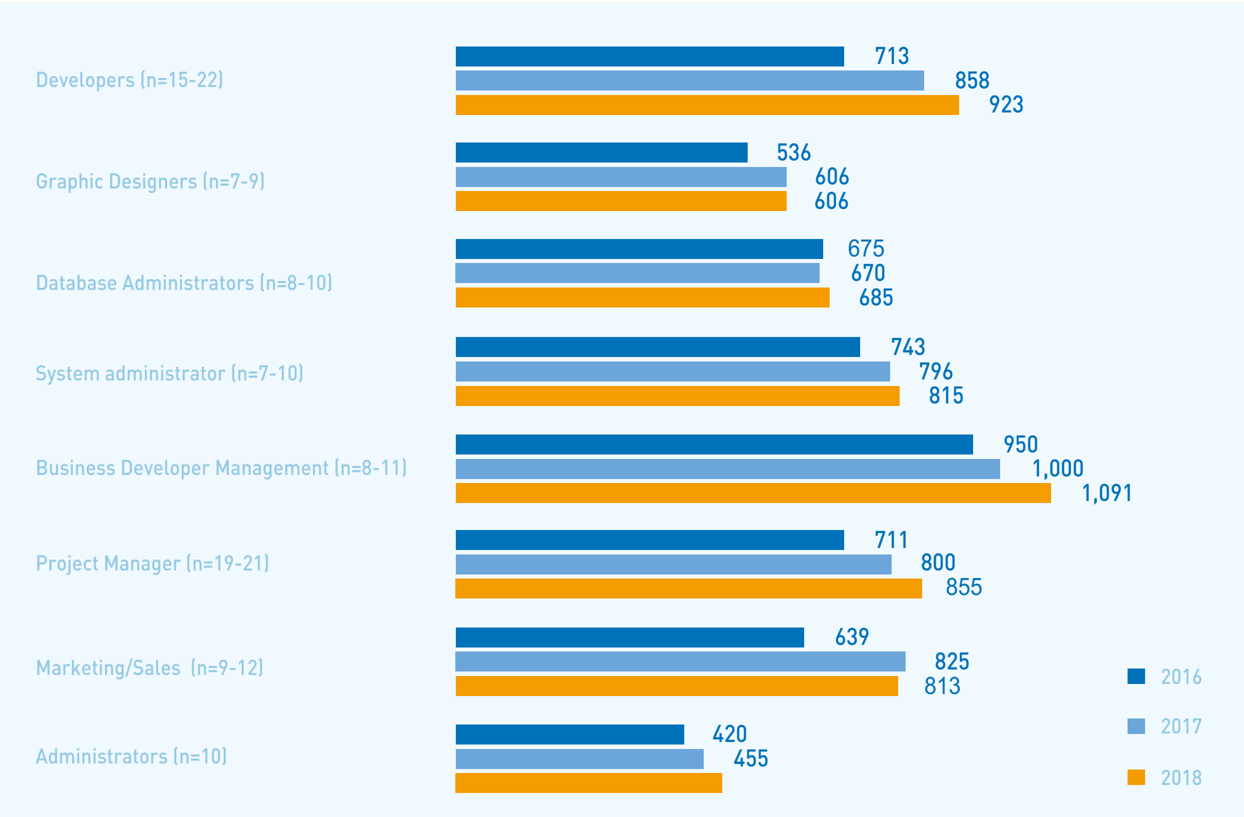


FIGURE 25: WHAT HAVE BEEN THE AVERAGE MONTHLY SALARIES FOR THE FOLLOWING POSITIONS? (N=36)

The trend of increase in the number of employees and salaries in the IT industry is expected to continue next year. Almost every fourth company expects to have 50 percent more employees next year, 42 percent believe they will increase their number of employees by 25 percent and another 28 percent think that their number of employees will go up by 10 percent next year. None of the companies expect a decrease in the number of employees, and only eight percent think that they will have the same number of employees next year.

In addition, the majority of the interviewed firms (55%) believe that there will be a 10 percent increase in the salaries of IT Specialists and another 35 percent believe that IT Specialists will benefit in salary increase of 25 percent or more. The expectations are slightly less optimistic for other profiles within the industry, as 29 percent of the firms believe there will be no change in the salaries of these profiles next year, compared to only 10 percent that believe the same will occur with IT Specialists.

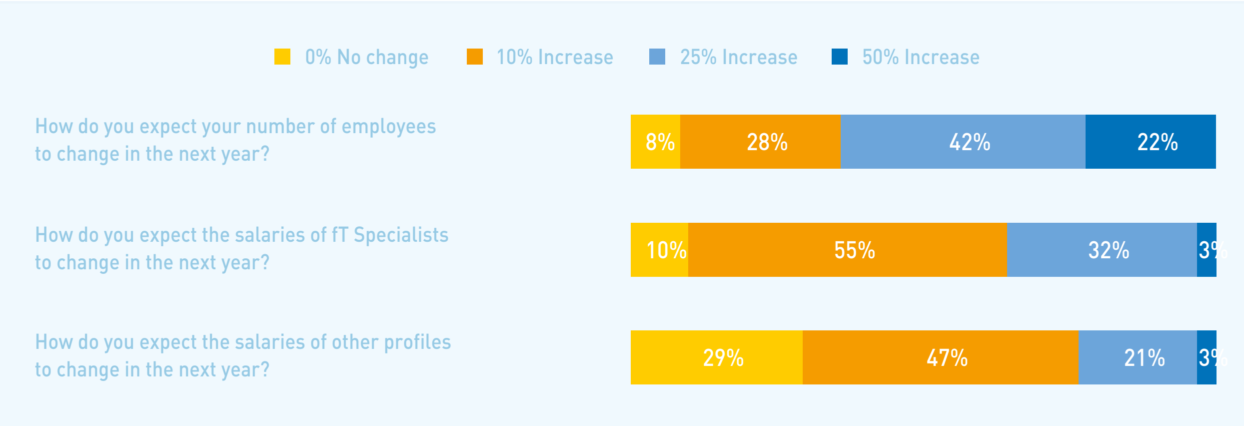


FIGURE 26: HOW DO YOU EXPECT THE FOLLOWING TO CHANGE IN THE NEXT YEAR? (N=36)

The interviewed companies were then asked to explain how the current circumstances influence the development of their businesses. As per the negative influencers 50 percent said the National Economic Situation affects their business, followed by HR Market (46%) and Intensified Competition (42%). On the other hand, the Global Economic situation was considered positive in 22 percent of cases.

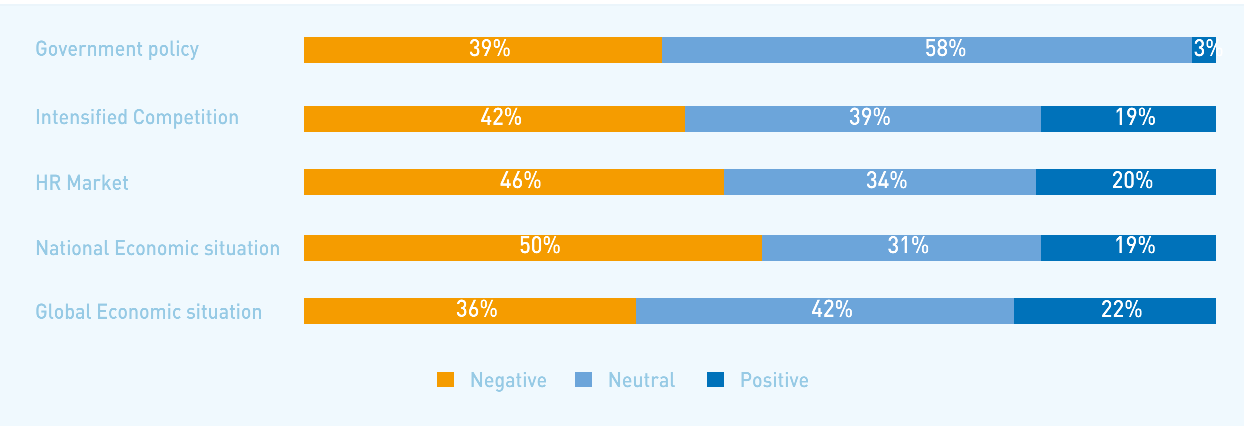


FIGURE 27: GIVEN THE CURRENT CIRCUMSTANCES, WHAT IS YOUR EXPECTED INFLUENCE OF THE FOLLOWING FACTORS IN THE DEVELOPMENT OF YOUR BUSINESS? (N=36)

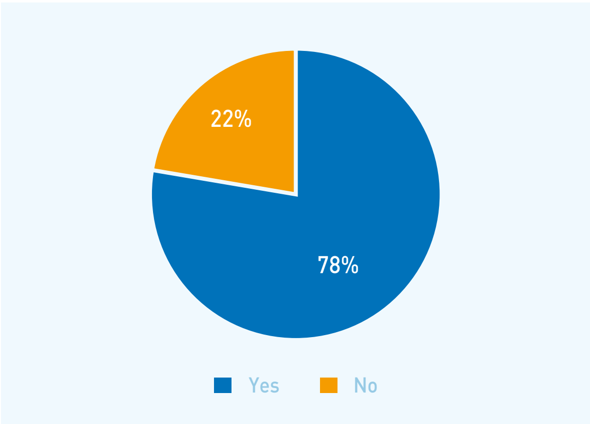


FIGURE 28: DOES YOUR COUNTRY FACE A DEFICIT OF SKILLED/QUALIFIED WORKFORCE? (N=36)

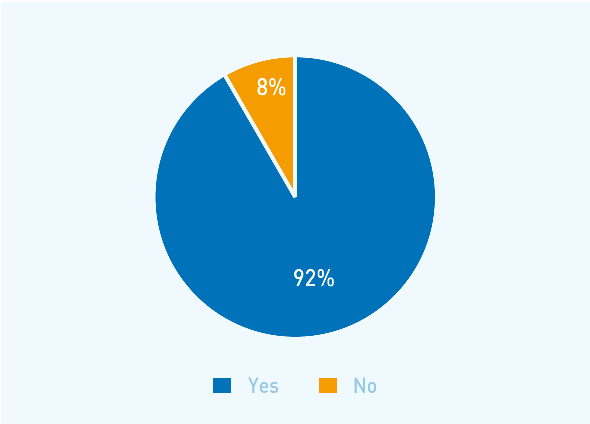


FIGURE 28: IS BRAIN DRAIN INFLUENCING YOUR BUSINESS? (N=36)

The majority (78%) said that brain drain is influencing their business. Additionally, the vast majority (92%) of respondents said that the country is facing a deficit of skilled/qualified workforce.

In-depth interviews with stakeholders also revealed a general dissatisfaction with the education provided by educational institutions in Kosovo in computer sciences. Private sector representatives stated that all new graduates that they hire receive in-house training as the skills they developed in school do not correspond to the skills demanded in the labour market. According to them and representatives of the governmental and non-governmental stakeholders, the education curricula for computer science programs must change substantially. They all believed in order to develop skilled young professionals, these programs need to turn their focus from theory to practise and revise their curricula to meet the needs of the market.

Representatives of ministries also claimed that formal education in computer science in Kosovo needs to undergo significant changes. The representative of the Ministry of Innovation said that they have submitted an official request for the review of the curricula provided by public universities in Kosovo. According to the representative, the new curricula should be developed in close cooperation with the private sector and STIKK.

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