Technical Assistance to Support
Promotion of Social Dialogue in Lebanon

المساعدة التقنية لدعم تعزيز الحوار الاجتماعي في لبنان

الجمهورية اللبنانية
وزارة العمل

Promoting Social Justice in Lebanon   Ministry of Labor

EUROPEAN UNION - GOPA

DIGITAL SECTOR LABOR MARKET ASSESSMENT

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GOPA
WORLDWIDE CONSULTANTS

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Background

This Labour Market Assessment was conducted as part of the '**Promotion of Social Dialogue'** program in Lebanon, funded by the European Union and implemented by GOPA.

The EU-funded Project is aiming to enhance the capacity of the Government of Lebanon and the Lebanese Social Partners and Civil Society to be promoters of Social Dialogue in order to strengthen social protection and improve and enforce labour legislation.

This project is part of the EU funded program "Promotion of Social Justice", which follows a comprehensive approach to human development in supporting increased access to information, enhanced participation of citizens in decision making and advanced social protection in support of inclusive and sustainable growth.

The **specific purpose** of the Technical Assistance Contract between the EU and GOPA Consultants is to increase the capacities of the Ministry of Labour and Tripartite Social Partners to be promoters of social dialogue.

Three **results** have to be achieved in order to reach the purpose:
1. Operational and legal framework for social dialogue developed
2. Institutional and technical capacity of the Ministry of Labour and its tripartite social partners is reinforced to promote social dialogue
3. Tripartite social dialogue and collective bargaining are promoted at national level

The project is implemented by the Ministry of Labour (MoL).
Beneficiaries and partners of the project are the MoL- especially the Labour Inspection Department of the MoL, the National Employment Office (NEO), the Economic and Social Council (ECOSOC), Employer Organizations, Trade Unions, Civil Society Organisations and other relevant stakeholders involved in Social Dialogue.

is to improve the information base regarding current and future economic trends and labour market demands in order to better address skills needs for the Lebanese economy in the digital sector and the jewellery/fashion design sector. Ultimately the LMA is focused on expanding economic opportunities of vulnerable Lebanese communities as well as Syrian and Palestinian refugees by improving access to employment, supporting MSME, and building technical capacity of private and government run vocational training centres.

Objectives

This comprehensive labor market analysis aims at supporting the Ministry of Labor and National Employment Office (NEO) in creating better linkages in the digital sector, whereby businesses would be able to identify and recruit skilled labor, while job seekers, notably youths

and women, would have a better access to jobs in this sector. It guides training providers and academic centers in conceiving a workforce ready to detect and grasp employment opportunities. Similarly, it proposes strategies and stipulates adequate policy formation in the sector.

The LMA provides recommendations on expanding economic opportunities for Lebanese youths and women by improving access to employment, such as thoughts on developing MSME, building technical capacity of private and government run vocational training centres, and providing on the job training where possible.

Methodology

The methodology for this Labour Market Assessment included a combination of desk research, key informant interview, focus groups and key informant interviews.

Desk research focused on analyzing published reports by different organizations, public institutes, banks and more. This was combined with focus groups that were carried out among twelve groups of Lebanese youths and women in Beirut and Mount Lebanon as well as 20 key informant interviews per sector. A total of 149 surveys were conducted with digital companies.

Sector Overview

The study revealed that the digital sector in Lebanon offers a myriad of opportunities for the Lebanese economy. The potential for development in this field is enormous partly because digital products and services can grow beyond Lebanon to scale in international markets, and more importantly because digital is the future of everything. Moreover, growth in this field can overcome the economic slowdown that is currently being experienced in Lebanon because of its cross-cutting nature. Digital applications exist throughout almost all sectors of the economy, and 'digital skills' are therefore transferrable across sectors and highly valuable to both employees and employers.

Main Findings

While the digital sector requires a high number of skilled employees, there is also a need for manual labourers when it comes to installation, maintenance, and reparation of systems. Moreover, while many believe that Lebanon has a qualified workforce to help boost this sector, there is also a clear lack of experience among fresh graduates and many gaps to fill especially in functions such as coding.

The number of male employees in the digital sector by far surpasses that of women employees. Moreover, for a sector which is supposed to be youth-oriented, many businesses did not

employ any youth member in their company.

Skills such as Software Development, IT Tech Support, and Web Development are highly needed by employers and require little previous experience. On the other hand, General life skills, such as Time Management, Teamwork Abilities, Communication, and Presentation skills, were identified as some of the widely missing skills that need to be developed.

Like in many other sectors in Lebanon, the leading type of recruitment is word of mouth, indicating that employers are referred to a candidate through mutual acquaintances or personal connections.

Some training is required in this sector and many companies make sure that their workers are given regular sessions. the types of training provided mostly related to training on new machines or working on a new product, as well as other technical skills such as variations of new coding languages, new system operations, software development (Android, IOS, etc), and JavaScript.

Soft skills such as leadership, presentation skills, project management, and teamwork courses were given in-house and with external partners

Recommendations

In terms of training and education, the digital sector would benefit from afterhours training for existing staff and those already working in the sector or in other sectors, as well as affordable session to learn coding, and development languages that are needed for digital applications. Moreover, curricula should be updated as schools, universities and TVETs to encourage a stronger interest in digital occupations.

SMEs can help by providing apprenticeship and internships, connecting with TVETs and other teaching and training institutes, creating a syndicate or association for the startups and businesses, and engaging in roundtables with key stakeholders to provide recommendations on skill developments and needed skills. The Ministry of Labor and NEO can also support the sector by organizing job fairs, encouraging the establishment of more coding schools, and providing career guidance and recommendations.

II.   **Fieldwork Summary**

The private sector surveys and focus groups in the Digital sectors were conducted by a team of enumerators recruited by InfoPro. These in-depth face-to-face interviews were carried out with General Managers/Managing Directors or Human Resources Managers of private companies across the Beirut and Mount Lebanon Governorates; the choice of the person to be interviewed was assessed according to every company and its organizational structure.

The Database for businesses to be screened consisted of a total of 32,285 companies in the Digital Sector, 6and it was prepared using the following sources: The Chamber of Commerce, Industry and Agriculture of Beirut- Mount Lebanon (CCIB), 5 Index, Kompass, and a list provided by a consultant from GOPA Worldwide Consultants. However, InfoPro faced several problems finding a sufficient amount of companies that fit the required criteria to form part of the study; therefore, a process of Ground Scanning was put in place to enlarge the pool of companies in the three sectors.

InfoPro conducted in-depth face-to-face interviews with a total of 149 company owners/top managers.

Digital Sector		Percent	Frequency
Governorate	Beirut	26%	39
	Mount Lebanon	74%	110
Company Size	Micro (1-4 Employees)	25%	37
	Small (5-20 Employees)	46%	69
	Medium and Large (More than 20 Employees)	29%	43
Total		**100%**	**149**

A. Recruitment of Enumerators and Field Teams

A meticulous recruitment process was conducted to ensure the best quality of enumerators is selected. InfoPro recruited a total of 12 enumerators with relevant and suitable backgrounds and with prior experience in conducting surveys. The recruitment process used a combination of divert means. At first, InfoPro started by contacting people from its research database who have worked with the company before, and proved to be able to deliver an excellent output. In addition, InfoPro also assessed its recruitment website: http://www.jobs.com.lb to identify potential candidates. Finally, InfoPro also posted announcements for the positions in local newspapers and on some specialized recruitment websites. A pool of potential candidates was chosen, and they were interviewed in InfoPro offices. After the interview process, all approved candidates had to undergo a series of tests that include IQ, English, data entry and editing. Candidates who passed the test with the highest grades were shortlisted to work on the project. From the shortlisted candidates, the 12 enumerators were selected according to the following criteria:

- Candidates must be university graduates;

- Candidates must have a good understanding of the Arabic language;
- Candidates must possess the required professionalism, attitude, and appearance to be able to deal with the owner/top management team of the companies to be surveyed.

Moreover, successful candidates also needed to be fully available throughout the fieldwork period. It is important to note that the phone operators who were in charge of taking appointments with owners/ top management of companies were experienced InfoPro full-time employees, who have extensive knowledge in dealing with the top management of companies in a professional manner, and prior experience in appointment taking.

B. Training

Training for Enumerators

The consistency and accuracy of enumerator performance is vital for a successful output. Thus, the enumerators were trained on the proper way of administering the questionnaire by the project manager on the 17th of July, 2018, in InfoPro premises in the presence of a consultant from GOPA Worldwide Consultants. It is important to note that prior to the training the questionnaire was approved by GOPA and it was translated to Arabic by InfoPro. The training also consisted of extensive role playing to ensure that surveyors were asking the questions on the proper manner. Moreover, the training focused on tackling typical mistakes and errors that commonly happen, such as not recording responses exactly as stated, changing the question wording while reading out loud, or omitting qualitative information provided by the respondent that might be of added value. Additionally, enumerators were trained on project specifics, such as, differentiating between project segments (E.g. Skilled employees and skilled employees with no experience), to ensure their complete understanding of the study. Enumerators were also trained to be prepared to handle objections they could encounter while administering the questionnaire to the interviewed business owners/top managers.

Training for Phone Operators

Phone operators were also trained by the project manager for the specific purpose of screening the companies, and consequently proceed to appointment taking solely with the companies that fit the screening criteria. The InfoPro phone operators in charge of screening companies and taking appointments was trained and provided with a customized guide to follow, with the following instructions:

- Adequate manner of introducing InfoPro and GOPA Worldwide Consultants;
- Project information, objectives, and scenarios to be able to secure an appointment;
- Company screening criteria and official invitation email (to be developed in Section IV).

C. Fieldwork Implementation

Post recruitment and training, the InfoPro phone operators consequently started appointment taking and scheduling the in-depth face-to-face interviews on the 18th of July 2018. Prior to appointment taking, the trained phone operators screened the companies of the Database following the criteria below:

❖ **Screening Criteria 1- Company Activity:** Companies must have the majority of their activities allocated in either:

- o Design;

- o Consultancy;

- o Manufacturing;

- o Repair;

Moreover, companies that practice the retail activity were accepted as long as they have the highest percentage of their activities allocated to one or more of the four aforementioned ones.

Selected company activity types per sector:

Activity Type of the Digital Sector
Requested Activity Type
1-Web and mobile app design and development
2-Software and hardware design and development
3-IT consulting
4-E-commerce and e-businesses
5-Manufacture of electronic components and boards
6-Manufacture of computers and peripheral equipment
7-Computer programming, consultancy and related activities
8-Repair of computers and communication equipment
9-Telecommunications
Activity Type Not Required
Companies which only practice retail, wholesale and/or Trade activities in the Digital

sector, did not fit the required criteria.

- **Screening Criteria 2- Company Location:** As previously mentioned, companies must be located in the Beirut or Mount Lebanon Governorates.
- **Screening Criteria 3- Operational Date of the Company**: Companies must have started their operations before 2017.
- **Screening Criteria 4- Company Size**: Company size was also part of the screening criteria to ensure proper distribution across company sizes.

After the selected companies were screened and the phone operators scheduled an appointment with the companies that fir the screening criteria, an official invitation letter was sent from InfoPro to corroborate the appointment, which included project objectives and the topics in which the survey is delving in. Moreover, the InfoPro phone operators also contacted the company to be surveyed to confirm the enumerator's arrival the next day.

Upon the enumerator's arrival to the company and prior to commencing the interview with the company owner/top manager, the enumerators presented an official letter validating that InfoPro is conducting a study on behalf of GOPA Worldwide Consultants and the Ministry of Labor (MoL), as part of the European Union (EU) funded project "Promotion of Social Dialogue". The data collection period ended on the 14th of September 2018.

D. Lessons Learned

- There was a lack of proper job description/task distribution, especially in micro and small company sizes. Might be important to consider how this can affect their hiring process.
- The Ground Scanning process was a very efficient way to include suitable companies on the Database.
- It should be noted that many of the large fashion enterprises outsource a high percentage of their work; many of the companies were thought to be medium and large enterprises but were in fact categorized as micro and small ones due to this matter.

III.   Findings

A. Sector Overview and Performance

a. Market trends

The digital sector in Lebanon is one among others hidden opportunities for the Lebanese

economy. The potential for development in this field is also tremendous in light of the fact that products and services related to the digital economy can be exported and are therefore not limited to the local market. The digital sector is the only tradable sector in Lebanon. More than 60% of the ICT companies export their software and mobile applications, primarily to the Gulf regions and to the Middle Eastern and Europeans countries. In 2014, these exports (ICT related) accounted for 26.5% of the total service export in Lebanon.[1]

Moreover, growth in this field is not necessarily linked to the overall economy nor is it directly correlated to the overall economic recession of the country. Meanwhile all analog, traditional services are being transformed into digital which means that the scope of this sector cannot be limited to digital companies. Banking, healthcare, insurances, industry, construction, all sectors of the economy are somehow integrating digital technologies to their work which makes digital skills crucial for the future development of the workforce of the future. For instance, the industry of medical technologies has witnessed a significant growth. The market was estimated at US$240.3 million in 2014 and is forecasted to reach US$339.4 million by the end of 2019. Operating and managing such equipment requires specific skills as well.[2]

Growth in the digital sector could lead to significant job creation in Lebanon. It could generate a 15% increase in employment in the sector which would add a 5% expansion in the overall economy. The U.K Lebanon tech hub anticipates that this growth could increase Lebanon's GDP by $7 billion in 2025[3]

According to UK Lebanon Tech Hub, the digital sector has a strong multiplier effect on economic performance – it is the 3rd largest contributor to the economy with some US$403 million injected in the economy, let alone the ICT companies which are estimated to be 300 companies having 11,200 IT employees[4], particularly active in the following fields: enterprise software, mobile solutions, financial services software, CRM software and information management software. (IDAL estimated the number rather to be at 800 companies).

According to a report by Bankmed, in 2015, 48% of these firms were active in the fields of software development, 38% in web-based applications development and 14% in mobile application development.[5]

According to the same report, te ICT sector reached a market size of US$381 million in 2014 with an average annual growth rate of 7.9%. In 2016, the market size was estimated at US$436.2 million and continued to grow until 201. Factors affecting this growth include the rise in internet penetration which increased from 52% in 2011 to 74.7% in 2014 and 75.9% in 2016,

[1] IDAL, *Information Technology*, Factbook, 2016 http://www.databank.com.lb/docs/Technology%20Factbook%202016.pdf
[2] IDAL *Information Technology*, Factbook, 2018
http://investinlebanon.gov.lb/Content/uploads/CorporatePageRubric/181002020116335~IDAL%20Technology%20Factbook%202018.pdf
[3] *Daily Star, June 3rd 2016* http://www.dailystar.com.lb/Business/Local/2016/Jun-03/355036-ict-could-create-25000-jobs-in-lebanon-by-2025.ashx
[4] *Beirut Accelerated, July 14th 2016* http://beirutaccelerated.com/2016/07/14/the-future-of-lebanons-knowledge-economy-a-new-report-from-the-uk-lebanon-tech-hub/
[5] *Bankmed, Analysis of Lebanon's ICT industry 2015*
https://www.bankmed.com.lb/BOMedia/subservices/categories/News/20150720085934810.PDF

while mobile-cellular telephones increased by 127% and the subscriptions of the fixed broadband reached 1.1.million users in 2014 (International Telecommunication Union).

b. Companies and Main Activities

Through the conduction of Business Surveys with 149 businesses in the digital sector - of which 37 were Micro enterprises, 69 were Small enterprises, and 43 were Medium and Large enterprises – a collection of data was gathered regarding the status of digital companies in Lebanon.

According to the Business Surveys, the smallest company was comprised of one employee, and the largest had approximately 500 employees. However, the largest number of skilled employees was 282 out of 500. Moreover, most of the companies only had a small number (1 to 20) of skilled employees, considering that most digital companies in Lebanon are startups or still operate on a small scale.

Percentage of Companies According to Number of Employees

Legend: ■ 0 - 20 ■ 20 - 50 ■ 50 - 200 ■ 200 - 500
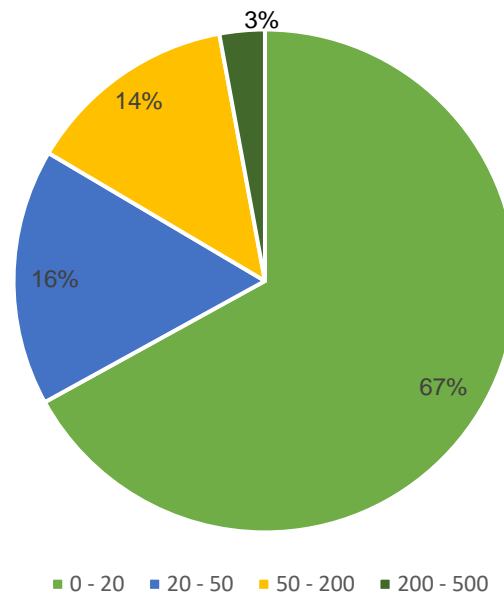
Figure 1: Percentage of companies according to number of employees

These businesses, though small, take on different activities at the same time and are able to deliver similar services than those provided by larger businesses. Most businesses stated that their main activities comprised of software and hardware design and development. Nevertheless, other activities such as consulting, programming, web design, and telecommunication, were all popular across the 149 businesses interviewed. New activities such as E-learning development, E-Commerce, and E-Business, were also mentioned, which

proves that many companies are introducing more activities related to FinTech and Trade.

Main Activities

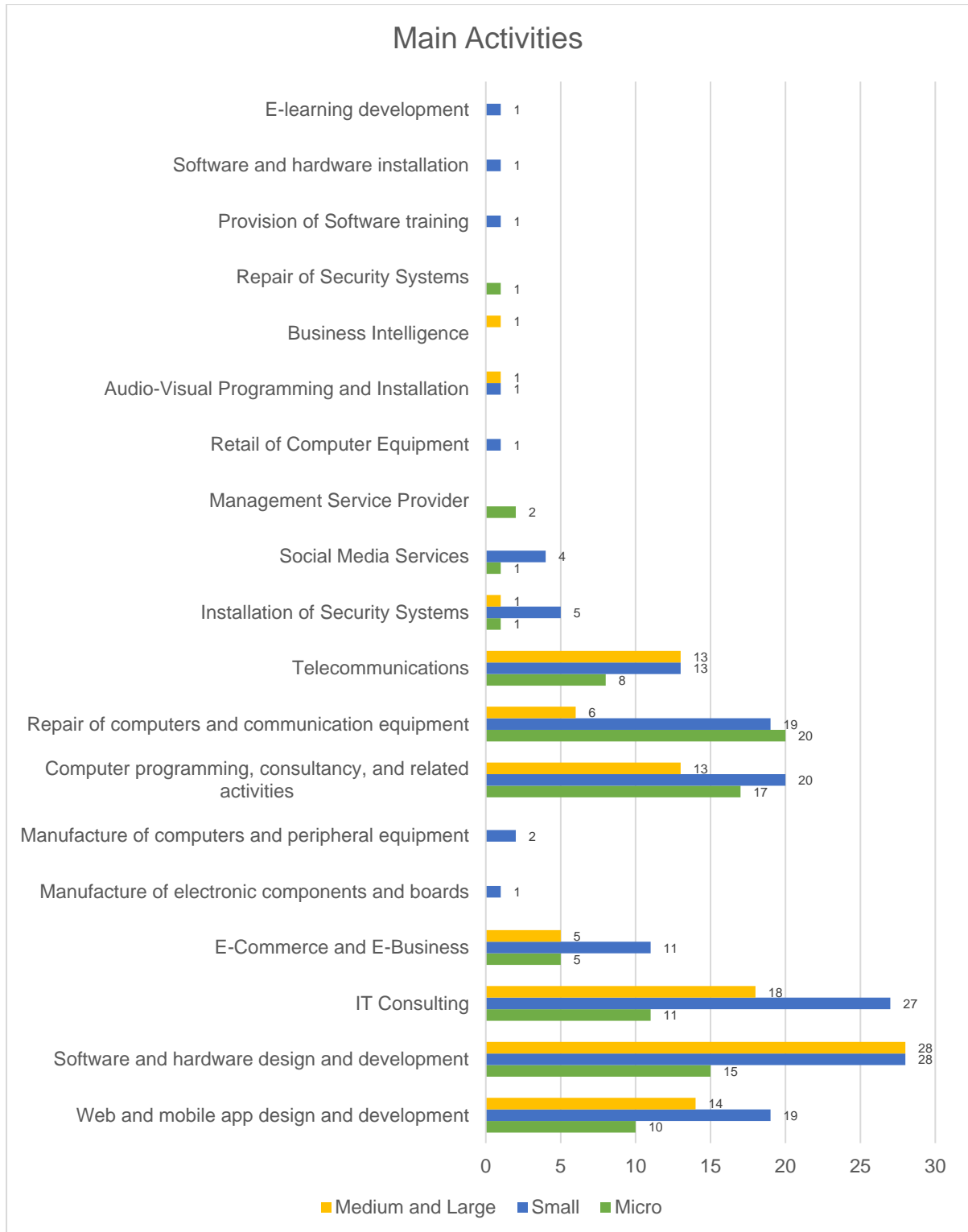| Activity	Medium and Large	Small	Micro
E-learning development		1	
Software and hardware installation		1	
Provision of Software training		1	
Repair of Security Systems			1
Business Intelligence	1		
Audio-Visual Programming and Installation	1	1	
Retail of Computer Equipment		1	
Management Service Provider			2
Social Media Services		4	1
Installation of Security Systems	1	5	1
Telecommunications	13	13	8
Repair of computers and communication equipment	6	19	20
Computer programming, consultancy, and related activities	13	20	17
Manufacture of computers and peripheral equipment		2	
Manufacture of electronic components and boards		1	
E-Commerce and E-Business	5	11	5
IT Consulting	18	27	11
Software and hardware design and development	28	28	15
Web and mobile app design and development	14	19	10

Figure 2: Companies' main activity

c. Expected Growth

According to the Business Surveys, more companies were optimistic than pessimistic when asked about future growth prospects and expansion plans. 74% of medium to large companies foresee a future expansion, compared to 67% of small companies and 49% of micro companies. This is encouraging especially in light of the current economic situation in Lebanon.
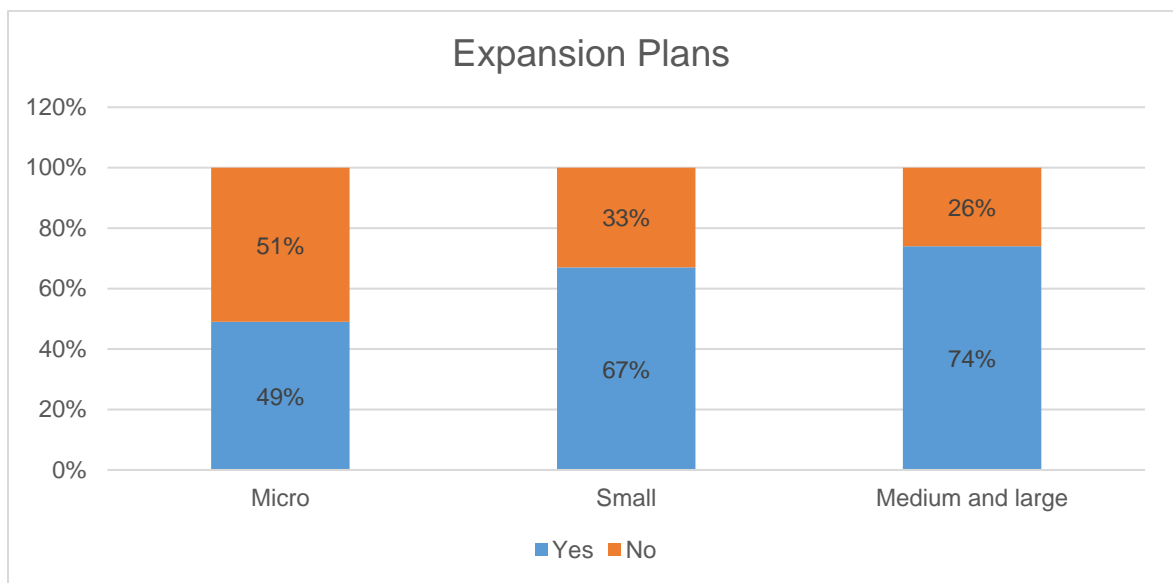
Figure 3: Expansion Plans

However, expansion plans did not seem to translate into job growth, as only 1% of those who did foresee an expansion said that they planned to increase the number of employees. More than 29% planned on scaling outside of Lebanon and reaching bigger markets, as this would allow them to diversify away from the weak Lebanese market. Close to 25% were also hoping to expand marketing efforts in view of increasing sales.
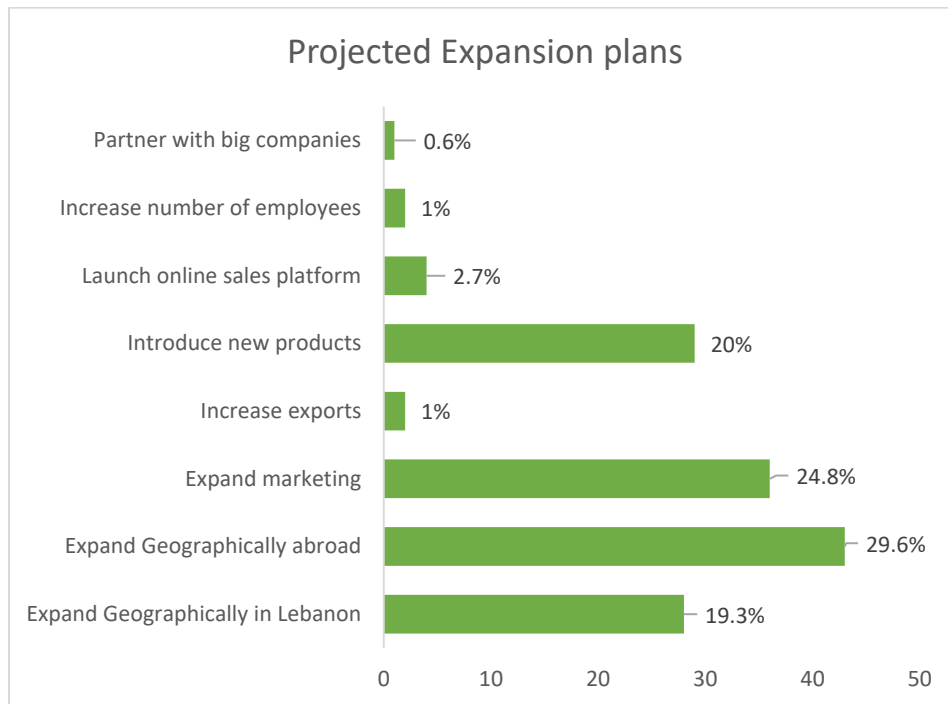
Projected Expansion plans

Category	Value
Partner with big companies	0.6%
Increase number of employees	1%
Launch online sales platform	2.7%
Introduce new products	20%
Increase exports	1%
Expand marketing	24.8%
Expand Geographically abroad	29.6%
Expand Geographically in Lebanon	19.3%

Figure 4: Expansion Plans

Most businesses are interested in international expansion because they feel that Lebanon is only a testing ground for start-up ideas before they can scale. This was highlighted by key informant interviews during which many respondents spoke about the need to establish a market abroad.

> *"Lebanon is not a place to thrive in. There is not a large enough market. Lebanon is a testing ground for startups (not even a good one). Most people test their products in Lebanon at first, so they can sell them abroad later." – KII AIY Expert Solutions*

According to business surveys, expansion prospects are not based on any increase in sales which could allow businesses to further invest in development. Most respondents reported a weaker performance in 2018 compared to 2017. 59% of micro companies experienced a decrease in sales, as well as 48% of small companies and 33% of medium to large companies.

37% of medium to large companies experienced growth rather than a decline which is mainly attributed to the solidity of larger groups who are able to withstand a few months of instability, and also have the capabilities to scale outside of Lebanon if need be.
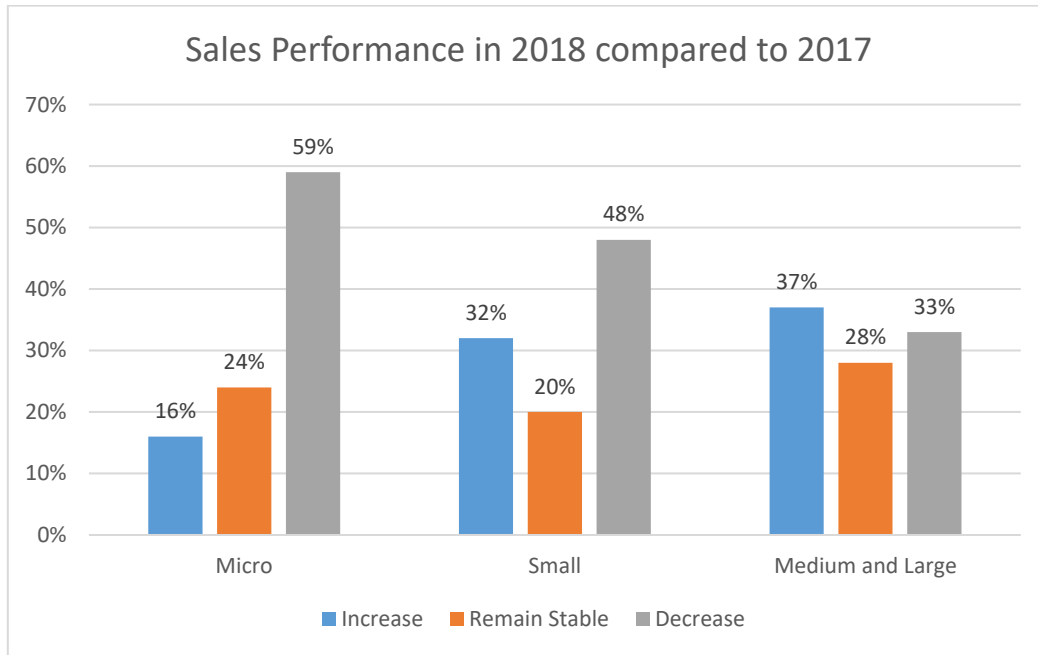
Figure 5: Sales performance in 2018 compared to 2017

When asked about possible growth in the upcoming year, a few companies responded negatively. Nevertheless, the clear majority responded in favour of a small yet steady growth, which means that there is still some hope and a general positive rather than negative attitude among businesses. More than 50% of all types of companies expected growth to reach anywhere between 1 and 20% in the coming year.
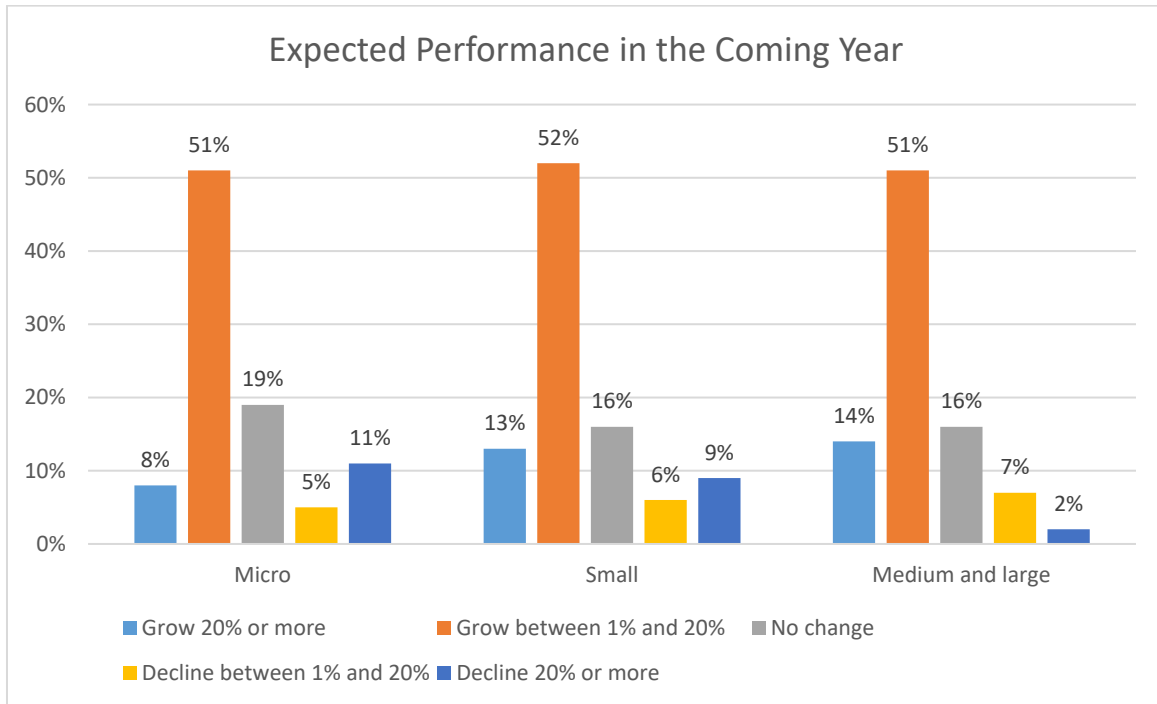
Figure 6: Expected performance of companies

d. Sub-sectors of interest

According to industry experts, there is a visible growth in fintec and online retailing. These two sub-sectors were highlighted as the most promising by companies, industry experts and key informants.

There are three main sub sectors that dominated the ICT market in Lebanon: computer hardware accounts for 60% of the total ICT market in 2016, IT services accounts for 31% of the total market and only 9% market share for software (IDAL, Information Technology Fact Book, 2016).

Computer hardware is mostly attracting the youth who purchase high tech products. Recently, more youth are opting for tablets rather than desktop computers slowing down the growth in the computer hardware segment. The IT services sub sector has expanded reaching a value of $112 million in 2014. The growth in the software development sector is the slowest because of the software piracy, cyber-attacks and the weak IT infrastructure in Lebanon.

Following the success achieved in the services and software applications, the manufacturing and design of hardware components (including electronics and semiconductors) is a promising sector in Lebanon that has the potential to grow. Estimates expected that sales of hardware will reach $262 million and are expected to grow at a CAGR of 8.3% over the 2016-2019 period.

e. *Support mechanisms*

Supporting an innovative entrepreneurship goes hand in hand with the growth of venture capitalism in Lebanon. The Venture capitalists (VC) take part in filtering the expansive pool of start-ups, and identifying accordingly the ones with the strongest business model. VC does not only finance the start –ups in their early stage growth but also shares expertise and contact networks with them. Thus, VC ensures sustainability and long term growth of the selected start-ups.

The financing process has multiple rounds that allow the entrepreneurs to fine tune their products and expand their structure. It enables the fresh Lebanese graduate to venture into innovative business by turning a simple and a primitive idea to become a long-term growth business. Entrepreneurs are as well stimulated to invest significant resources into the Research and Development (R&D) in order to understand the dynamics of the field they are venturing into and the characteristics of the sector.

Despite the political and economic challenges, Lebanon has ranked 59th out of 144 countries in terms of venture capital availability (World Economic Forum's edition for 2014-2015). The highest percentage of the VC deals (around 64%) was concentrated in the digital sectors: 47% in Information Technology, 9% in Industrial Manufacturing and 8% in Telecom (BLOM Bank Group, Hidden Opportunities in the Lebanese Economic Sectors, 2015).

The Central Bank developed policies by using stimulus packages and financial engineering to keep foreign reserves stable and growth steady. The 331 circular of the Central Bank made available $600 million for investment in the 'Knowledge economy' to boost entrepreneurship in Lebanon. According to Tibi, this circular is considered to be the founding document of the Lebanese Knowledge Economy (LKE) (Beirut Today, What is the Impact of Banque Du Liban's Circular 331 on the Lebanese Economy? 2017). Unfortunately, with the onset of a much deeper economic crisis as of 2017, as well a misuse of the BDL funds, the program was discontinued as of 2017.

According to one Key Informant Interview, many entrepreneurs believe that the government has not made any real initiative following Circular 331. This neglect has caused a slowdown in growth.

"The vibe is at risk of being lost which we don't want to see, given that Lebanon has the potential of becoming a hub for the digital sector." – KII Lexyom

Nevertheless, while in place, this circular encouraged banks to finance Lebanese startups, venture capital firms, incubators and accelerators working in the knowledge economy, through equity. It provided them with investments guaranteed up to 75% by the Central Bank over a 7 years period. It created a USs$600 million industry invested in local technology start-up. Commercial banks were able partake in this investment up to 3% of their capital. Because of the low survivorship rate of around 20% for the start –up, each bank is allowed to invest only 10% (of the total 3%) in a single company. The purpose of this rule is to ensure diversification

through investing in several companies.

Through this circular, Lebanese bank provided capital for the private sector, targeting to stimulate the economy by creating new employment opportunities. It is estimated that 50 start-ups benefit from these investments. While in place, the program is estimated to have created 500 employees considering an average of 10 employees per company. Forecast estimate another 170-individual employed by the Venture Capitalists and accelerators and Incubators with a ratio of one VC for every three start-ups and one incubator and one accelerator for every six start-ups, supposing that every start-up will employ five employees. Around 335 jobs were created indirectly in other fields such as legal, customer service and other parallel services. In total, around 1000 jobs have been created in the economy, representing 5% of the 20,000 jobs needed yearly to stabilize the rate of unemployment.

The active role that the commercial banks are expected to play in the growth of the sector is that of a partner rather simply a lender. This makes it challenging to choose and screen successful start-up. This is the reason why many of the available funds remained unallocated; keeping a great potential especially for technology and information startups.

f. Supporting Infrastructure

Since 2011, the government has upgraded the telecom infrastructure. It initiated a number of infrastructure related projects: fourth generation mobile networks in Beirut and some areas of greater Beirut (initiated in 2013), a fiber optic platform, and the Mitsubishi Electric's India Middle East-Western Europe (IMEWE) cable (initiated in 2011) that resulted in reducing the internet prices in Lebanon.

Business parks have been developed such as Beirut Digital District (BDD), Cloud Five (Solidere area) and Antwork (Kantari area). These projects created integrated co-working environments equipped with latest technologies and productivity tools for the independent workforce offering them facilities such as shared space, online platforms, business services and more. All of these projects enabled and cultivated the development of a creative workforce, facilitated networking opportunities, laying the grounds for a business environment, as well as attracting new investments and creating an adequate ecosystem for the digital industry.

The Circular 331 issued by the Central Bank along with Kafalat offered financing facilities for start- ups and ICT companies.

Incubators and accelerators, such as Berytech, UK Lebanon Tech Hub, and South Business Innovation Center (SOUTHBIC) offer technical training and financial assistance to ICT companies and other related businesses.

A number of associations such as the Association for Lebanese Software Industries – although inactive at the moment – are meant ot support the digital community.

In 1997, Lebanon developed 56 training programs in order to upgrade the related curriculum for the upper end of TVET (Technical and Vocational Education and Training). The training

programs were updated again in 2001. However, the initiative failed to develop evaluation tools to measure the program's learning outcomes and did not elaborate the teachers' guides nor the student's resource materials. Indeed, TVET can play an instrumental role in the development of the digital sector economy; quality TVET systems, provision and design, along with a planned integration between general and practical curricula can refocus its role accordingly.

According to the World Bank, the VET system in Lebanon is divided into two fields: the first field covers the vocational training that develops applied skills and competencies but do not require extensive theoretical knowledge; the second comprises technical education which requires a solid and scientific foundation as a pre-requisite for effective employment[6].

The same report mentioned that Lebanon enrolls around 25% of its secondary students in VTE. This rate is considered reasonable when compared to 31% in Jordan and 41% in Turkey.

Since 1996, the Lebanese government has been trying to secure grants and loans from international agencies in order to improve TVE: in 2003, the Arab Fund offered $84 million loan to improve the public VET. The Islamic Bank and OPEC allocated funds to offer buildings and equipment for new schools. The World Bank offered another $29 million loan to develop VET in general, and the German government is supporting this plan as well.

Initiatives are as well encouraged to enhance the participation and the empowerment of the private sector in the TVET program, through the design of the training activities, the change of the curricula, and the management of the training centers.

Traditionally, TVET offered educational alternatives for students who failed academically and was a mean to fight youth unemployment. Through the above strategic plans, the government is hoping to improve the quality of learning, increase employment opportunities, and create a new role for TVET, namely a contributing role in the development of skills necessary for the knowledge economy.

In 2011, while drafting an ICT Government policy, the Presidency of the Council of Ministers recognized that a knowledge-based society and economy based on a digital environment can be successful only if a National agenda is mobilized among different Lebanese ministries and government entities. The agenda covers mainly a restructuring of the telecommunication service supply by making services cheaper and accessible to all households and establishments in Lebanon; developing a platform that enables entrepreneurs to create products and services sold in Lebanon and exported to neighboring countries and promoting a national education that satisfies the need of a digital economy. The government policy aimed at increasing the government role in developing the ICT infrastructure, reducing fiscal and tax constraints, and providing fast broadband services to all citizens.

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[6] World Bank- Skills for the Knowledge Economy – Lebanon Country Paper, 2003
http://siteresources.worldbank.org/EDUCATION/Resources/278200-1126210664195/1636971-1126210694253/Lebanon_Country_Report.pdf

g. Regulatory Environment

According to Bankmed 2015 report[7], Analysis of Lebanon's ICT sector, there are six laws that govern the ICT sector in Lebanon:

- The Investment Law No. 360 passed on 2001 that offers incentives and 100% tax exemptions up to 10 years to investing companies.
- Intellectual Property Law (IP) passed in 1999 that protects companies from unfair competition and regularizes trademarks and copyrights.
- The Telecommunications Law No. 431 passed by the government in 2002, which adopted the principle of liberalization of the telecom sector and established the Telecommunications Regulatory Authority (TRA) as an independent public institution in Lebanon.
- Competitive law that protects against forms of abuses of dominant positions (exclusionary and exploitative conduct).
- E-Commerce Law: a draft law that support e-commerce such as e-payment, e-transactions etc…
- Law of anti-dumping, subsidies and safeguards: a law that protects the local and national production.

These apply to all economic sectors, including regulated ones and all commercial activities undertaken by the public and private sector (Ministry of Economy and Trade)

The regulatory framework exists in Lebanon but the implementation process is lengthy, complex and sometimes inefficient.

Also, the IP law does not define clearly the author's rights; the World Economic Forum (WEF) ranked Lebanon in the 139th rank out of 144 countries in terms of intellectual property protection and the forms of abuses by dominant positions are constantly intercepted by political and sectarian interventions. As per the latest World Bank annual ratings in the ease of doing business, Lebanon ranks 133 among 190 economies in 2017 deteriorating from 126th rank in 2016. This ranking is coupled with an increase of the corruption rank from 123 in 2016 to 136 in 2017

However, in terms of capacity for innovation, Lebanon ranks in the 54th position among 144 countries which means that it has the potential to venture into innovative and creative entrepreneurship. It has also made available a skilled labor force ready to use and circulate the knowledge in order to create a vibrant innovative landscape.

h. New business potential

Lebanon possesses many quality assets that distinguish it from the neighborhood countries in the Middle East; its geographic location between the Mashreq, the Maghreb and Europe, the

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[7] *Analysis of Lebanon's ICT sector*
https://www.bankmed.com.lb/BOMedia/subservices/categories/News/20150720085934810.PDF

liberal legislation in setting up companies and circulation of capital as well as the banking secrecy law. Another important asset is the role that the Lebanese diaspora plays in promoting and developing international trade and investment networks. For instance, in 2009, it generated inflows to Lebanon equivalent to 20% of GDP as per World Bank data. They have contributed to the Lebanese economy through remittances and cash flows injected in the economy that have increased from $2.54 billion in 2002 to $6.92 billion in 2012 to $7.7 billion in 2014.

Moreover, as the UK Lebanon Tech Hub report indicated, there are 81 Lebanese in the list of the 500 Arab influencers that can bring about a great influence in the financial, intellectual and innovation capital. They can grow and sustain the knowledge economy through their influence[8]

Indeed, many financial institutions are creating a productive ecosystem that is supporting new businesses to thrive in the sectors. IDAL (Investment Development Authority of Lebanon), in its role of promoting investment offers through its Investment Law no. 360 a series of financial and non-financial incentives to investment projects, particularly in the Information Technology, Technology and Communication sectors. It offers as well fiscal incentives with tax breaks for up to 10 years. Kafalat, a Lebanese financial company with a public concern that assists small and medium sized enterprises –SMEs to access commercial bank funding, provides financial guarantees for loans to up to US$400,000 to the SMEs.

Similarly, as per IDAL 2016's report about Investment Opportunities in the Technology Sector, Lebanon is establishing a growing number of research and training centers specialized in environmental technology and medical science. There are currently 8 incubators in Lebanon that help new and existing businesses in Lebanon by providing them with training, and technical and financial support.

Add to this, several mentorship programs that assists the start -up companies in the hope of transferring knowledge to entrepreneurs, highlighting the possible challenges, and promoting an access to a network of talents, knowledge and resources. For instance, in Beirut, 53 mentors supported 20% of founders at the time of the start –up[9].

Lebanon enjoys a flourishing scientific and technological community embedded in 47 universities of which 12 include science and/or technology faculties. Scientific and technical journal articles have increased at a rate of 143% from 2003 to 2013. A Science Technology and Innovation Policy (STIP) was developed in 2006 with the hope of diversifying the input of science, technology and innovation in economic activities. The plan aimed at creating high quality jobs and attracting investment opportunities[10].

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[8] *Daily Star, ICT could create 25,000 jobs in Lebanon by 2015, June 2016.*
http://www.dailystar.com.lb/Business/Local/2016/Jun-03/355036-ict-could-create-25000-jobs-in-lebanon-by-2025.ashx
[9] *Tech start –up Ecosystem in Beirut, The World Bank, 2014*
http://documents.worldbank.org/curated/en/702081504876957236/Tech-start-up-ecosystem-in-Beirut-findings-and-recommendations
[10] IDAL, *Investment Opportunities in the Technology sector*, 2016

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Other government initiatives aim at promoting and developing a knowledge-based economy. For instance, IRI (Industrial Research Institute) is a publicly owned institute that conducts extensive research in many industrial fields in order to enhance its performance. LIRA (The Lebanese Industrial Research Achievements[11]) is a government's initiative program that promotes effective communication between industry, academia and research centers. LIRA has several objectives:

1. Encourage university-industry cooperation towards building a knowledge-based economy

2. Match university activities/research with industry needs/problems to increase productivity

3. Seek industrial sponsorship for proposed university projects

4. Offer a national platform for potential new products

5. Help engineering and science students in developing their research and projects output into industrial-quality prototypes at minimum cost

6. Provide industrial training, especially on new technologies to create job opportunities.

New opportunities have been identified in many areas:

- The sales of the digital games reached US$3.2 billion in 2016 with a yearly increase of 29% opening up opportunities for game developments on smartphones and tablets.
- The growth of the Healthcare IT market is expected to reach $144 billion in 2020 compared to $81.1 billion in 2011.
- The online advertising of tech products, Adtech witnessed a 37% growth in 2013 opening up opportunities to Lebanese to produce and sell Adtech.
- Other opportunities have been detected in the following fields: financial and e-payment solutions, consumer internet and cloud offerings and advertising which will facilitate the sales of products over the cloud[12]

i. Challenges

Though the Circular 331 initiative was a step forward in the right direction, many challenges still persist. When looking at Figure 7, the obstacle the most commonly mentioned is the weak

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http://investinlebanon.gov.lb/en/sectors_in_focus/information_technology

[11] *LIRA* http://www.industry.gov.lb/Documents/Projects%20and%20cooperation/LIRAprofile-5nov2010.pdf
[12] *IDAL, Fact Book, 2016* http://investinlebanon.gov.lb/Content/

economic situation in Lebanon. However, this obstacle is related to many sub-issues, ranging from a decrease of investor spending to an increase in rent, electricity, and internet costs.
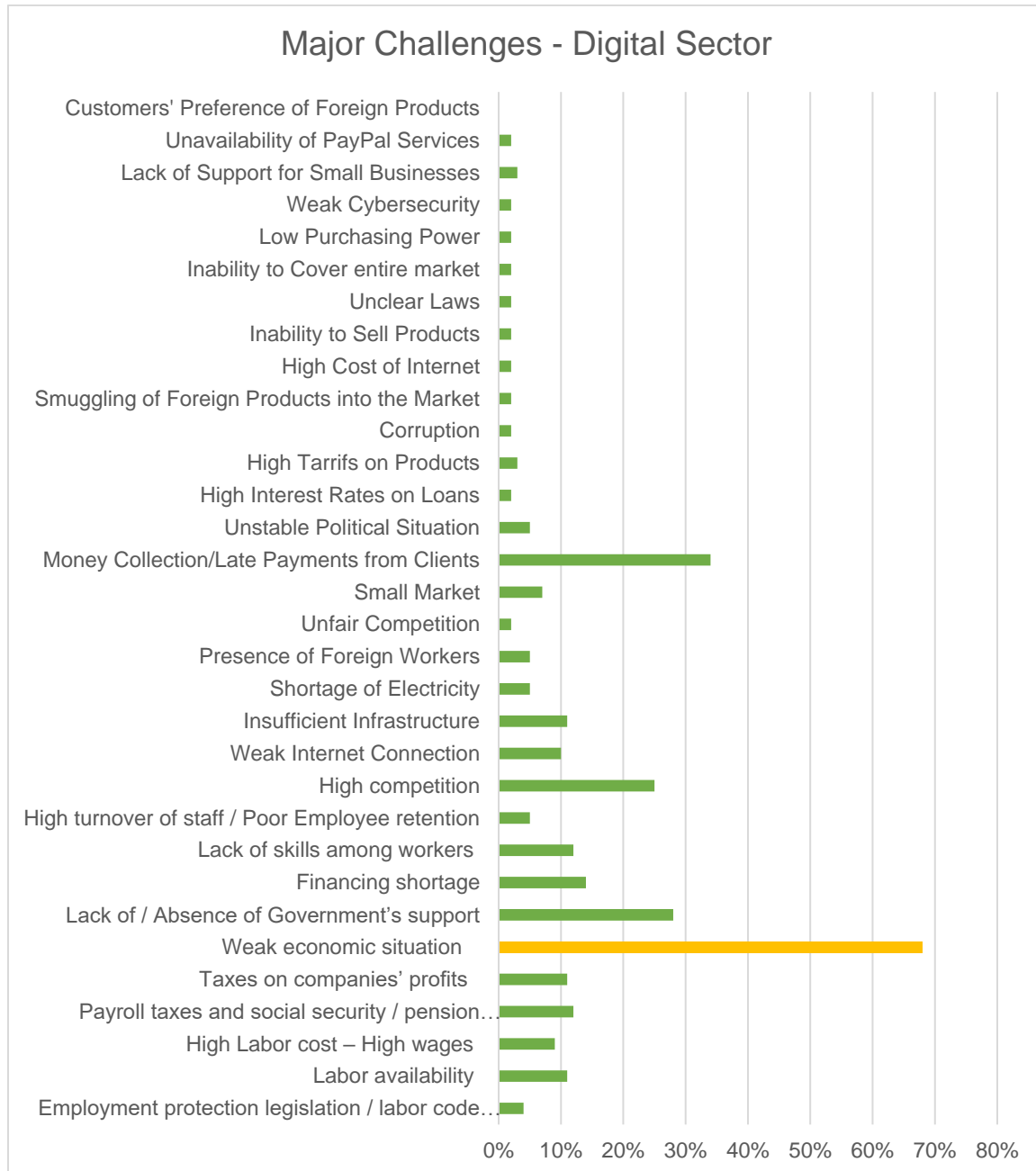

Major Challenges - Digital Sector

Figure 7: Major challenges for the sector

All other challenges mentioned were not necessarily widespread issues across all 149 businesses, but are still crucial elements that have lingered for a while and were not looked into by the government (i.e. weak cybersecurity, PayPal unavailability, inefficient infrastructure etc). According to the Key Informant Interviews, the tight control of investors is a major

challenge to the start-up community.

> *"Funding can be a very big challenge, especially which negotiations with investors take longer than expected. We are challenged since it loses our focus on developing the product. These negotiations are making us lose our purpose. It's a challenge to raise funds, and subsequently a challenge to growth. These funds will be used to potentially hire new talent. We were dreaming of expanding faster to reach more markets."* – KII Lexyom

Moreover, the tight laws and regulations in the digital sector is forcing small companies to register offshore in order to avoid these regulations.

> *"We are registered as an offshore company. However, the payment methods are very difficult, PayPal is a constant issue. We use a lot of proxies in our work. We live on VPNs. PayPal integration is very hard to integrate. We wanted to enter bitcoins and cryptocurrencies, yet the government does not allow it. Therefore, we need to find a way around these regulations. We wanted to create our own coin system for our website where our clients can resell their items to each other using our coins. This would make our customers happy."* – KII AIY Expert Solutions

Other challenges include the highly time consuming and costly bureaucratic tasks that come with registering a start-up. It takes up a lot of effort which can be invested into building the start-up.

> *"Our laws are very outdated, be it corporate and companies' laws or labor laws. Every time we need to recruit someone we need to sign employment agreements with them and pay the NSS contributions and taxes. All of these are huge expenses on the startup. To incorporate, do the annual filings, do reporting and taxation, registering, and hiring, all of those are a hassle and can disrupt the startup."* – KII Lexyom

> *"There is a lot of red tape and extensive paperwork to deal with when starting a company, because the processes are not automated. There is room for improvement to help new companies deal with all of the requirements in an easier way. For instance, even entering the VAT it is very difficult, and all of it is essentially done by hand."* – KII Sqwrl Lab

Growth in the digital sector is hindered by several inefficiencies including low quality and poor coverage of infrastructure coupled with constant electricity outages. Other challenges include weakening security issues, cyber security threads and piracy that weakens the trust in the sector. Also, political and sectarian favoritism hinders equitable and fair competition (Bankmed, *Analysis of Lebanon's ICT Sector*, 2015). Also, the processes of financing tech start-up in Lebanon are longer, more difficult to obtain as compared to Dar Al Salam, Tanzania and West Bank and Gaza. The process of setting a bank account, becoming incorporated, renting an

office, hiring employees, till obtaining credit and funding can take up to 120 working days in Beirut as compared to 33 days in West Bank and Gaza.

Barriers to entry in the Lebanese economy are high, particularly legal and administrative measures are present.

Granted, the turnover rate in the digital sector seems to be concentrated between 50,000 USD and 1 million USD. This data, however, cannot be measured accurately, considering that there is no data to compare with from previous years (2016, 2015…). Nevertheless, one can estimate according to the small sizes of the companies surveyed, that such a turnover rate would generate profit.
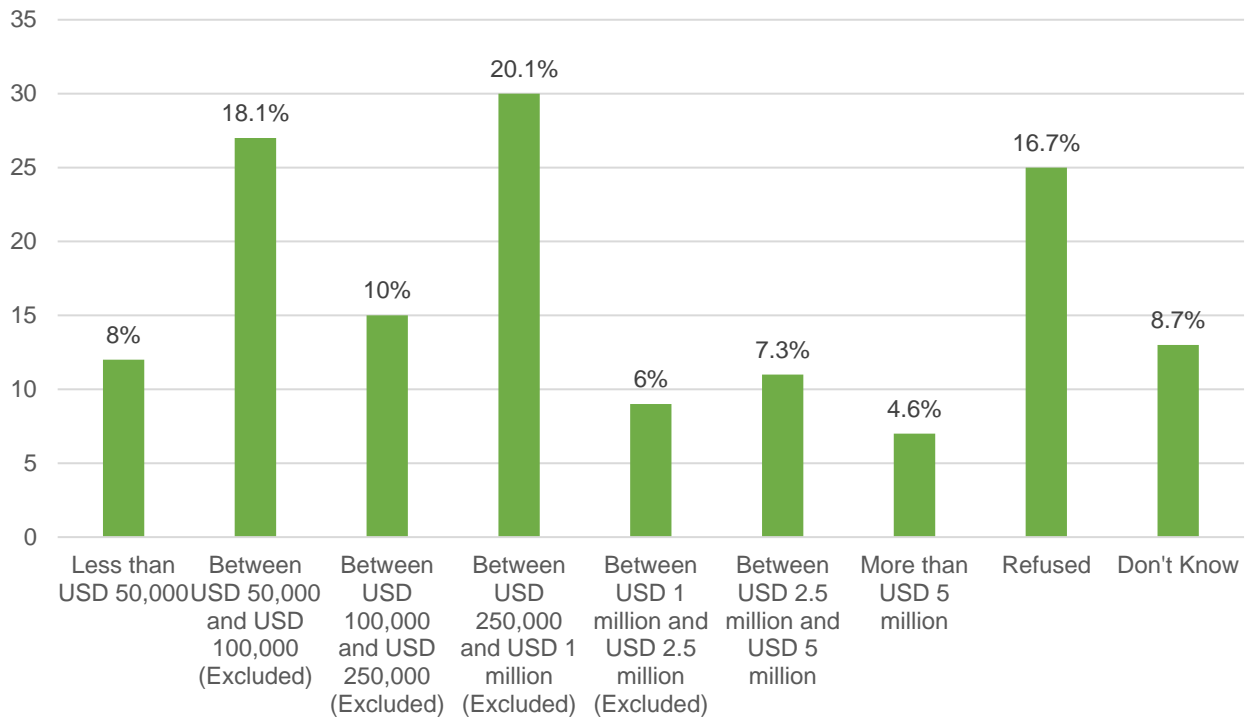

Figure 8: Annual turnover in the digital sector

B. Labour Market

a. Labour Structure

When asked about the number of skilled employees, most respondents from micro and small businesses had a higher percentage of skilled employees than respondents from large

businesses. Large businesses working in Information Technology, usually need manual labourers for installation, maintenance, and reparation of systems.

Number of Skilled Employees As Percentage of Total Staff

Legend: ■ 1 to 10 ■ 11 to 20 ■ 20 to 50 ■ 50 to 100 ■ 100 to 300
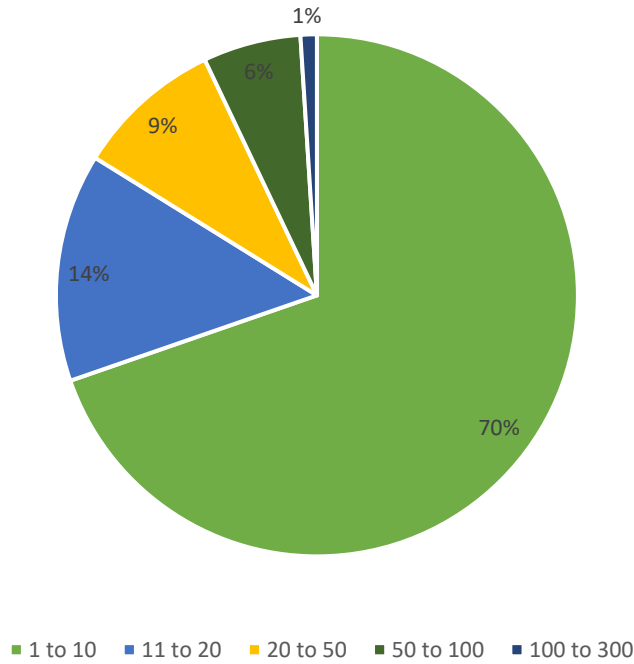
Figure 9: Number of skilled employees according to size

The number of male employees in the digital sector by far surpasses that of women employees. Almost half of respondents (46%), stated that they did not employ women. A further analysis on gender specific issues and the role of women in the sector is given later in the report.

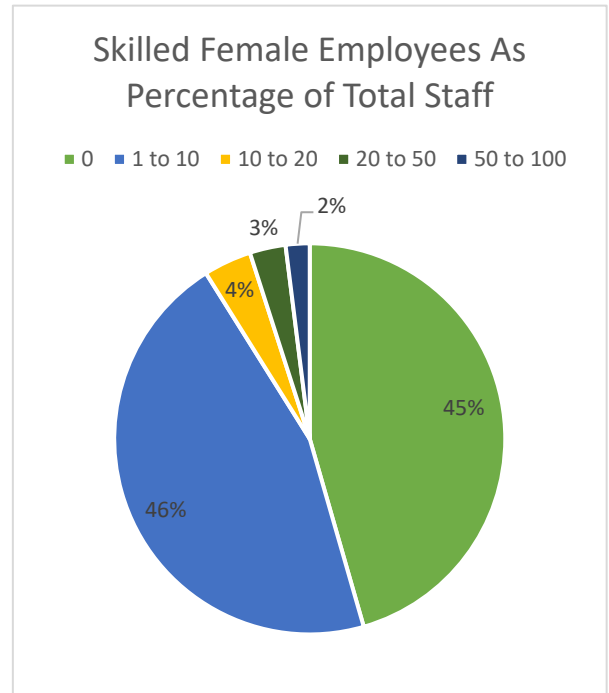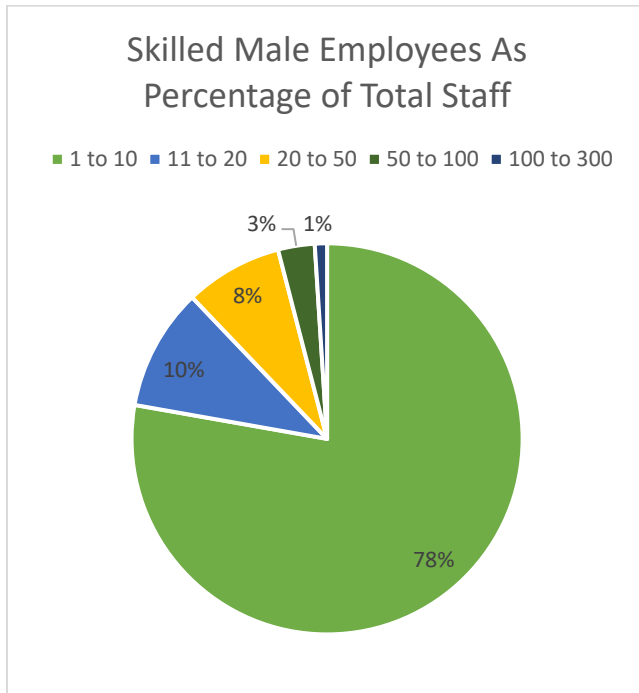*Figure 10: Skilled male versus skilled female employees according to size*

For a sector which is supposed to be youth-oriented, as much as 23% of businesses did not employ any youth member in their company. All remaining businesses had at least one youth member as part of their skilled labor force. A further analysis on youth specific issues and the role of youths in the sector is given later in the report.

Skilled Youth Employees As Percentage of Total Staff

■ 0 ■ 1 to 10 ■ 10 to 20 ■ 20 to 50 ■ 50 to 100
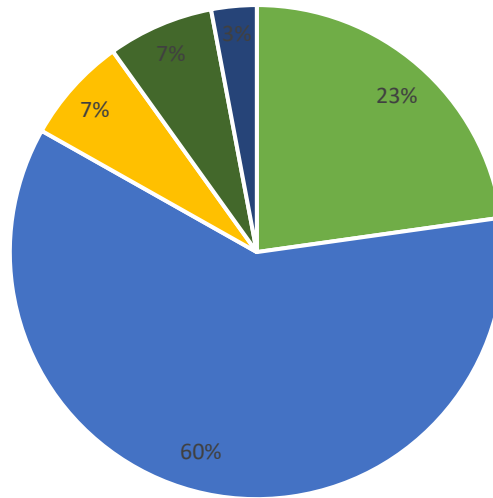
Figure 11: Skilled youths as percentage of total staff

Under Lebanese labor laws, foreign workers are restricted from working in the Digital sector. Nevertheless, many companies still employ laborers in their digital companies. Those who hire claim that workers are not competing with jobs available for Lebanese nationals. The tasks of these foreigners are mostly restricted to carrying, driving, installation, hard manual labor in fields such as Telecommunication or Information Technology.
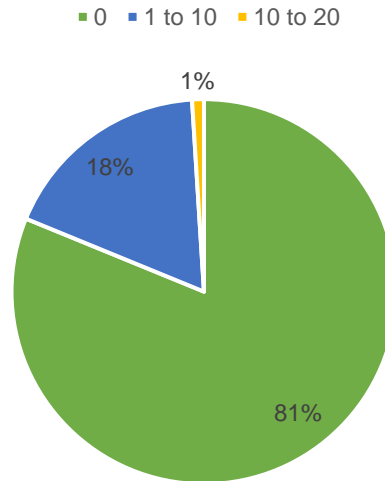
Skilled Foreign Employees

■ 0   ■ 1 to 10   ■ 10 to 20

Figure 12: Skilled Foreign Employees as Percentage of Total Staff

NATONALITIES OF FOREIGN EMPLOYEES

Nationality	Percentage
IRAQI	6%
MOROCCAN	3%
SUDANESE	3%
INDIAN	9%
FILIPINO	3%
PALESTINIAN	33.3%
EGYPTIAN	9%
SYRIAN	36.3%
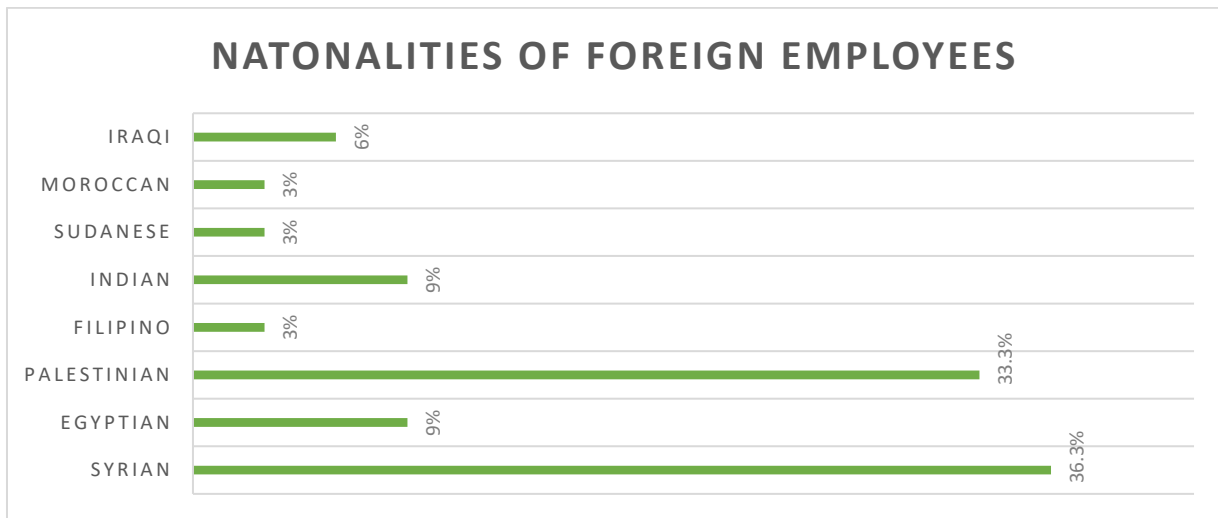
Figure 13: Nationality of Foreign Employees

Though it is illegal for foreign workers to compete for jobs in the digital sector, many companies which are registered offshore are benefitting from cheap labour and outsourcing their tasks to foreigners. As all work is digitalized in this sector, outsourcing is a much cheaper solution, given that young entrepreneurs are limited financially.

> *"We don't hire Lebanese, honestly, it's way cheaper to outsource. It's not about the nationality. I can hire a local Pakistani who will reduce costs on me. I have a certain budget to spend on waitron, and I can't waste a big amount on that when I know that I can be saving money."* – KII Waitron

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Nevertheless, this has taken a toll on fresh graduates which are looking for jobs in this sector. As foreign labourers accept lower wages, it becomes harder for students with little to no experience to stay competitive in the market.

> *"Nowadays, the companies prefer to hire Syrian instead of Lebanese employees for IT or call center purposes even if the employee does not have a degree or years of experience."* – Respondent N. 6, Unemployed Youth, Female.

b. Recruitment Plans

In general, companies' responses were split regarding upcoming recruitment plans, with a slight majority in favor of recruitment while others chose to freeze recruitment in light of the weak economic situation. 55% of companies did plan on increasing the number of employees which is a positive indicator in light of the current economic situation. 41% plan on maintaining the current number of employees, and 2% planned on reducing staff.

Recruitment Plans for the Upcoming Year

	55%	41%	2%
	Increase Number	Maintain the Current Number	Decrease Number
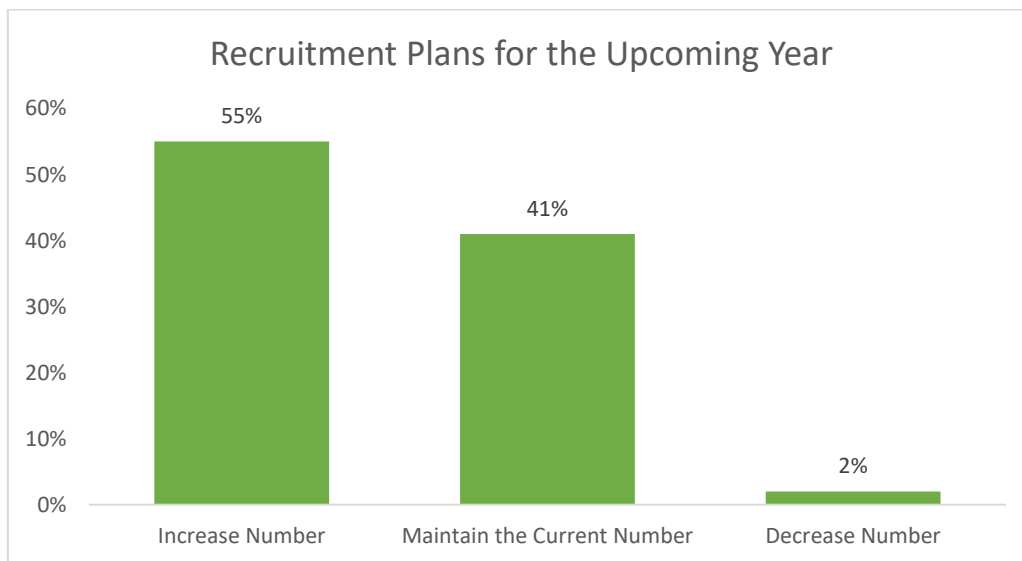
Figure 14: Recruitment plans for the upcoming year

According to key informant interviews, companies are risk averse during this challenging period of time and therefore unlikely to want to incur additional charges and costs. That said, for companies that are able to scale and export their products and services to other countries, opportunities are still aplenty. Targeting European and Arab markets from Lebanon can be a source of growth and recruitment for many.

32% of companies had job openings at the time of reporting.
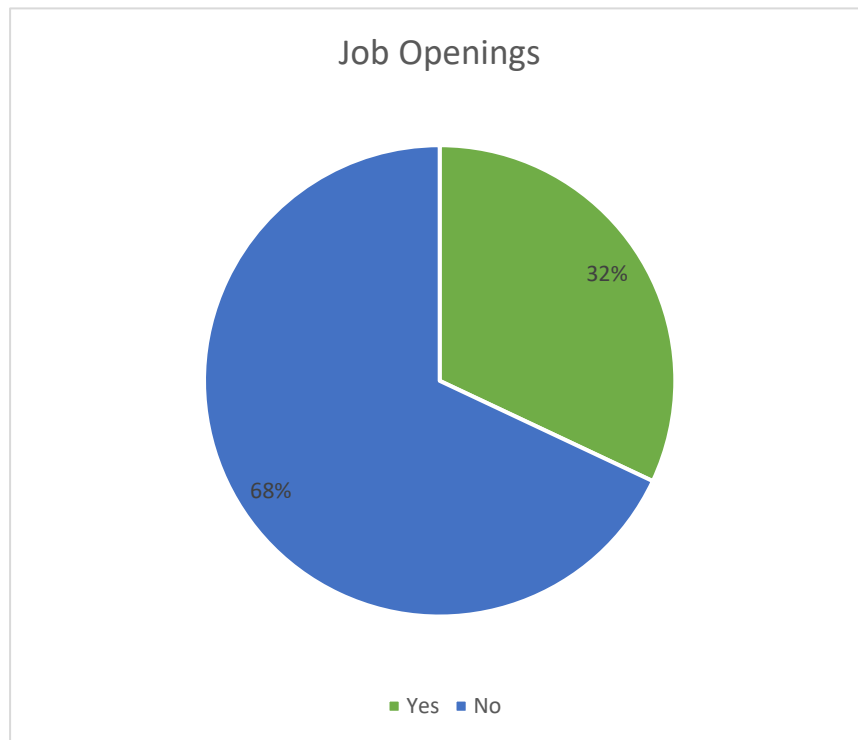
Figure 15: Percentage of Companies Having Job Openings

That said, the number of vacancies is generally low, even for medium and large businesses. 43% of those who did have job openings only had one. For small businesses, 52% had one and 43% had two. All micro businesses only had one opening.

Small start-ups such as Waitron have struggled with their financial situation. Hiring full-time staff is therefore almost impossible for these types of companies because of the absence of a stable income. Other start-ups affiliated with an accelerator or VC usually include internships as job opportunities, even though those are often unpaid or cover only transportation costs.

Figure 16: Number of Jobs Available by Company Type
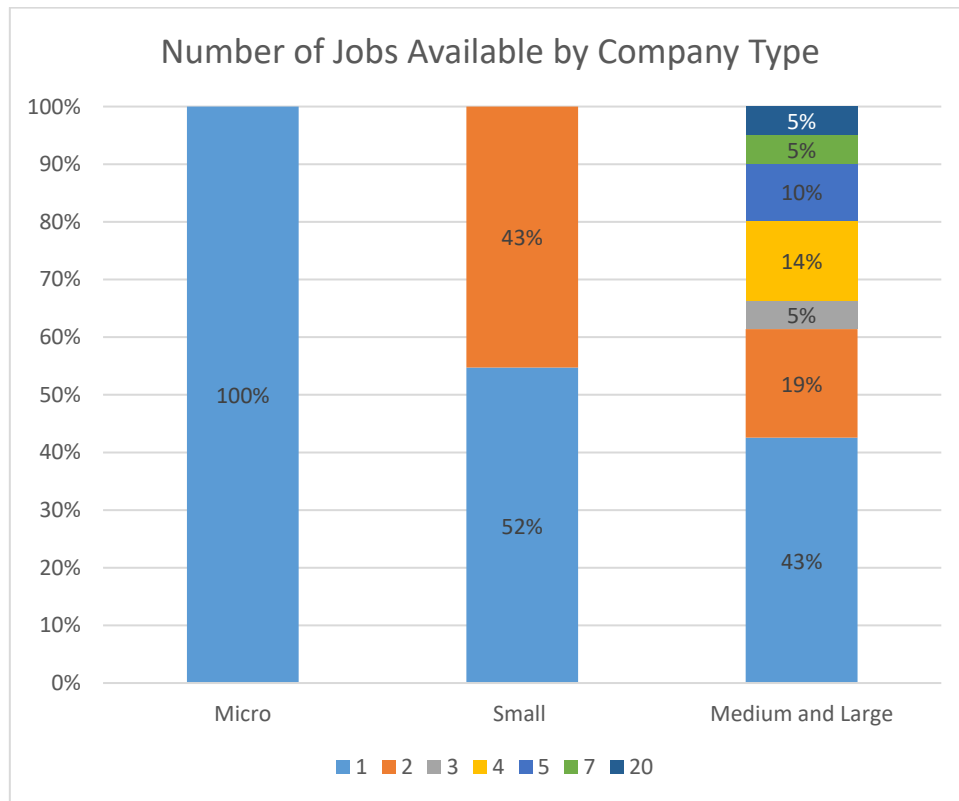
C. Skills

c. Most Important Skills in the Sector

Software development, IT technical support, and web development were the most important vacancies mentioned by respondents. That said, within small companies and startups, recruits are often requested to be more versatile and able to provide support in many areas.
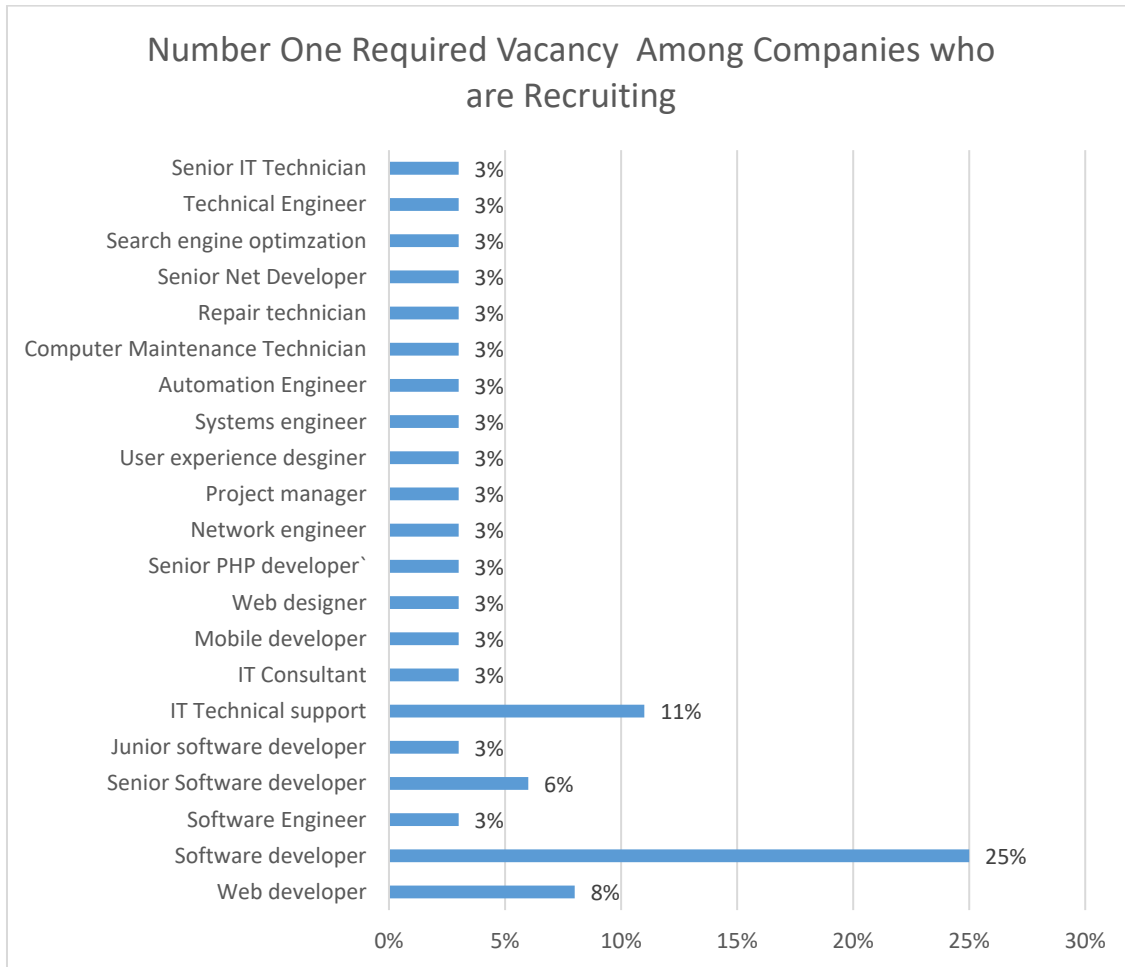
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Number One Required Vacancy Among Companies who are Recruiting

Occupation	Percentage
Senior IT Technician	3%
Technical Engineer	3%
Search engine optimzation	3%
Senior Net Developer	3%
Repair technician	3%
Computer Maintenance Technician	3%
Automation Engineer	3%
Systems engineer	3%
User experience desginer	3%
Project manager	3%
Network engineer	3%
Senior PHP developer`	3%
Web designer	3%
Mobile developer	3%
IT Consultant	3%
IT Technical support	11%
Junior software developer	3%
Senior Software developer	6%
Software Engineer	3%
Software developer	25%
Web developer	8%

Figure 17: Number One Required Vacancy Among Companies Who are Recruiting

One employee complained during a focus groups about the high expectations that startups and small companies have when recruiting new staff. New employees are sometimes asked to undertake other tasks that are not within their scope of work or expertise, and which require more experience.

"After some time, they ask you to become a web developer and a while later you become a programmer. But I haven't studied PHP and SQL. If anything comes up and you tell the company that you don't know how to do it and you haven't experienced it before, you might cause an issue. They think that we must know everything." – Respondent N. 4, Unemployed Youth, Male

According to respondents from the Business Surveys, many occupations can be carried out without the need for a high level of work experience. These include Software development, IT Technical support, telecom technicians, software engineering and others. This should mean

that these occupations are opened to fresh graduates. However, as later indicated by survey results, employers are still reluctant to recruit young staff at their companies.
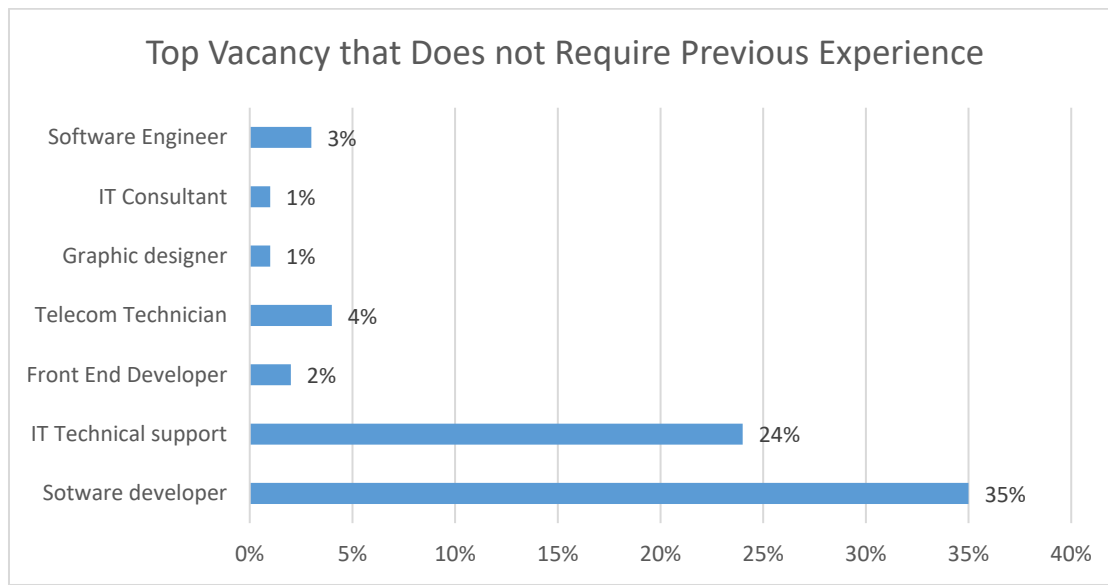
Top Vacancy that Does not Require Previous Experience

Vacancy	Percentage
Software Engineer	3%
IT Consultant	1%
Graphic designer	1%
Telecom Technician	4%
Front End Developer	2%
IT Technical support	24%
Sotware developer	35%

Figure 18: Top Vacancy that Does not Require Previous Experience

d. Skills Gaps

Businesses mentioned a number of skills that need to be improved in the sector, including both soft and technical skills. General life skills, such as Time Management, Teamwork Abilities, Communication, and Presentation skills, were stated by various respondents as areas that required improvement, training and development. Many fresh graduates and employees lack these skills or generally do not work hard enough to improve those skills.
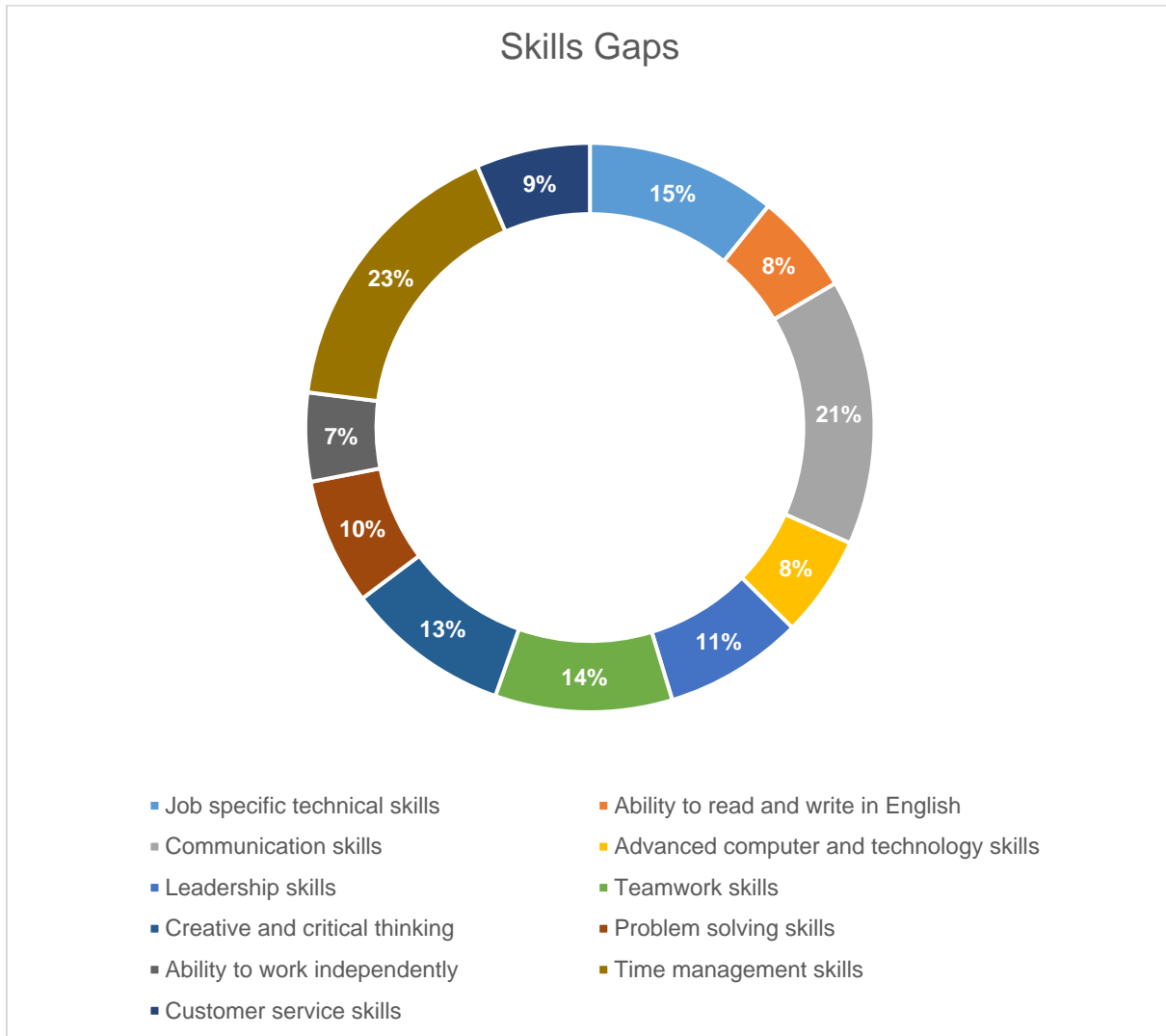
Skills Gaps

Legend:
- Job specific technical skills
- Communication skills
- Leadership skills
- Creative and critical thinking
- Ability to work independently
- Customer service skills
- Ability to read and write in English
- Advanced computer and technology skills
- Teamwork skills
- Problem solving skills
- Time management skills

Figure 19: Skills Gaps

In terms of technical skills, the two biggest gaps were in Javascript development, Cisco networking and programming in new languages.

Some other skills were also mentioned during key informant interviews, notably coding and UXUI experts. According to the UK Lebanon tech hub, low skilled jobs are mostly concentrated in coding and call centres that are sometimes needed to support a digital operation.

> *"There's a lack in UXUI experts needed in graphic design. The experts are very rare because it's a recent emerging trend."* – KII Lexyom

> *"The needed skill is good software development and coding. We are not graduating enough coders. Startups are empowered. Developers graduate from university wanting to start their own business, and they get lost in accounting, business management, finances, recruitment, and they forget their coding skills."* – KII Murex

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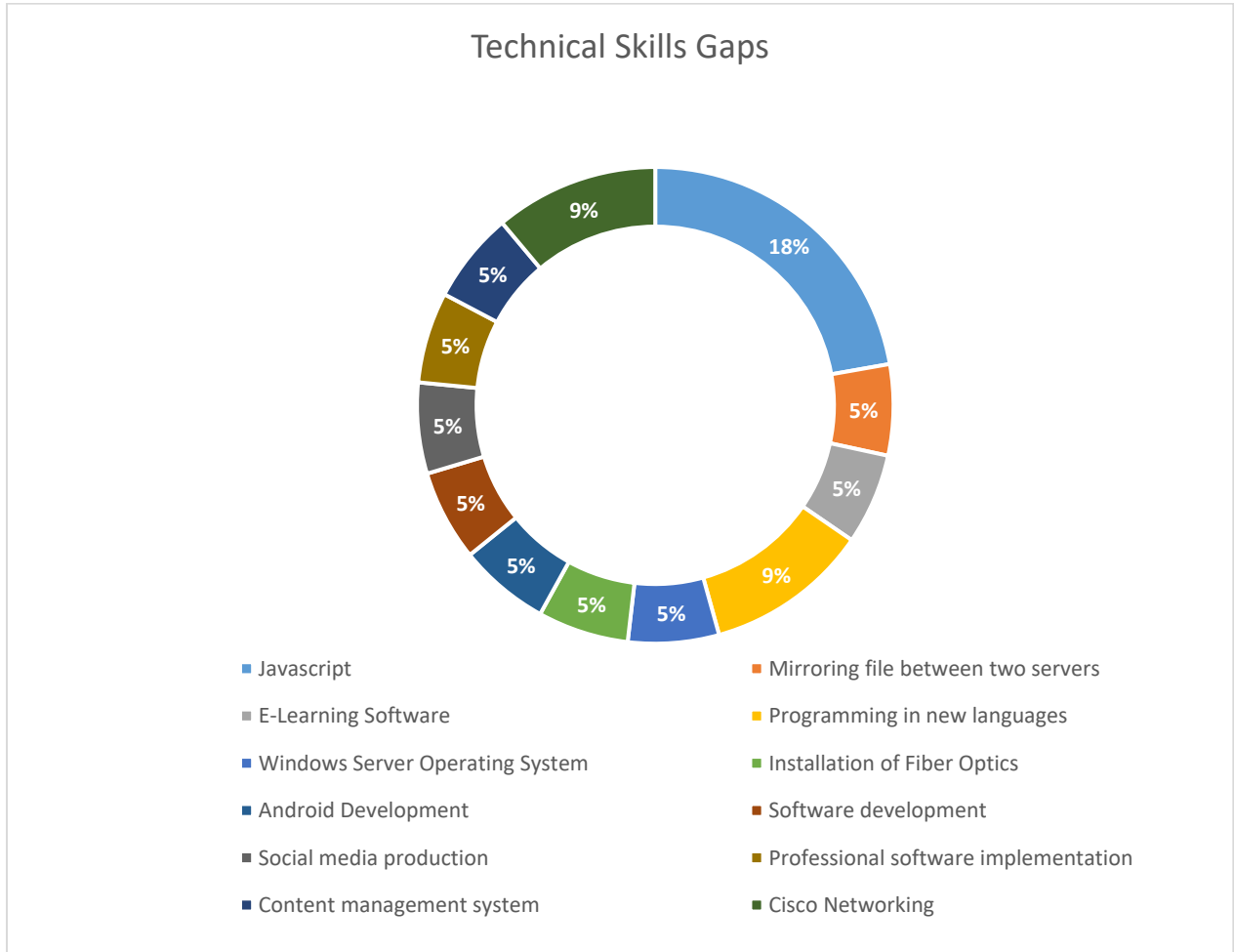Promoting Social Justice in Lebanon

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Figure 20: Technical Skills Gaps

D. Recruitment

a. Recruitment methods

28.3% of businesses said that recruitment takes place through "Word of Mouth", indicating that employers are referred to a candidate through a reference or mutual acquaintance. This is the case in many sectors across Lebanon and is favouring well connected individuals to the expense of others who might be equally if not even more qualified. Many respondents from Focus Group Discussions warned that this method was disrupting the meritocratic process of job applications. According to the participants, the absence of a reference or "leverage" should not positively or negatively affect their application.

"You would get your first job using interference from someone with leverage ["wasta"] of course since we live in Lebanon." – Respondent N. 3, Unemployed Youth, Male.

"If you apply to Ogero which is currently hiring employees, she [HR employee] will not accept to receive the documents from you unless you inform her about your intermediary ["wasta"]. Therefore, your application will be declined if there is no one who is supporting your application." – Respondent N. 5, Unemployed Youth, Female.

Social media is quickly catching on with word of mouth in this sector though, especially in light of the nature of the sector which is anyway attracting tech savvy job seekers. 26.8% of companies said that they relied on social media.

Social media resonates well with young graduates searching for a job. LinkedIn, as well as Facebook were mentioned by female and male respondents during focus group discussions as good ways to search for job advertisements.

Other online channels are also being leveraged by digital companies such as online job search engines which was mentioned by 9.3% of respondents and company websites which were mentioned by 8.9% of respondents.

Private recruitment companies are also still existent in this sector, with 11.8% of companies mentioning these. Universities and TVETs ranked low among the preferred recruitment methods which could indicate a lack of trust in these institutes.
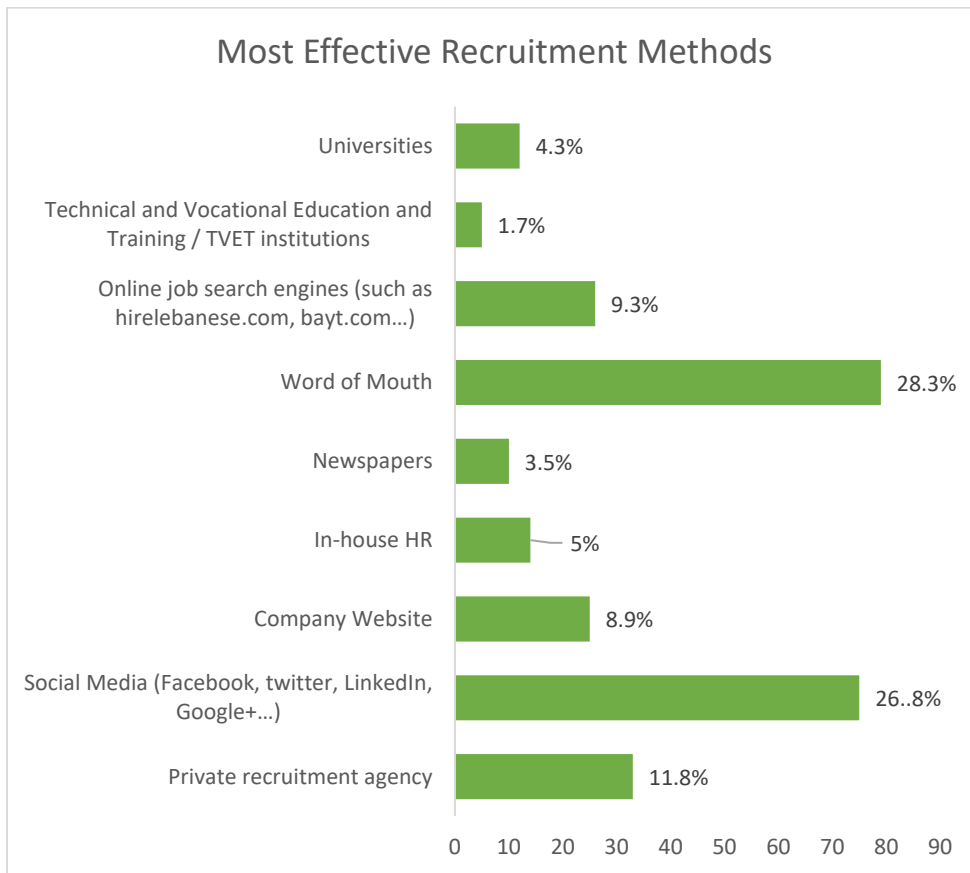
Most Effective Recruitment Methods

Method	Value
Universities	4.3%
Technical and Vocational Education and Training / TVET institutions	1.7%
Online job search engines (such as hirelebanese.com, bayt.com…)	9.3%
Word of Mouth	28.3%
Newspapers	3.5%
In-house HR	5%
Company Website	8.9%
Social Media (Facebook, twitter, LinkedIn, Google+…)	26..8%
Private recruitment agency	11.8%

Figure 21: Most effective recruitment method

e. Recruitment challenges

51% of all respondents did not face challenges when recruiting new staff at their companies while the rest did. The main challenges faced included no or few applicants, the lack of required skills, lack of required experience and high expectations when it came to wages.
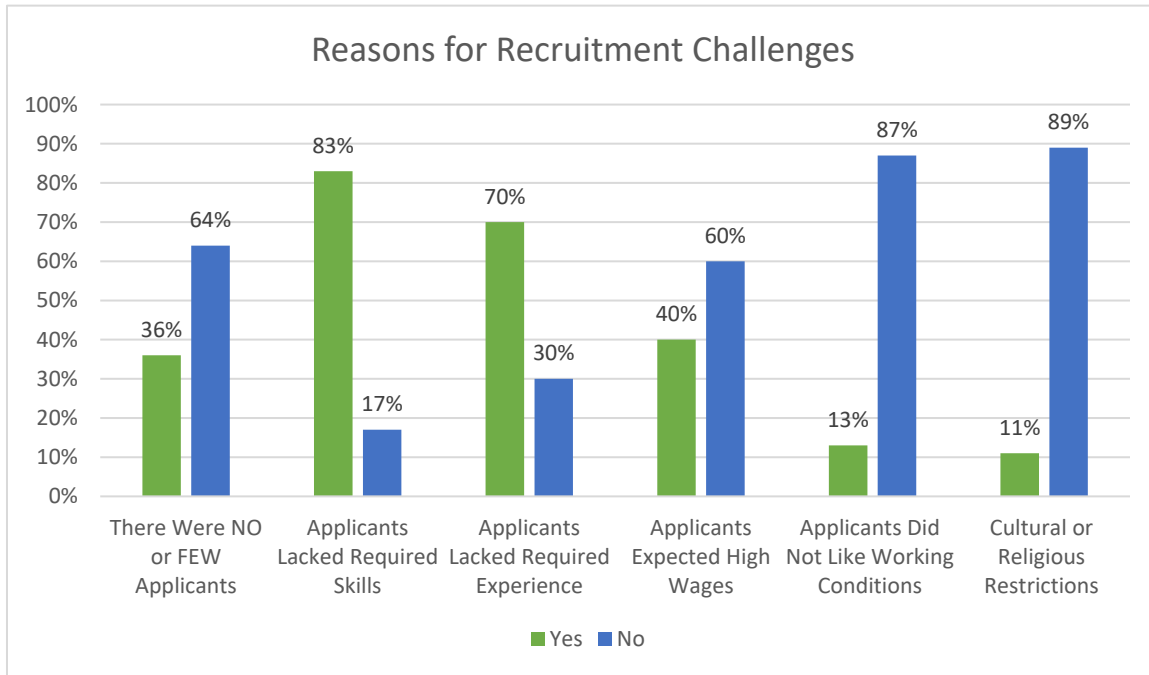
Figure 22: Recruitment Challenges

More insights gathered from key informant interviews shed further light on the issues related to recruitment:

> *"At the beginning it was very challenging to find resources. Experienced talent are difficult to attract, they don't leave their jobs easily if they are well paid. Also, they often choose to travel abroad."* – KII Sqwrl Lab

> *"When we open a position for recruitment, we get around 200 applications and none of them are qualified. We filter out the applications which are irrelevant, and the ones qualified are narrowed down to 6. After that they need to live at a close proxy to commute every day to our offices, which narrows them down even more. After interviewing these 6 candidates, we realize that none of them have adequate soft skills to work as part of our team. All university graduates are nowhere to be found."* – KII Omega

However, bigger companies such as Murex stated that working in FinTech is an obstacle in itself, simply because their senior staffers have a high turnover rate.

> *"The challenge is to keep our senior employees. The more experience they have, the more challenging it becomes to keep them. Murex is specialized, there is no room for innovation in big companies, because they are set in a niche."* – KII Murex

On another hand, employers in the start-up community are finding it difficult to find employees

who are willing to go through the risk of instability that comes with working at a start-up.

> *"The second hurdle is finding someone with the startup mindset in Lebanon. Most seek stability and are not at ease with their financial situation. This makes them seek a stable career and step away from startups."* – KII Lexyom

Job seekers, on the other end of the spectrum, believe that there is a surplus of job supply on the market, and not enough growth in the sector to keep up with it.

> *"So many students enrolled during the same period of time during the past six years. All universities started marketing and announcing their Information Technology majors. So a big number of I.T. students graduated altogether where the capacity of each company is to have one, two or three I.T. employees."* – Respondent N. 3, Unemployed Youth, Men.

They believe that this surplus is due to a lack of orientation from universities. Moreover, universities in general need to play a bigger role in acquiring jobs for their graduates.

> *"I feel that universities can have a role in this as well. For example, in other countries, when you graduate, universities help you apply for jobs in companies who they have partnered with."* – Respondent N. 1, Unemployed Youth, Men.

Older unemployed respondents believe that the fast pace of increased knowledge in the digital sector has rendered their education as outdated and no longer matched to the labor market.

> *"I am sure if one who has graduated with C++ degree or studied something that is considered old such as Pascale, Cascade. Now everyone is a web developer, Java. They write Java; all people know how to do IOS and Android."* – Respondent N. 5, Unemployed Adults, Men.

Moreover, as a key determinant of business competitiveness, wages and labor costs are affecting the workforce performance. As the 2016 PayScale report shows (IDAL 2016 in Investment Opportunities in the Technology Sector), the median annual wage of a software engineer in Lebanon is 37% lower than in the GCC and almost 50% lower than in some developed economies. Although this cheap labor force helps produce cheaper products, it lacks however effective leadership to guide individuals through change and deliver results.

E. Women in the Digital Sector

According to a statistical report published in 2009 by the Central Administration for Statistics (CAS), women who make up half of the Lebanese population, form only 21% of the labor force as compared to men who occupy 66% of the jobs. Particularly, women have difficulties

penetrating the Communication and information technology (ICT) sector because they are less able to access technical training and because of their limited mobility. The nature of women's employment is different from that of men as the working female population is mostly engaged in part-time, low paid work and clerical jobs. It was noticed that 79% of women – as compared to 55% of men-work as employees (rather than self-employed) being attracted mostly by the stability of the jobs and the shorter hours provided.

When looking at the distribution of residents by sex, data reveals that the percentage of females is higher than male in all age groups between the ages of 25 and 74 years. Yet, the distribution of employment by sex and according to economic activity sector shows that the rate of employment of women is 12.5% lower than that of males in the telecommunication sector (ILO, Labor Market Information, 2017).

This discrepancy in gender is also confirmed in the gender distribution for new businesses, particularly for the tech start up; 81.18% of the founders are males as compared to only 12.12% for women. Yet, it was argued that female entrepreneurs tend to hire more women in their start- ups and to provide better working conditions to them. Thus, increasing and encouraging more women to become entrepreneurs will affect positively the feminine labor force.

It has been argued that only 3% of the bank loans goes to women entrepreneurs. Because of gender related obstacles, it is difficult for women to access funding from the banking sector. The high unemployment rate in Lebanon, coupled with socio- cultural values favoring males make it harder for women to contribute to the economic life.

The Lebanese Labor Law issued in 1965 ensures equal remuneration for the same job between males and females. Yet, studies show that there are wage gaps that exists among males and females even within the same sector and occupation. In the IT sector, the situation is somehow different; it was argued that the average wage of females is higher than that of males in the IT field (Akeel, *Gender Based Differences among Entrepreneurs and Workers in Lebanon*, 2009).

According to the Business Surveys, most companies responded negatively when asked if they have found any recruitment challenges when recruiting women. Only 16% stated that they indeed faced challenges when recruiting women.

On the demand side of the labour market, respondents seemed to agree that women add a significant value in the digital sector's workforce and have skills that are essential in building a strong company.

> *"In jobs that require a high level of focus, women are able to notice things that a man cannot notice."* – Respondent N. 3, Unemployed Youth, Men.

> *"Women's role is revealed in tasks that require logic and thinking. For instance, if you are installing a router, it requires a lot of effort. However, women would be "pickier" when handling such matters while men are stronger or more knowledgeable when it*

comes to the installation. She would help him by guiding and instructing him. However, her role will only be theoretical." – Respondent N. 6, Unemployed Youth, Female.

Others believe that there is no need for differentiation between men and women, considering that the digital sector is mostly consistent of desk jobs which do not need any physical labor.

"Jobs related to IT and computer do not need any muscles." – Respondent N. 4, Unemployed Adults, Female.

And last, some believe that women earning a lower salary is more profitable for companies, especially in the current weak economic situation in Lebanon. Meaning, start-ups would prioritize employing women over men for the benefit of cheaper salaries.

"A woman does not have to think about the house and the family. She only has to think about her personal spending. A woman directly accepts any salary, even if it is low." – Respondent N. 2, Unemployed Adults, Male.
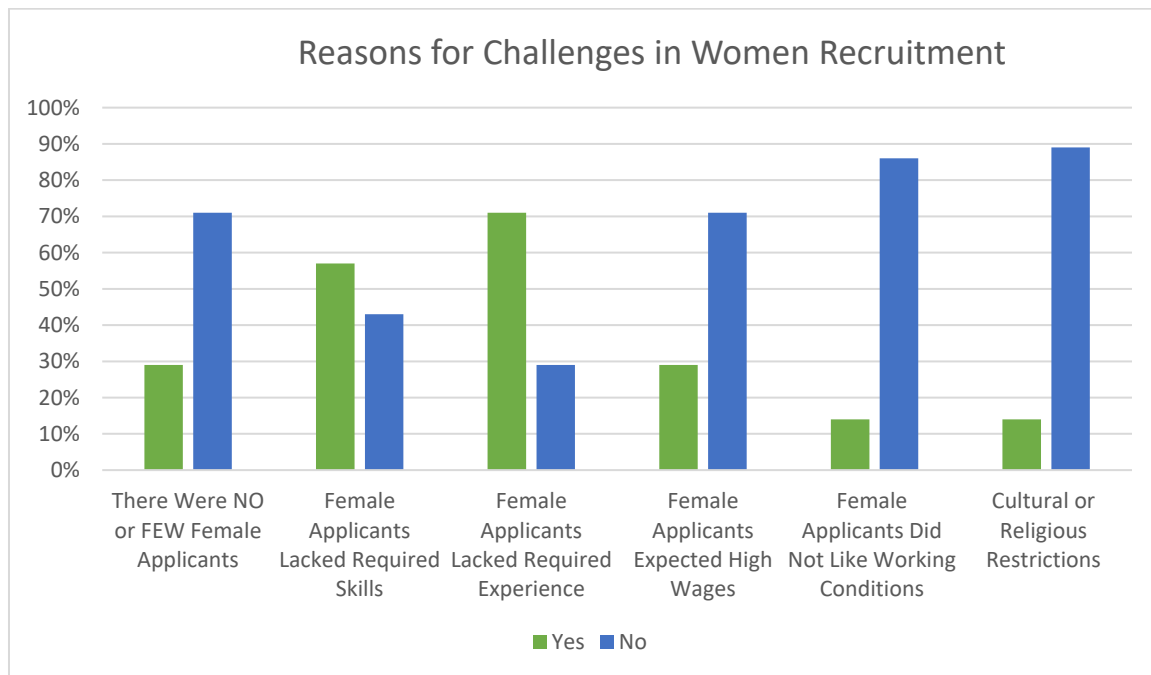

Figure 23: Reasons behind the challenges when recruiting women

According to business surveys, the reasons behind any challenges related to recruiting women were mostly related to having dew applicants, or applicants that lacked skills or experience.

On the demand side of the labour market, many respondents voiced their concerns regarding obstacles in recruitment. Though business owners did not seem to set cultural or religious restrictions (according to the Business Surveys), many women claimed that they got rejected from several job opportunities because of cultural considerations such as being veiled.

"So he [the employer] replied by saying that my veil indicates my affiliation to a certain group of people and that will consequently affect their clients given that they work with a wide clientele profile." – Respondent N. 5, Unemployed Youth, Female.

Also, many women indicated that employers often state in job postings that the applicants must be men and that no female applications will be accepted. This is especially true for jobs in IT installation which require hard manual labor.

"In the telecommunication sector, most of the work is performed on servers during the night and most female applicants do not accept to work during the night. Moreover, you can find a lot of job vacancies where they mention that they require male employees only." – Respondent N. 5, Unemployed Youth, Female.

"In the Information Technology sector, there are two sections, one for software and another for hardware. The hardware field is a bit difficult for women. You rarely find a woman who is willing to do the physically-demanding jobs in hardware (lie under a computer, climb over the server, change cables). Most women don't accept to do such tasks and prefer a more physically comfortable work." – Respondent N.3, Unemployed Youth, Male.

Even though some women requested to work in physically demanding jobs, their employers refused.

"I once applied for an internship in a company and I asked to be assigned outdoor work. The employer was surprised and told me that they usually hire male employees only to perform outdoor tasks. He also suggested that I only perform desk work." – Respondent N. 1, Unemployed Youth, Female.

Others have stated that they have been rejected from job applications because of their marital status. Moreover, many male respondents believe that women should be treated differently because of their marital status, as they need to take care of a household.

"I was once directly rejected from a job application when they knew I am married." – Respondent N. 5, Unemployed Adults, Female

"They should look and evaluate a woman based on her marital status. In Lebanon, working hours are between eight and nine hours. If a woman is single, the working hours should be between seven and eight hours, while if she was married, it should be between five and six hours. The salary should differ as well." – Respondent N. 4 Unemployed Youth, Male.

Moreover, although most companies offer maternity leave to women in the workplace, as much as 13% do not offer this facility to working women, which of course hinders the possibility for women who have families to actually work in the sector.
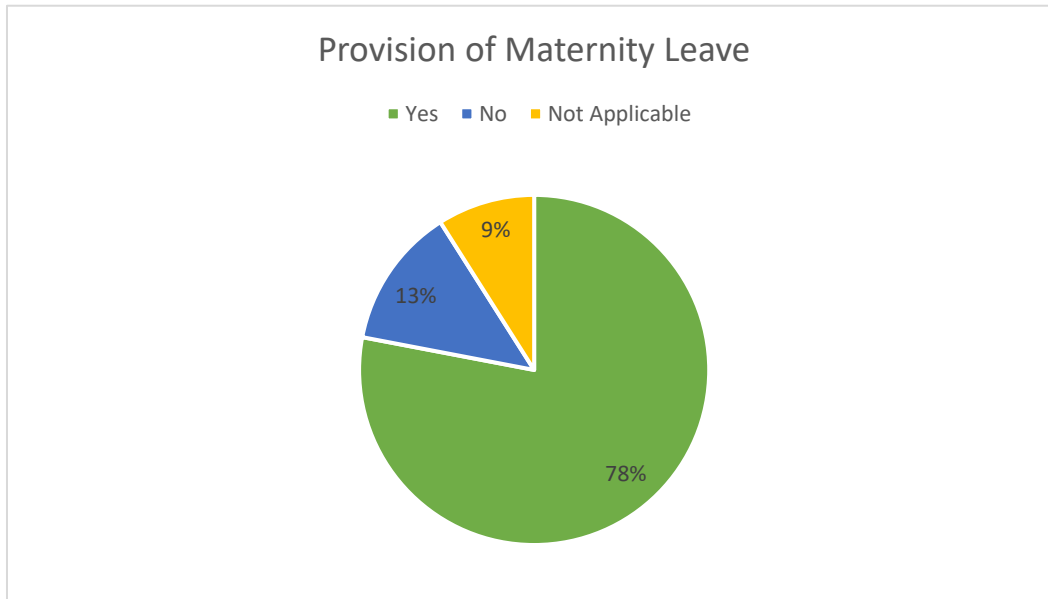
Provision of Maternity Leave

Yes ■ No ■ Not Applicable

Figure 24: Provision of Maternity Leave

In general, the provision of maternity leave is present at most companies, but there is no available data on the duration of the leave provided. Many women respondents believe that women are targeted if they ask for longer maternity leave.

> *"She might lose her job if she asked for a longer maternity leave."* – Respondent N. 4, Unemployed Youth, Female.

Other service provisions, be it for men or women, were a source of concern mentioned by job seekers. Some of these are of a special concern to women: Flexible working hours, for example, would be beneficial for women who have families and . Nevertheless, not all businesses provide such benefits.

> *"Men are free in their time. If he arrived home late, his wife won't shout at him. However, if a woman was forced to work for nine hours a day, he will make her life a living hell until she gives up and quits her work."* – Respondent N. 2, Unemployed Adults, Female.

> *"The insurance, salary and most importantly the working time are all major criteria that we look for. We care the most about the working time especially because we are females."* – Respondent N. 6, Unemployed Youth, Female.

Moreover, although most businesses claimed that they provide transportation costs for their employees, many believe that the stipend is not enough to cover their daily travels. Mostly, respondents preferred working close to their home areas in order to reduce transportation costs.

"I search for a job that offers me a sufficient salary because I don't have a car and I would have to pay a lot for transportation. I also care that the workplace be in the area I live in because there is much traffic. I don't want to move from one area to another and have to spend a quarter of my day on the streets." – Respondent N. 3, Unemployed Adults, Female.

F. Youths in the Digital Sector

The number of university graduates has been increasing over the past decade. As the ILO (International Labor Organization) stated, in the policy brief (2015), there was a significant increase from 2008 to 2013. A high enrolment rate was observed in the fields of engineering, IT, science and business administration.

When analyzing the job vacancies, it was noted that not all jobs are advertised, especially that many enterprises rely on direct referrals from existing employees or seek family or personal connections. Jobseekers who have a poor social capital and lack interpersonal skills find it more difficult to connect in order to find employment. As for the vacancies that are advertised, particularly professional vacancies, 11.3% of total vacancies were related to opportunities in information and communication technology (ILO, Policy Brief, 2015). There are gaps between the jobs advertised and the supply of jobseekers. This imbalance, along with the little information available in the country about job opportunities, make it harder to improve the employment gaps.

However, the WBG (World Bank Group) program for Lebanon for the period FY17-FY22, is intended to bridge the skills gap and the supply and demand discrepancy in the labor market. The program targets the Lebanese youth by providing life skills training, job search technique, and help youth connect to the jobs and increase productivity in all fields.

The study of the tech start up in Beirut revealed that the average age of the founders is 29.8 years old, typically highly educated and have had some professional experience before they start their ventures. 51% of the founders had a degree in STEM (Science, Technology, Engineering and Mathematics), while only 14% had graduated with a business degree.
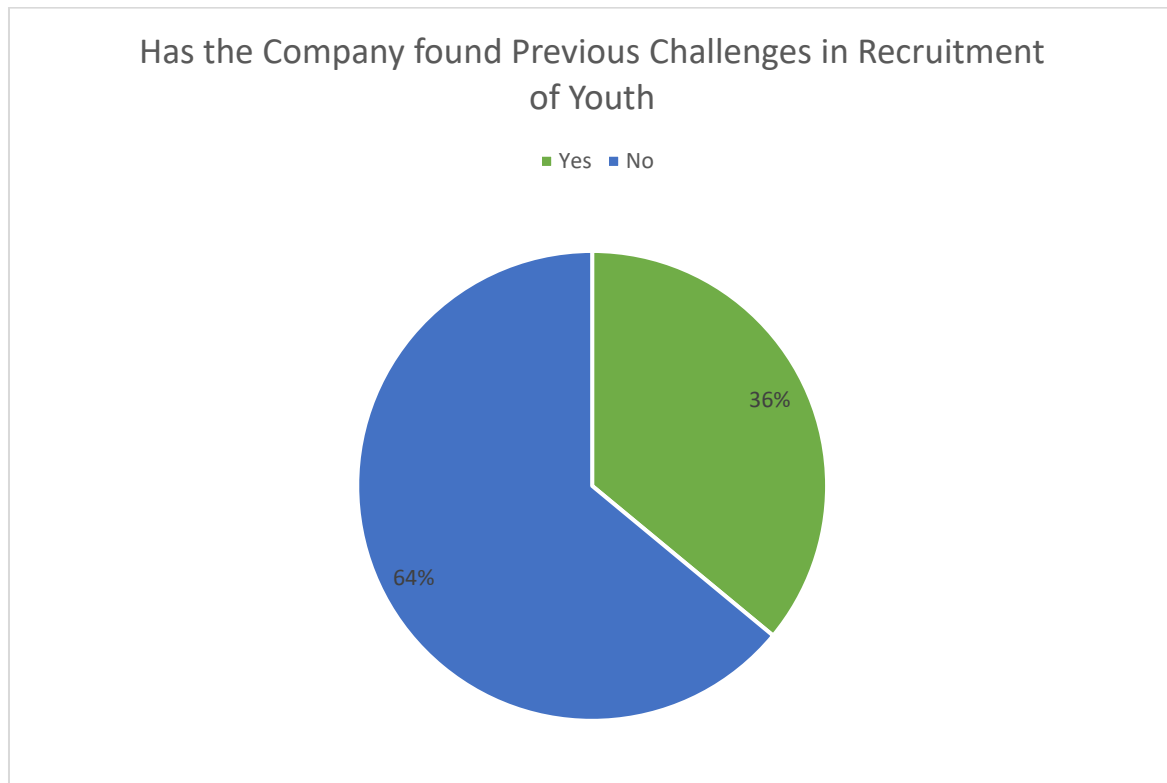
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Figure 25: Challenges in recruiting youths

36% of businesses responded positively when asked if they are facing challenges in recruiting youth members. Most of the responses were related to youths' lack of experience and lack of skills. This can be referenced back to the lack of technical skills required for the job (i.e. specific coding language, specific operating systems, etc). According to a Key Informant Interview, the reasons why businesses cannot read the talents of the fresh graduates properly is because graduates do not know how to formulate their CVs and sell their brand.

> *"The developers are mostly introverts, they don't show themselves, and they don't have well-written CVs. No one is helping them to showcase their talents. They end up unemployed, and we end up unaware of their talents to bring them out of their niche."*
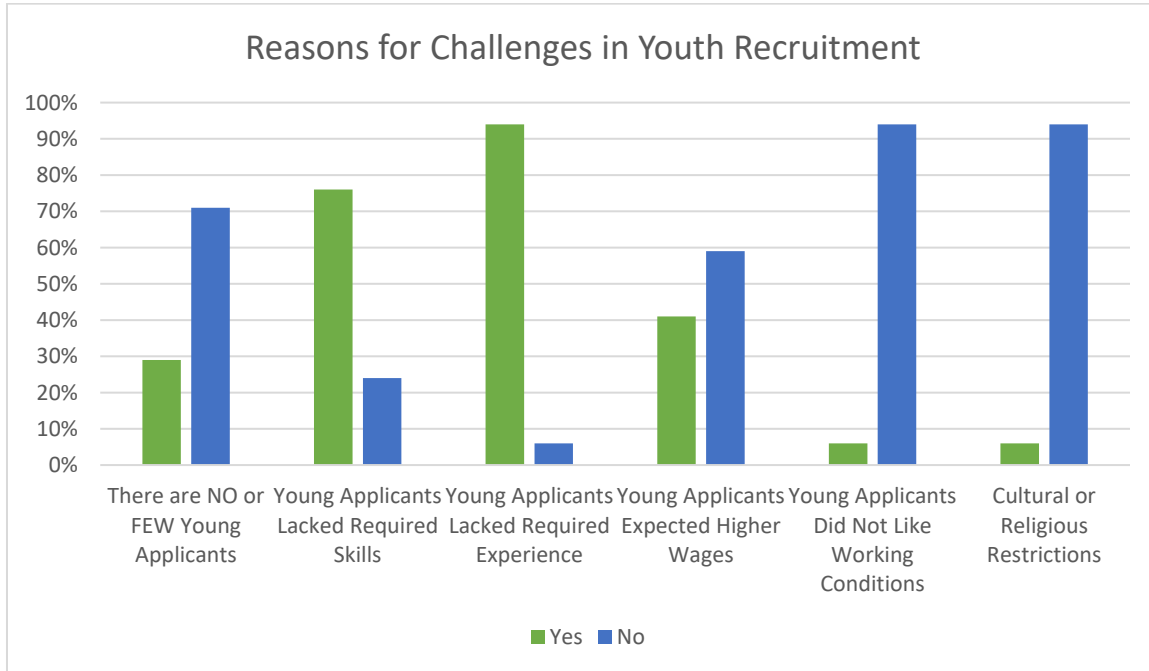> – KII Murex

Figure 26: reasons for challenges in youth recruitment

Yet, according to the focus group discussions, young unemployed graduates have faced cultural and religious discriminations (though the opposite is reflected in the business surveys).

> *"You would go to companies, like Teletrade, they will look at your appearance, your sect, your religion, and last of all they ask you about your experience."* - Respondent N. 4, Unemployed Youth, Male.

Moreover, many stated that the cost of acquiring the required experience is too high, as some courses are not provided in universities and need to be learned on their own.

> *"The Cisco training courses cost $500 and the certificate costs $200. It has six levels so you're forced to finish one and start the next. You'll end up paying $8,000 or $5,000 to take all certificates."* – Respondent N. 3, Unemployed Youth, Male.

> *"The major obstacle we are facing is that the minimum registration fees for these training courses are USD 1,000 or USD 1,800. In case you asked him for a reduction because you are unemployed, he would reduce the fees to USD 800. Therefore, I can't afford it."* – Respondent N. 3, Unemployed Youth, Female.

G. **Training and Education in the Sector**

f. **Trainings Provided**

Companies responded positively when asked if any training is provided to their employees. Most of the training provided however, is not through a training institute, but in-house on the job training which was mentioned by 53.7% of respondents. Training centres and schools came in second with 20.5% of answers, and training through equipment came in third with 14.8% of responses. Only 8.5% mentioned special training facilities in-house.
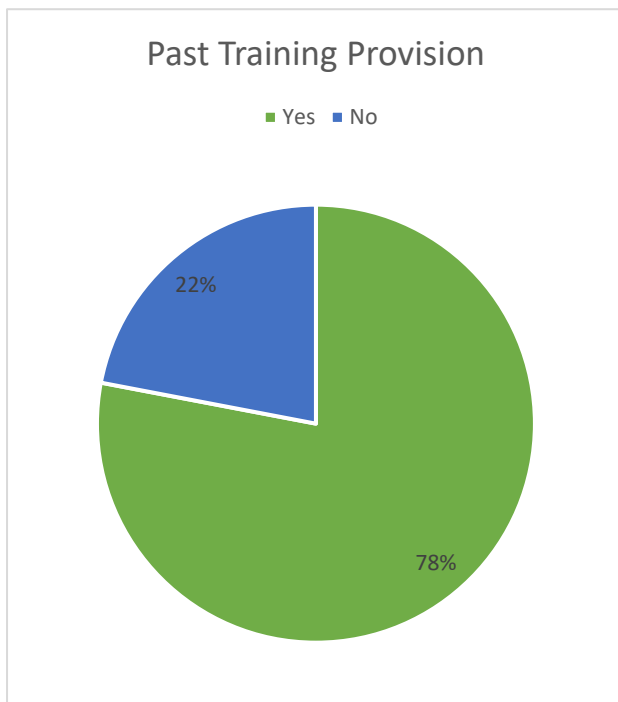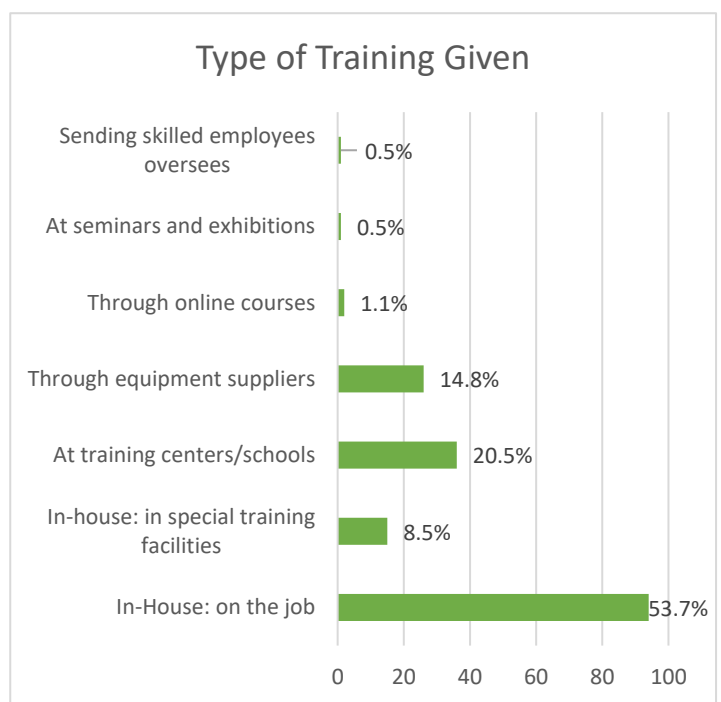

Figure 28: Training Provided

Figure 27: Types of Training Previously Provided

The types of trainings previously provided were mostly related to training on new machines or working on a new product, as well as other job-specific technical skills. Other soft skills such as leadership, presentation skills, project management, and teamwork courses were stated as previously given to employees.
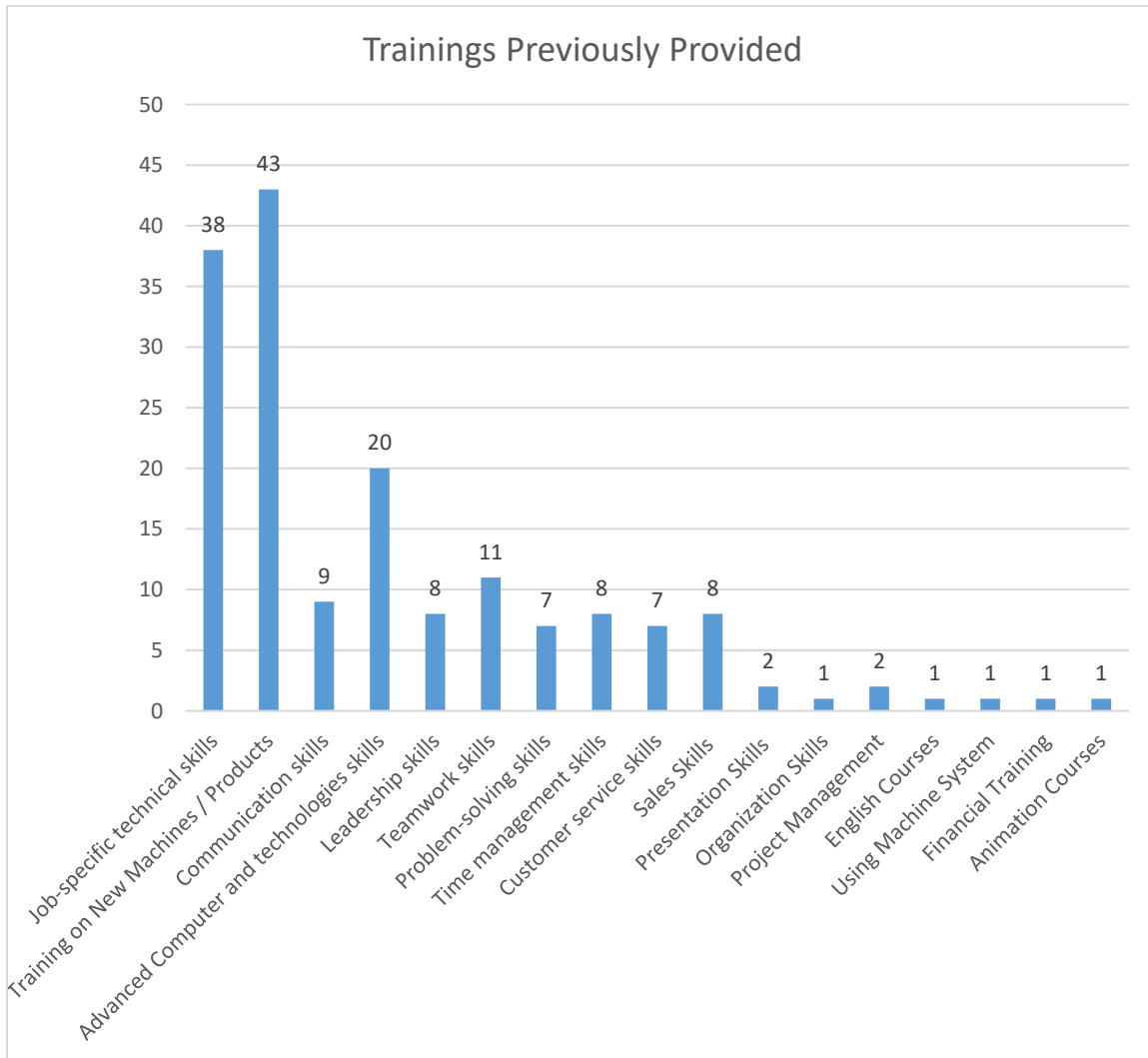
Figure 29: Soft Skills Training Previously Provided

More in-depth technical skills training included variations of new coding languages, new system operations, software development (Android, IOS, etc), and JavaScript.

Specific Technical Skills Training

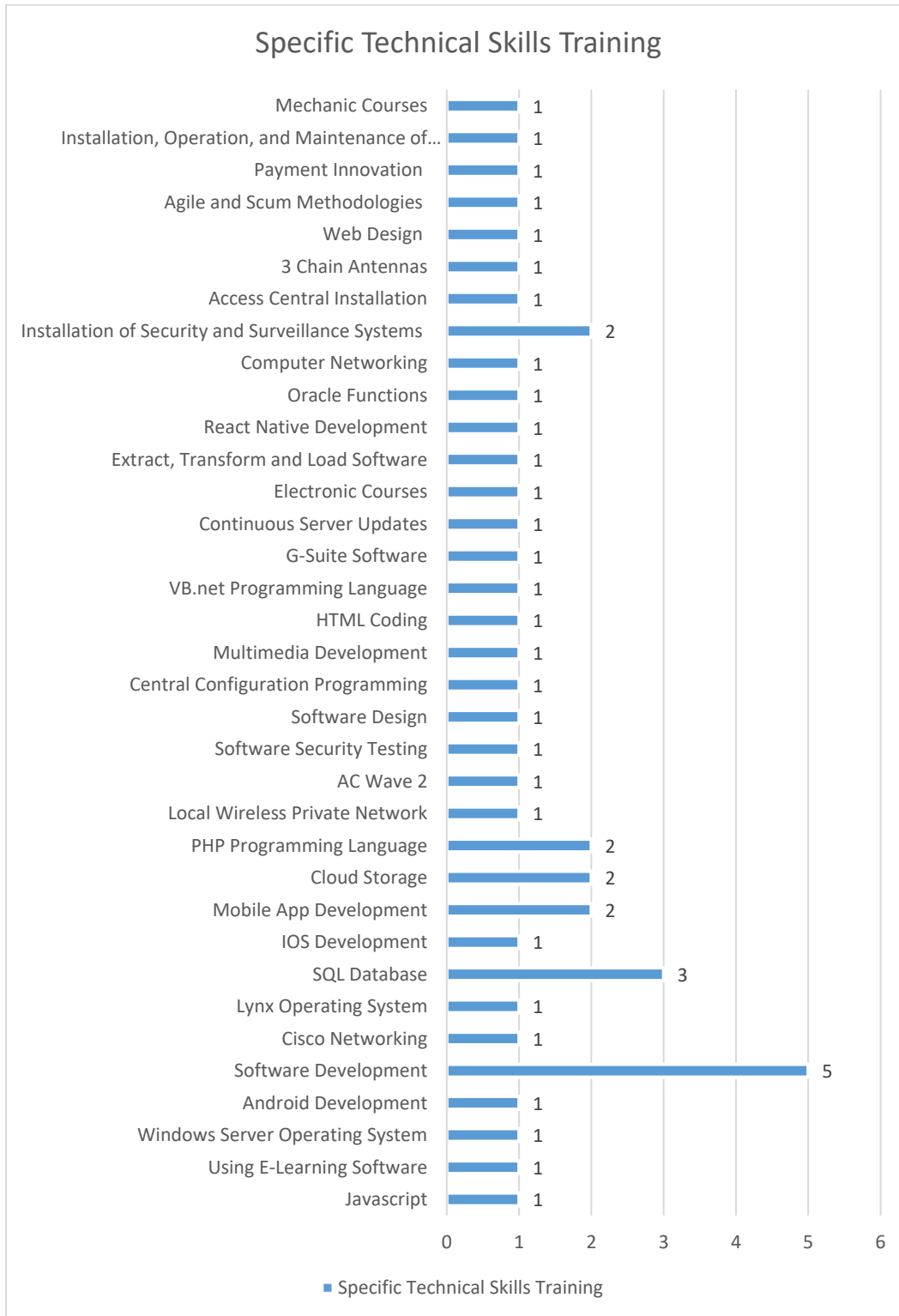| Skill	Value
Mechanic Courses	1
Installation, Operation, and Maintenance of…	1
Payment Innovation	1
Agile and Scum Methodologies	1
Web Design	1
3 Chain Antennas	1
Access Central Installation	1
Installation of Security and Surveillance Systems	2
Computer Networking	1
Oracle Functions	1
React Native Development	1
Extract, Transform and Load Software	1
Electronic Courses	1
Continuous Server Updates	1
G-Suite Software	1
VB.net Programming Language	1
HTML Coding	1
Multimedia Development	1
Central Configuration Programming	1
Software Design	1
Software Security Testing	1
AC Wave 2	1
Local Wireless Private Network	1
PHP Programming Language	2
Cloud Storage	2
Mobile App Development	2
IOS Development	1
SQL Database	3
Lynx Operating System	1
Cisco Networking	1
Software Development	5
Android Development	1
Windows Server Operating System	1
Using E-Learning Software	1
Javascript	1

■ Specific Technical Skills Training

Figure 30: Technical Skills Training Previously Provided

Most companies have used FormaTech as a training provider when they have resorted to

external training providers. Many other training providers were also mentioned per the chart below.

Formatech	Trace Training and Consulting Experts	MITCO	Morgan International Lebanon	Smartman Sarl	Microsoft Lebanon Sarl
NetCom Systems Sarl	Netsuite (UK)	PC Deal Net	Touchpoint	Oracle	Matica
Paradox	Ingram Micro	Reem Trading	American Language Center	Amideast	New Horizons
	Apave	SE Factory	Sacotel		

According to a Key Informant Interview, coding schools such as Cody and SE Factory are gaining more popularity in the digital sector.

> *"Coding schools have started to proliferate Cody / is an example of a social project as it integrates people from various backgrounds and vulnerable communities to try to get them back into the workforce."* – KII Sqwrl Lab

Many do not have the means to get training providers, or do not feel the need to do annual and consistent training, so they resort to online academy subscriptions for their employees, a sort of E-Learning.

> *"Sqwrl have an enterprise account for Udemy which is very useful. Employees learn how to code using new frameworks new languages etc."* – KII Sqwrl Lab

> *"We have a channel where we tell our employees to post what they learned every day. We also give our employees Kindle accounts where they can read any book they want."* – KII AIY Expert Solutions

Others have lost hope in training providers, as they have not seen any progress in the performance of their employees post-training.

> *"We got several programmers to teach them new languages which are not taught at university. We got trainers several times, but we were not satisfied. Regardless of how skilled they are, they were not able to translate their knowledge to the team because the results were the same as before (did not improve). There is no follow up being done from these trainers even though we trusted them to do their job."* – KII Omega
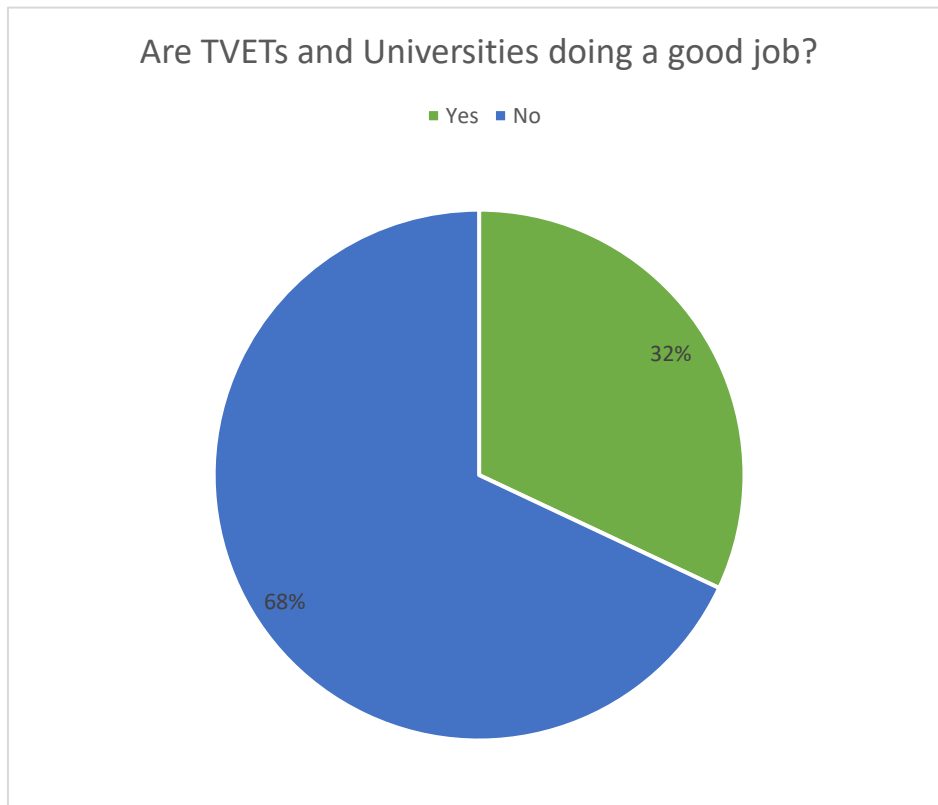
GOPA
WORLDWIDE CONSULTANTS

g. Education

Figure 31: Perceived performance of TVETs and Universities

68% of businesses did not trust the performance of universities and vocational institutions. According to the Surveys, only one third of businesses believe that universities and TVETs are doing a good job. Reasons for such a distrust were further highlighted during key informant interviews:

> *"The universities are to blame for the skills gap. They're very basic in their curriculum. They're not updating their courses to fit the market needs. These universities need qualified professors to teach these courses, but qualified professors are scarce."* – KII Waitron

> *"Fresh graduates learn the old languages which are not adapted to the market. Also, programmers graduate without learning any life skills and business skills."* – AIY Expert Solutions

> *"Universities have curriculums tailored to the old-fashioned way. They are not adapting. They are slow, and you only discover that when you graduate and need to face real life*

challenges. Even in the legal industry it's the same. One studies law for 4 years, then discovers a new world once they get a new job. It's the same problem in all sectors, in all majors, in all universities." – KII Lexyom

Nevertheless, comments made in one interview show an opposite point of view. The blame for this lag in adaptation cannot be put on universities, as trends in the digital sector are often fast paced and leave the market as fast as they enter.

"We need a new way of learning. Universities cannot be blamed for this alone. Job needs depend on worldwide trends, yet, trends come and go, and we don't know which one will stick. Universities cannot adapt to a trend and give a course related to it, only for the trend to be fake. The students wouldn't have benefitted. For example, cryptocurrencies and block-chains; if universities teach virtual currencies and it ends up not working out, the students would graduate with wasteful knowledge. That's why educational institutions are keeping it safe." – KII Murex

Respondents from the focus group discussions have also voiced concerns regarding the education provided by universities.

"As Telecommunication engineers, we don't have much experience in these fields [networking and programming]. This is because our major is more focused on telecommunication than on computer engineering. The companies are not hiring us given that we need prior experience in programming. Unfortunately, we did not complete huge programming projects at university." – Respondent N. 2, Unemployed Youth, Female.

H. Leading Universities and TVETs

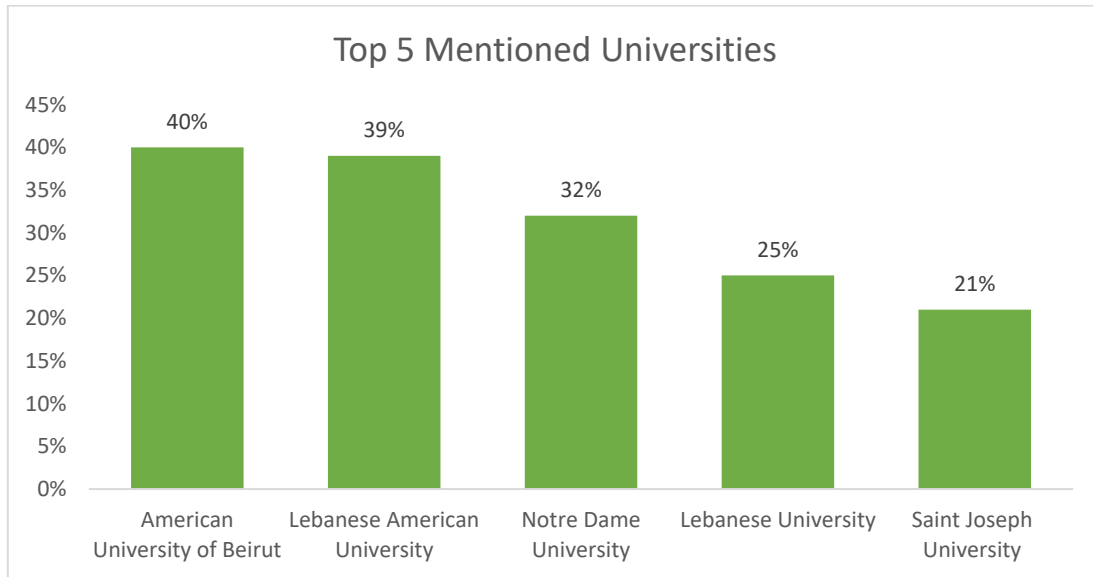**Top 5 Mentioned Universities**

Figure 32: Top 5 mentioned universities

Business Surveys have shown a clear preference to private universities which land on the more expensive side of the spectrum. 40% of respondents mentioned AUB, 39% mentioned the LAU and 32% mentioned NDU.

> *"We keep in touch with AUB to scout for fresh grads and post grads that can be of an added value to the Sqwrl team."* – KII Sqwrl Lab

> *"UK Tech Hub have a database of all the students graduating from SE Factory or individuals who are interested in digital marketing, or who want to do some business. We know them through the ecosystem."* – KII Lexyom

This can be problematic, for, students which come from low income households cannot afford to pay for tuition at big-name universities, therefore opt for getting a degree from a local university. These university degrees are not recognized by employers and thus these applicants are rejected. Employers believe that hiring students from a reputable university will increase the credibility of the company.

> *"One time, I applied to "Fox" in Jnah. He asked me "where did you graduate from?" I told him "from the CIT". He asked me "What does it mean CIT?" [I.e. implying that CIT is not important]."* – Respondent N. 4, Unemployed Youth, Male.

> *"The company agrees to pay them [graduates from the aforementioned universities] USD 300 more than what they pay for graduates from the Lebanese University. They do so because they believe it is good for the company's reputation to have employees who have graduates from these universities."* – Respondent N. 5, Unemployed Youth, Female.

According to the Business Surveys, most digital companies did not collaborate with TVET institutions, even though many TVETs provide computer science and IT specializations. Only 8% of companies were in fact in touch with these institutes.
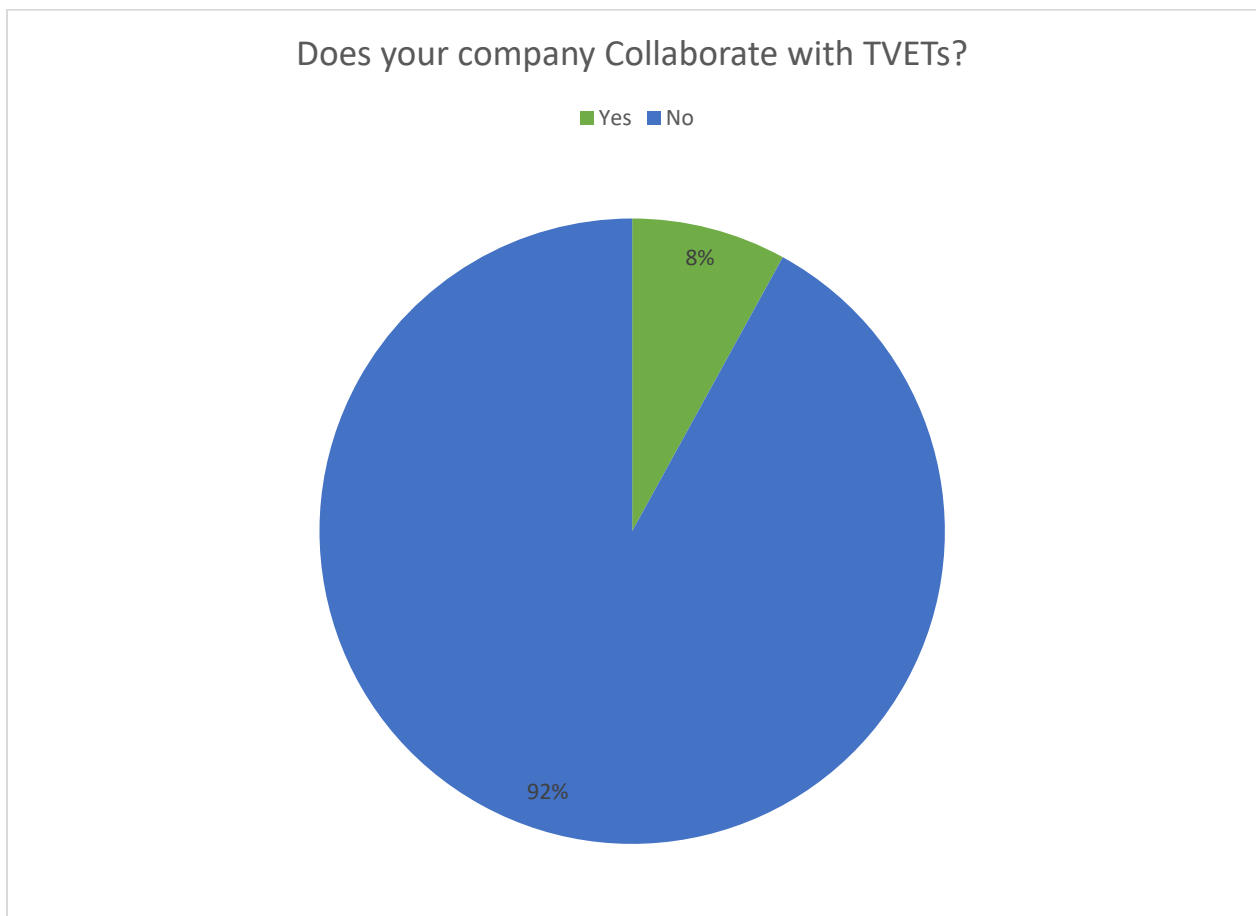

Figure 33: Collaboration with TVETs

When asked about the best TVETs in Lebanon, Al Kafaat came first followed by Universite Cnam Liban, Industrial Technical Institute, Byblos Institute and Siblin Vocational Institute.
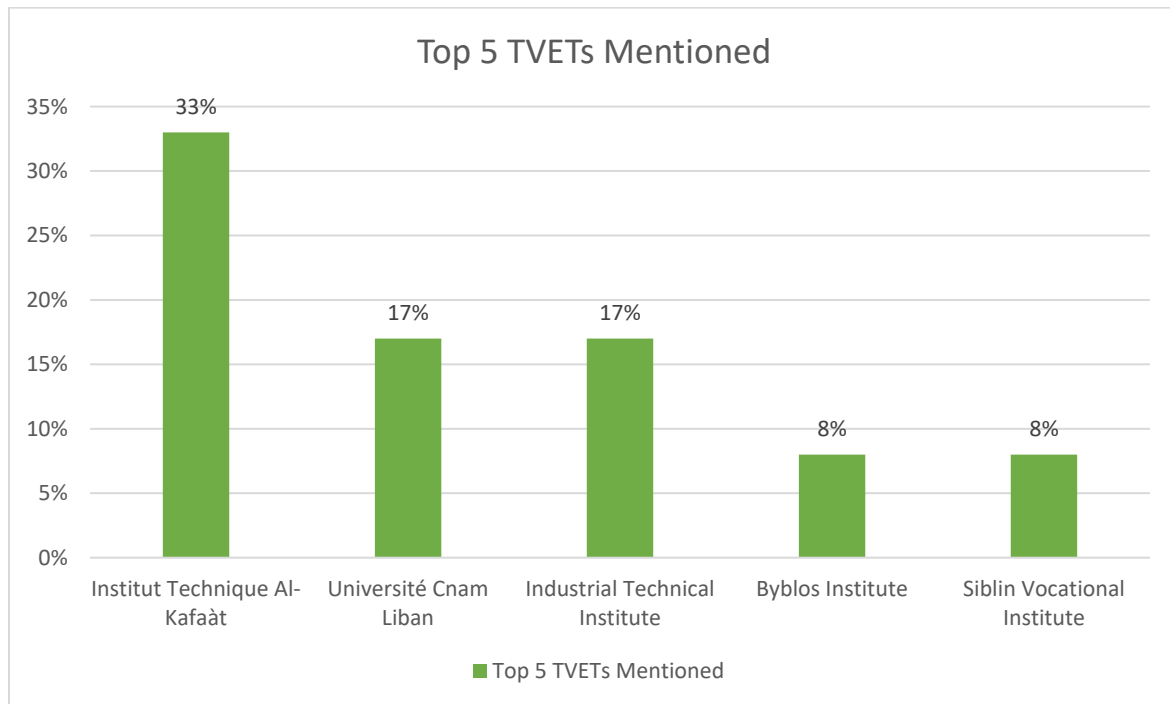
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Figure 34: Source – Top 5 TVETs mentioned

60% of companies that did collaborate with institutes mentioned doing so for internship programs and 74% did so for hiring purposes. Another 2% only participated in job fairs. Most of the employers from the Business Surveys believed that any collaboration with TVETs or universities should be made through internship provisions or recommendations for hiring fresh graduates. According to key informant interviews, big companies such as Murex and Omega participate in job fairs at universities to seek new talents.
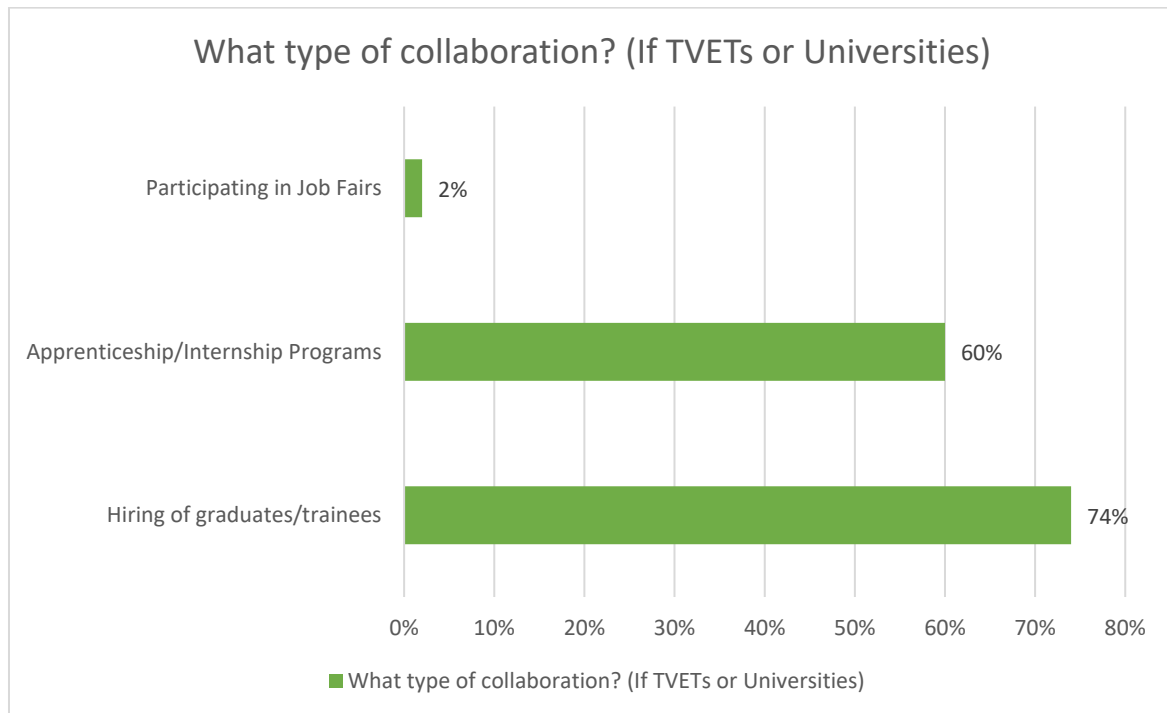
Figure 35: Type of collaboration

IV. Recommendations

Training & Education Recommendations:

- Provide training after hours for existing staff and those already working in the sector or in other sectors, in order to balance with their work schedule and potentially provide them with career advancement and development opportunities.
- Provide affordable trainings on new coding and development languages and emerging trends in the digital sector.
- Update university curriculum to fit the current needs of the market, even if it means spending more money on qualified instructors in fields that were previously not addressed by the universities.
- Push for the improvement of soft skills training especially with regards to CV writing, leadership, teamwork, communication, and presentation skills
- Introduce more "Early-on" education in the tech and digital sector.
- Develop the current curriculum given at schools and universities to introduce entrepreneurship and product development courses.
- Create better linkages with the private sector, be it through job fairs but also through roundtables and open discussions with representatives of the digital sector.

SME Recommendations:

- Provide more apprenticeship/internship and hands on training opportunities for young undergraduates and graduates.
- Collaborate with lesser-known universities to spread knowledge and expertise beyond the 'top of mind' universities in Lebanon.
- Participate in or help organize job fairs.
- Increase training for fresh recruits as well as long time employees to ensure career growth and development. Different trainings can be given through training providers.
- Connect with TVETs, training providers and other institutes to provide recommendations, rather than passively criticizing their performance.
- Engage in roundtables with key stakeholders to discuss key opportunities.
- Create a Syndicate or association of tech startups / businesses.
- Do not rely on word of mouth for job searching. Keep the process meritocratic, post offers online and communicate them offline.
- Provide employees with added benefits that are not necessarily costly, as it stabilizes them, increases their confidence, and lowers the turnover rate.

Ministry of Labor and NEO Recommendations:

- Organize a digital sector job fair or other types of events connecting digital and tech companies with potential recruits.
- Provide recommendations to applicants on how to write a CV and position themselves in the job market.
- Encourage the establishment of more coding schools, tech oriented TVETs and training institutes instead of focusing on traditional sectors that are not generating as much output as they used to (eg: agriculture and construction)
- Provide career guidance and recommendations in addition to directing youths and women towards the digital sector by suggesting training centers, TVETs and other institutes that can help enhance their skills and know-how in this sector.

Government and Policy Makers

- Introduce regulations for startups (tech or other), giving them leeway for two years to breed and get their feet on their ground.
- Encourage entrepreneurs through the empowering of Venture Capitals, accelerators, and incubators. When investors do not feel high financial pressure, they will put less stress on entrepreneurs and give more room for trial and error.
- Invest in risk. A "Knowledge Economy" should be able to take high risks and learn from these risks. Innovation comes only from risk taking. And Lebanon cannot be innovative and competitive if it keeps following trends rather than innovating.

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