

# TECHNOLOGY AND INNOVATION IN IRAQ

A Market Assessment of  
Tech Sector Businesses in Iraq

IOM Iraq – 2019

This programme is supported by:



**USAID**  
FROM THE AMERICAN PEOPLE

**KFW**



Kingdom of the Netherlands



From  
the People of Japan

## IOM Disclaimer

The opinions expressed in the report are those of the authors and do not necessarily reflect the views of the International Organization for Migration (IOM). The designations employed and the presentation of material throughout the report do not imply the expression of any opinion whatsoever on the part of IOM concerning the legal status of any country, territory, city or area, or of its authorities, or concerning its frontiers or boundaries.

IOM is committed to the principle that humane and orderly migration benefits migrants and society. As an intergovernmental organization, IOM acts with its partners in the international community to: assist in meeting the operational challenges of migration; advance understanding of migration issues; encourage social and economic development through migration; and uphold the human dignity and well-being of migrants.

Contact: For more information on the Return and Recovery Unit (RRU) programme and current activities taking place in Iraq, please contact: [iraqpublicinfo@iom.int](mailto:iraqpublicinfo@iom.int)

Main Office in Baghdad  
 UNAMI Compound DIWAN 2  
 International Zone, Baghdad, Iraq.  
 Tel: +3908 3105 2600 ext. 5857/5928  
 E-mail: [iraqpublicinfo@iom.int](mailto:iraqpublicinfo@iom.int)

## List of Acronyms

GDP	Gross Domestic Product (GDP)
CCNA	Cisco-Certified Network Associate
CCNP	Cisco-Certified Network Professional
EDF	Enterprise Development Fund
EDFi	Enterprise Development Fund innovation
ES	Employer Survey
GPS	Global Positioning System
HR	Human Resource
IDC	International Data Corporation
IOM	International Organization for Migration
IOS	iPhone Operating System
IT	Information Tech
KII	Key Informant Interview
KRI	Kurdistan Region of Iraq
MCSA	Microsoft Certified Solutions Associate
MENA	Middle East and North Africa
NGO	Nongovernmental Organization
ODK	Open Data Kit
OPEC	Organization of the Petroleum Exporting Countries
OSP	Open Settlement Protocol
RRU	Returns and Recovery Unit
UN	United Nations
MENAP	Middle East, North Africa and Pakistan
ERP	Enterprise Resource Planning
LTA	Live Text Access

## TABLE OF CONTENTS

IOM Disclaimer .....	2
List of Acronyms .....	2
Executive Summary .....	4
Key Findings .....	4
1. Introduction .....	4
2. Methodology Overview .....	5
2.1 Data Collection Methods	
2.2 Geographical Area Selection	
2.3 Sampling Methodology	
2.4 Data Processing and Analysis	
2.5 Limitations	
3. Tech Industry Overview - Iraq .....	6
4. Findings .....	6
4.1 Tech Market Definition	
4.2 Tech Business Environment	
4.3 Opportunities for Business Expansion and Employment Generation	
4.4 Government Priority Areas	
4.5 Private Sector Investment	
4.6 Recent Tech Sector Developments (1–2 years)	
4.7 Supply and Demand	
4.8 Customers	
4.9 Competition	
4.10 Tech Labor Market	
4.11 Legal and Regulatory Frameworks	
4.12 Tech Business Registration	
4.13 Challenges	
5. Conclusions and Recommendations .....	13

## Executive Summary

Iraq's economy is gradually picking up following the serious economic challenges of the last five years. However, a lack of infrastructure and public spending devoted to the tech sector development has left the burden of investment in this sector to private companies. To encourage tech industry development, the government could take a first step by having clear policies and regulations guiding the sector, as well as a system to avoid monopolies, patent rights and legal protection against copying, as well as business-friendly tax rates.

Currently, telecommunications, online shopping, trading and electronic services, and smartphone applications are some of the common tech businesses operating in the country, to name a few. A wide range of customers benefit from these services, including individuals, businesses, private companies, non-governmental organizations, banks and government institutions. Telecommunication is the tech business category receiving the biggest portion of private investment, followed by trading services and internet services. There are not many such tech businesses, however, and with growing access to internet, demand for goods and services delivered using tech-solutions represents a potentially large market.

However, several factors continue to hamper privately backed tech development in Iraq: a lack of market incorporation, difficulty in securing investments, regulatory and legal barriers, a lack of trust in tech businesses, and a lack of skilled manpower. Difficulties in online payments for both businesses and customers through cards and mobile wallets, data protection, and the privacy of electronic transactions are among other operational challenges mentioned by respondents.

Moving forward, it will be crucial for the government to encourage tech industry development and take steps to facilitate private sector investments. The role of tech incubators and the nongovernmental (NGO) sector working in Iraq will be equally important to develop the skills of entrepreneurs and provide seed grants to start or scale up tech innovations. Taking steps in this direction would be both timely and instrumental to allow the Iraqi tech sector to catch up to economies where tech has already taken off.

## Key Findings

- Telecommunications and mobile payments are reportedly the only two competitive tech sectors in Iraq, while other tech areas are still under-developed.
- Web designing was reported as the leading businesses in demand by Key Informants.
- E-commerce (food, real estate, shipping, transportation and travel services), e-banking and digital payments were reported

as major underdeveloped sectors in Iraq.

- The majority (90%) of businesses reported that the employees they have hired are not related to them, indicating that tech businesses may be prioritizing skills over connections when hiring.
- Tech professionals in Iraq also reported earning an average salary of US\$ 725, which is more than double the average monthly per capita income.<sup>1</sup>
- Finding the right talents, and legal barriers associated with the launching of new tech businesses, are some of the biggest current challenges facing tech businesses.
- Respondents reported poor command of the English language and logical thinking, a lack of technical expertise, and relevant academic backgrounds as skill barriers in finding qualified human resources.
- 50% of key informants reported security surveillance systems, e-governance, telecommunications, database management, internet services and electronic and mobile financing as government priority areas for investment.
- 62% of respondents reported government legal frameworks and polices as supportive, whilst the remaining 38 % respondents found this question difficult to answer.

## 1. Introduction

The tech sector can be defined as the area of the economy comprised of companies that “harness technology to create a competitive advantage.”<sup>2</sup> Given the conflict with the Islamic State of Iraq and the Levant (ISIL) and the fall of oil prices in 2014, there have been very little public resources to invest into Iraq's tech sector. In 2003 and following years, physical damage to telecommunications infrastructure<sup>3</sup> meant that Iraq saw a growth in mobile phone ownership as a way of bypassing infrastructural shortcomings. It is estimated, for example, that 95% of families in Iraq currently have mobile phones<sup>4</sup>. From 2009–2014, the Information, Communication and Tech sector grew at a pace similar to the rest of the economy (17.9%).<sup>5</sup>

But ISIL territorial advancements from 2014 created a trail of service provider shutdowns and setbacks, creating a geographic imbalance<sup>6</sup> in terms of basic access to telecommunications. With a marked slowdown in the sector and the deterioration of public finance due to the economic crisis, the sector currently lags behind in terms of services compared to neighbouring countries. Yet it has tremendous potential. According to the World Bank, the real GDP of Iraq is estimated to have grown by 0.6% in 2018, compared to a 1.7% contraction in 2017. The improvement in the economy is mainly due to improvements in the security situation and a hike in oil prices. The same report pointed out that non-oil sectors also

<sup>1</sup> Al Ahram Weekly (2019) More salary, less work [online]. Available at: <http://weekly.ahram.org.eg/News/3598.aspx> [Accessed 26 May 2019]

<sup>2</sup> Tech Nation (2017) What is a Tech Company, Anyway? [online]. Available at: <https://technation.io/news/tech-company-definition/> [Accessed 26 May 2019]

<sup>3</sup> UNESCO. (2019). Assessment of the Labour Market and Skills Analysis, Iraq and Kurdistan Region-Iraq, Information and Communication [online]. Available at: [https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/2019/04/UNESCO-EU-LMS-Report\\_ICT\\_20022019.pdf](https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/2019/04/UNESCO-EU-LMS-Report_ICT_20022019.pdf) [Accessed 5/26/2019]

<sup>4</sup> Ibid

<sup>5</sup> Ibid

<sup>6</sup> Ibid

grew by 4%, and growth is expected to remain positive<sup>7</sup>. As such, the tech sector can likely also expect to regain some of its previous footing and further develop. Even if not a national priority, the relevance of and potential for technological solutions to everyday issues may in itself attract the necessary funding for the sector to continue expanding.

To better understand the current situation of the tech sector in Iraq, a market assessment was conducted in late April 2019. The findings of the market assessment will be used to guide the International Organization for Migration (IOM) Enterprise Development Fund innovation (EDFi) programming within the Returns and Recovery Unit (RRU). IOM intends to roll out the EDFi grant mechanism by targeting early stage tech businesses in Iraq. The fund will prioritize tech businesses based on their sustainability and scalability, and on the potential to create new employment opportunities for unemployed youths.

The findings summarized in this report are drawn from key informant interviews (KII) and employer surveys with tech professionals and businesses in different cities of Iraq, particularly Erbil, Sulaymaniyah and Ninewa, as well as secondary literature available from online resources and Five One Labs. For the purpose of this assessment, a database of tech businesses operating in different cities was developed and invited to participate in the assessment process. Due to time limitations, only tech businesses and professionals who agreed to participate in the assessment process were considered for the study.

The methodology used in this research was developed using EDF market assessment tools, and necessary changes were made to target the tech sector in multiple areas, while EDF market assessments typically target multiple sectors within one assessment area. The main research questions this assessment sought to answer were:

1. What is the current situation of the tech market development in Iraq?
2. What are the different barriers curbing the tech sector?
3. Where do opportunities exist to support early stage tech startups with the potential to generate employment opportunities and contribute to tech market growth?

## 2. Methodology Overview

### 2.1. Data Collection Methods

Data collection for this report was collected from April to May of 2019, as an exercise to inform programming aimed at revitalizing the tech sector.

#### 2.1.1 Literature Review

A review of existing literature was conducted, largely using digital platforms to gain a general overview of the tech market in Iraq. Information on market trends, entry barriers, competition, risk, opportunities and business resources and economic environment for tech businesses was gathered and assessed. Furthermore, qualitative information received from Five One Labs was also incorporated in the process of report development.

#### 2.1.2 Key Informants Interviews (KII)

A wide range of people directly and indirectly involved with the tech industry or having firsthand knowledge about the tech community in Iraq were consulted. A list of tech businesses with their contact details was prepared beforehand, using various information sources. To assist with this process, interviewers were given interview guides that included an introduction letter, an information sheet, a consent form, and a list of questions. The ones who agreed to participate in interviews were then considered for the interview. In total 26 KIIs were conducted in person or over the phone, depending upon the respondents' preferences and availability.

#### 2.1.3 Employer Survey

10 employer surveys were conducted to obtain a clear picture of skills required by tech businesses and determine whether workers have these skills. To assist with this process, interviewers were given interview guides that included an introduction letter, an information sheet, a consent form and a survey guide.

Data collection method	Number completed	Location of data collection
Key Informant Interview	26	Sulaymaniyah (12)
		Erbil (13)
		Basra (1)
Employer Survey	10	Sulaymaniyah (8)
		Erbil (1)
		Ninewa (1)

### 2.2 Geographical Area Selection

No geographical restrictions were set for the purpose of data collection, considering the nature of subject under study. Efforts were made to include a diversity of respondents in terms of geographical scope. However, due to time limitations and tech businesses being centralized in big commercial cities, the majority of responses were recorded from Erbil and Sulaymaniyah, with a few from Mosul and Basrah. Of the 26 KIIs recorded, 12 were from Sulaymaniyah, 13 from Erbil and one from Basrah. Similarly, out of 10 employer surveys conducted, eight were from Sulaymaniyah, one was from Erbil, and one was from Ninewa Governorate.

### 2.3 Sampling Methodology

For KIIs, in some instances snowball sampling or chain sampling methods were deployed to identify additional respondents for KIIs and employer surveys. For KIIs, 20 male and eight female respondents from seven occupational categories (accounting and auditing, advertising, marketing and public relations, computer hardware engineering, computer programming, and others) participated in interviews, whilst for employer surveys, one female and nine male businesses employers, representing seven tech business areas (digital marketing, e-commerce, social media security, telecommunication, networking, database development and electronics production) participated in the survey.

<sup>7</sup> World Bank. (2019). Iraq's Economic Update - April 2019. [online] Available at: <https://www.worldbank.org/en/country/iraq/publication/economic-update-april-2019> [Accessed 4 May 2019].

## 2.4 Data Processing and Analysis

Qualitative and quantitative data was gathered using Open Data Kit (ODK) - an android-compatible tablet-based application. After data collection, the data was cleaned, segmented and coded for analysis. The data processing and analysis was done using Excel.

## 2.5 Limitations

The sample size was not large enough for statistical inferencing. In addition, data collection was limited to a few locations. However, considering that the Kurdistan Region of Iraq (KRI) and Baghdad are likely the largest markets for tech services in Iraq, the heavy concentration of respondents from the KRI is appropriate. Because many respondents work in KRI, some references to government regulations may be specific to the Kurdistan Regional Government and may not be relevant to the rest of Iraq.

With a limited number of tech businesses operating in Iraq, the tech business database for Key Informant Interviews and Employer Surveys prepared was diverse in terms of geographical distribution. Many of the tech businesses coordinated through email and phone calls did not respond to requests, and therefore restricted the sample size for data collection. A limited timeframe and resource constraints were other limitations of the study.

## 3. Tech Industry Overview - Iraq

Although foreign firms dominate the telecommunications industry (such as Zain, Korek and Orange), there are various other telephone and internet service providers that are available in varying geographic areas of Iraq. In addition to this the Iraqi Ministry of Communications also runs three companies (The Iraqi Telecommunications and Post Company, the State Company for Information Systems, and the Salam Company), which together are responsible for fibre optic networks and managing IQ domains.

Evidence suggests that there is still room for further development of tech services in Iraq, especially apart from in telecommunications and internet service provision. In some cases, this may take the form of niche services and e-commerce, which can be attractive to those starting with little capital or unable to meet start-up cost needs, such as youth. Young people (aged 15–24) currently represent 19.6% of Iraq’s population<sup>8</sup>, and the unemployment rate is estimated to be around 14.8%.<sup>9</sup> Private sector jobs often don’t offer the same benefits and protections as public jobs, and there is competition for public jobs. Thus, while tech businesses such as Sandoog, Miswag, Brsima, Shiffer, Erbil Delivery, Talabatey represent a large potential to contribute to the Iraqi economy, they also indicate an enabling environment for tech start-ups which could be a promising driver of job-creation for young people.

## 4. Findings

### 4.1 Tech Market Definition

Different respondents had different perceptions of what defines the tech market in Iraq. Most defined the sector as an innovative way to reach out to the customer to deliver business products and

services in an easier and more efficient manner. Tech businesses were perceived as challenging to run and new to the country. The development of the tech sector is reportedly very slow and needs more attention from the government to grow further. That the tech sector has only achieved minimal development as compared to other countries in the region, was another response reported repeatedly.

Telecommunications and mobile payments were the only competitive tech sectors in Iraq reported by the participants, while other tech areas are still understood to be underdeveloped. Artificial intelligence, computer software and hardware, database development and programming, website development, online businesses, digital payment, digital marketing, graphic designing and application development were some examples provided of tech businesses in Iraq.

### 4.2 Tech Business Environment

#### 4.2.1 Businesses in Demand

Based on the data analysis of 53 responses recorded from 26 KIIs (where multiple answers were possible), participants identified 15 tech businesses as high-demand tech businesses in Iraq. Web designing was reported as the leading businesses in demand, accounting for 11% of total KII responses recorded, followed by digital marketing, e-commerce, smartphone applications, software designing, and telecommunications, which were all reported as the second-most in-demand businesses (10% of responses). Security solutions and database management were ranked third in terms of demand, both mentioned by 8% of respondents. Internet solutions, IT, trading and electronic services, online banking, hardware trading, digital printing and online payment were other areas reported in descending order of their demand, collectively accounting for a remaining 27% of total responses.

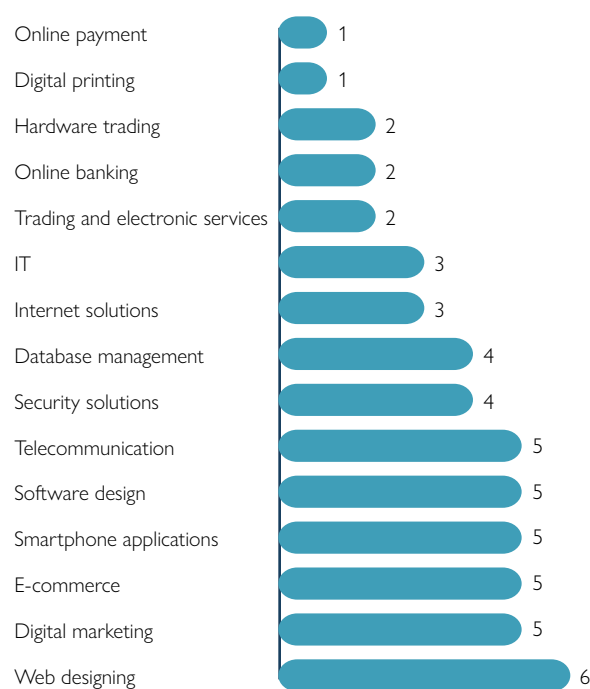


Figure 1: Tech Areas in Demand

<sup>8</sup> Cia.gov. (2019). Middle East: Iraq — The World Factbook - Central Intelligence Agency. [online] Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/iz.html> [Accessed 5 May 2019].

<sup>9</sup> Trading economics. Unemployment rate in Iraq [online]. Available at: <https://tradingeconomics.com/iraq/unemployment-rate> [Accessed 25 May 2019]

### 4.2.2 Key existing Tech Businesses

Forty responses recorded from the 26 KIs, reported 15 tech business types as currently operating business in Iraq. The data indicated that security solutions and trading and electronic services were most frequently identified as active businesses, each constituting 15% of the responses. This was followed by e-commerce, internet solutions, telecommunications and web designing, each representing 10% of responses. Similarly, software solutions, smartphone applications, database management, digital and coding skills, digital marketing, digital printing, online banking, online payment and all other tech businesses in Iraq accounted for 30% of responses.

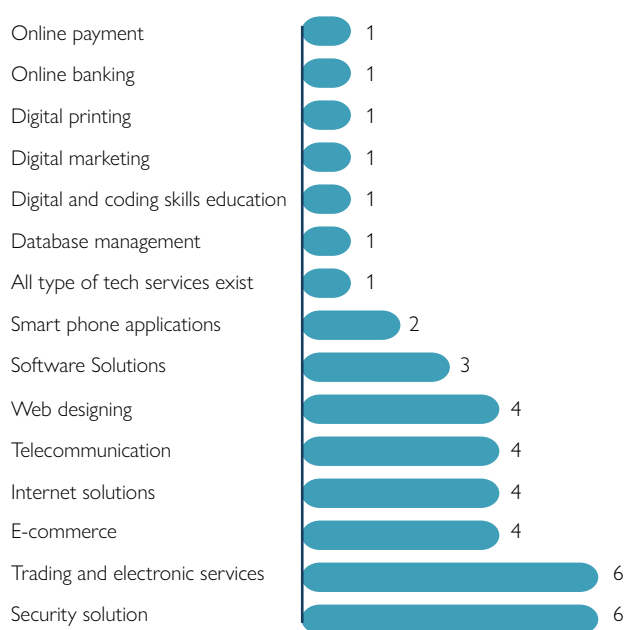


Figure 2: Existing Tech Businesses

### 4.2.3 Oversaturated Businesses

Telecommunications, online shopping, trading and electronic services were reported as some of the more easily available tech businesses, mentioned by 40% of respondents and therefore perceived to be saturated markets. Smartphone applications, digital marketing, internet services, web solutions, security solutions, oil and gas, software development, sponsored businesses, social media management, online service delivery and cloud applications were other businesses that may have reached saturation, as reported by the key informants. No doubt, telecommunications is the biggest tech sector in Iraq, in terms of company size, operations and staff employed. Excluding telecommunications, online shopping was reported as the second most saturated area. However, the saturation of online shopping businesses depends entirely on the sales of other businesses selling the same products or services.

### 4.2.3 Oversaturated Businesses

Telecommunications, online shopping, trading and electronic services were reported as some of the more easily available tech businesses, mentioned by 40% of respondents and therefore perceived to be saturated markets. Smartphone applications, digital marketing, internet services, web solutions, security solutions, oil and gas, software development, sponsored businesses, social media management, online service delivery and cloud applications were other businesses that may have reached saturation, as reported by the key informants. No doubt, telecommunications is the biggest tech sector in Iraq, in terms of company size, operations and staff employed. Excluding telecommunications, online shopping was reported as the second most saturated area. However, the saturation of online shopping businesses depends entirely on the sales of other businesses selling the same products or services.

Saturated sectors	Mentions
Telecommunications	4
Online shopping	4
Trading and electronic services	4
Smartphone applications	3
Digital marketing	3
Web solutions	2
Security solutions	2
Internet services	2
Oil and gas	1
Software development	1
Sponsored businesses	1
Social media management	1
Online service delivery	1
Cloud applications	1

Table 1: Saturated Tech Sectors

### 4.2.4 Underdeveloped Sectors

E-commerce (food, real estate, shipping, transportation and travel services), e-banking and digital payments were reported as the most underdeveloped sectors in Iraq, representing 18%, 15% and 15% of total responses recorded respectively. In addition, 50% of respondents reported cloud solutions, smartphone applications, digital marketing, artificial intelligence, digital printing, and e-governance as other underdeveloped tech businesses in Iraq. Enterprise resource planning (ERP), database development, cyber security, legal services, GPS and human capital development was also mentioned.

Sector	Mentions
E-commerce (food, real estate, shipping, transportation and travel)	6
E-banking	5
Digital payment (mobile wallet, smart card) t (mobile wallet, smart card)	5
Cloud solutions	2
Smartphone applications	2
Digital marketing	2
Artificial intelligence	2
Digital printing	1
E-governance solutions	1
Enterprise resource planning (ERP) management	1
Database design and management	1
Cyber security solutions	1
Security solutions	1
Tech legal solutions services	1
Global Positioning System (GPS) tech	1
Human capital development (developers)	1
No response	1

Table 2: Underdeveloped Tech Sectors

### 4.3 Opportunities for Business Expansion and Employment Generation

According to the responses recorded during the employer survey, all 10 of the businesses (100%) considered expansion of their business at some point. In addition to capital, experience in the tech sector, market demand, partnership opportunities, self-sufficiency and company vision and needs were other influencing factors that inspired businesses to expand or consider expansion.

A total of 80% of respondents also reported that if provided with a grant of US\$ 25,000, they would use the grant for business marketing and promotion, business expansion to new locations, hiring of new talent and investment in development of new products and services. These responses reflect that, if supplied with resources, businesses have a large potential to grow and create opportunities for income generation and employment. On hiring preferences, the majority (90%) of businesses reported that the employees they have hired are not related to them, indicating that tech businesses prioritize tech skills over hiring of relatives and friends. In the same survey, tech professionals and employees in

Iraq also reported earning an average salary of US\$ 725 – from a minimum of US\$ 300 per month to a maximum of US\$ 1500 per month.

The majority (70%) of businesses reported that they had undergone some type of training before or after they started their business, while 30% reported that they are operating their businesses based on self-learning. For surveyed employers who had received training, digital marketing, network management, business planning and online courses on tech startups/businesses were some of the topics covered during the training. Ten businesses, with an average lifespan of 3.5 years, reported employing 536 employees (or 54 employees per business on average). This demonstrates that existing tech businesses are already creating jobs for local talent, and that new innovative businesses in the future may also have this potential, if given the capital and resources required.

### 4.4 Government Priority Areas

While half of respondents reported that the government is not encouraging tech development in any area, a remaining 50% of key informants reported security surveillance systems, e-governance, telecommunications, database management, internet services and electronic and mobile financing as government priority areas for investment, as shown in the figure below:

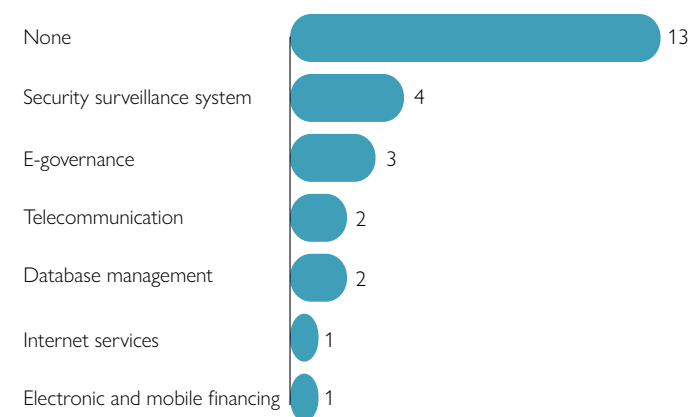


Figure 3: Priority Tech Businesses for the Government

As the results of the assessment show, the government is only prioritizing big tech sectors such as telecommunications, electronic financing and e-governance, while small tech businesses and startups are not seen as a government priority. To exploit the economic aspects of the tech sector in the country, the government needs to focus on the following issues reported by employer survey respondents:

- Lack of clear policy and regulations guiding the tech sector.
- Unclear and challenging registration for tech-based businesses.
- Lack of a system to avoid monopolies.
- Enforcement of patent rights and legal protection against anatomized copying.
- Business-friendly tax rates/tax exemptions.



## 4.5 Private Sector Investment

Of the 32 responses recorded from 26 KIIs, 25% of respondents reported that private sector investment is flowing into the telecommunications sub-sector, followed by trading services (16%) and internet services (13%). Some 9% of the responses reported that all the tech sector businesses operational in Iraq are receiving private investments. Similarly, application development (for android and apple devices), digital payment (mobile payments, e-banking, mobile wallet), IT (hardware, software, database and network) and e-commerce are other areas reportedly receiving private investments, collectively accounting for 31% of total responses. Furthermore, 3% of the respondents reported that the private sector has no money to invest in tech, and the remaining 3% respondents lacked information on private investment.



Figure 4: Private Sector Investment Areas

## 4.6 Recent Tech Sector Developments (1–2 years)

Based on the responses recorded from the KIIs, the tech sector in Iraq in recent times has seen the following changes:

- People are more familiar with tech, especially with the use of mobile tech and mobile applications, and therefore the number of tech clients has increased.
- The number of tech businesses is gradually increasing, and more people have started trusting tech businesses.
- Telecommunications services are growing very fast and hence the use of social media has become more accessible.
- The number of tech events such as TEDx, HITEX and IT life has significantly increased in recent times.
- With increased access to social media, more people have started using online shopping and tech services.
- Many companies are now seeking IT services, indicating that the demand for tech services has increased.
- With the introduction of online marketing, product and service sales have improved.
- Businesses have started managing databases of their business activities and transactions.
- The number of internet service providers has significantly increased, and hence there are some networking services with poor-quality services, while some have higher quality services.
- Finding the right talents, and legal barriers associated with the

launching of new tech businesses, are some of the biggest current challenges.

- Lack of access to digital payments remains a big hurdle for online businesses.
- The number of co-working spaces and business incubators has significantly increased, which has encouraged donors and investors to consider tech startups as a priority sector for investment.

## 4.7 Supply and Demand

Different businesses rely on different suppliers to receive the raw material they need for their products and services. Businesses dealing with online services reported using Facebook, Google, Snapchat, Instagram and digital ocean services for online shopping and website designing. On the other hand, businesses dealing with goods delivery reported maintaining local supplier inventories to receive supplies as per client requests. Big tech businesses such as telecommunications companies and electronics traders reported that they receive their supplies from China, Turkey, Azerbaijan, Dubai, Iran and Europe. About 90% of the businesses reported receiving the right quantity and quality of goods and services from suppliers. In response to a question on the challenges faced when dealing with suppliers, 60% of businesses reported that they do not face any such challenges, whilst price fluctuations, lack of written commitments from suppliers, lack of trust, competition and negotiations on commissions are some of the challenges reported by 30% of businesses.

On the demand side, 80% of businesses reported good demand for their products and services, followed by 10% who reported very good demand. The remaining 10% reported there is no improvement in demand as compared to the demand the previous year. Regarding the availability of products and services, 40% of businesses reported that all products requested by customers are available. Around 20% of businesses (telecommunication) reported the demand for 5G internet services is high, while another 20% reported that demand for European brands and products available on Amazon (clothes, diet supplements, cosmetics, games and joysticks) is also high, but that such products are difficult to find in the local market. The remaining businesses reported cloud services from apple (10%), electronic system tests for cars, and digital pricing services (10%) as products in demand but unavailable. Further on profitability, 80% of businesses reported that their businesses are profitable and successful, but not sufficiently to grow, while the remaining 20% of businesses reported their businesses are stagnant and barely able to sustain their own needs – one of these was based in Mosul.

## 4.8 Customers

A wide range of customers benefit from tech products and services in Iraq, ranging from private companies to individual clients, according to Key Informants. Based on the responses collected from 26 key informants, individuals, businesses, private companies, nongovernmental organizations, banks, government institutions and students are reportedly the main customers of tech products and services.

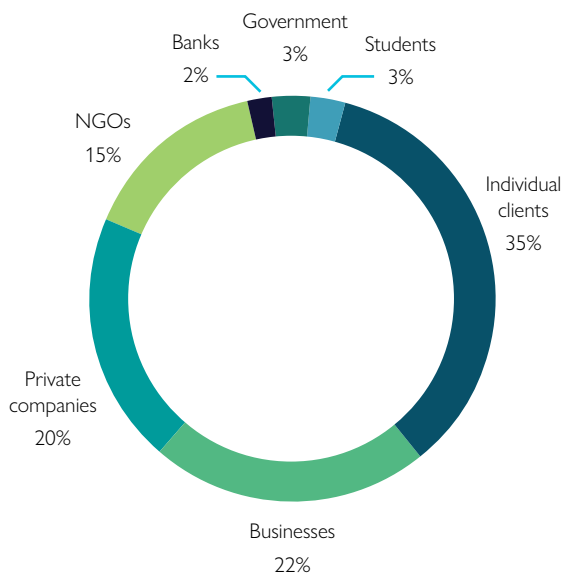


Figure 5: Tech Customers

The results of employer survey also showed that product and service sales vary from retail customers to big companies, depending on the nature of the business. Small businesses dealing with local suppliers tend to target individual clients, while big businesses are reportedly targeting retail customers, big companies and foreigners. Of the total businesses surveyed, 50% reported that they are selling their services/products to individual customers, 20% of businesses reported they are selling products and services to both individuals and companies, and the remaining 30% reported they are selling their products and services to big companies.

Consumer demand for cheaper products (20%), lack of trust in new startups (30%), lack of digital payment systems (20%), and delays in delivery contingent on product availability (10%) were some of the challenges reportedly faced by businesses while dealing with customers.

### 4.9 Competition

The majority (90%) of employers surveyed reported that there are not many businesses like the one they are managing, while 10% of the businesses reported that the number of existing active businesses in their category (database management and security surveillance systems) are surpassing the demand, that is, reaching saturation. To extend the customers' outreach and avoid competition, 60% of businesses are planning to expand their geographical reach to other cities, mainly Baghdad, KRI, south Iraq, Diyala and Najaf. Around 10% of businesses are looking for partnerships with big telecommunication companies, while the remaining 20% of businesses are aiming to increase and diversify their products and services.

## 4.10 Tech Labor Market

### 4.10.1 Employment Status

Telecommunications have emerged as the largest tech-related employment category, (63% of responses), followed by oil and gas (13%) and tech trading companies (6%). Software companies, digital marketing, media production, internet service providers and online businesses are among other employers, collectively accounting for 17% of responses documented.

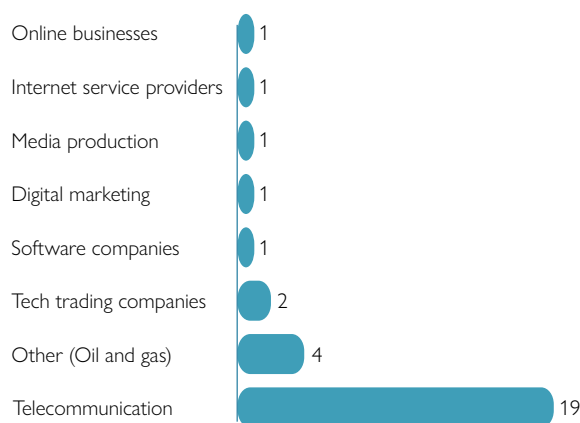


Figure 6: Employment by Tech Sector

### 4.10.2 Access to Human Capital

Concerning the availability of qualified employees, over half of respondents (54%) reported that it is not easy to find employees with the required skills in the tech sector. Lack of technical expertise and relevant academic backgrounds, particularly in product design, android application development, web development, IT, computer and networking are the major barriers faced by tech businesses when hiring. Respondents also reported poor command of the English language and logical thinking as other skills barriers in finding qualified human resources. Respondents highlighted that people with interest in the tech sector need free skills trainings and more support from the government, and that there is a huge need for software engineers, developers, data analysts and networking professionals in the tech industry.

As to skills acquisition, most respondents said they acquired their business skills when they decided to try an idea as an entrepreneur (60%), followed a formal certification or course (20%) or learned from a family business (10%), while the remaining 10% were employed by international companies who trained them. On the employee side, 10 businesses reported that they are currently employing 536 staff, of which 440 (82%) are skilled, 2 (0.4%) are semi-skilled, and 94 (18%) are unskilled. The following table shows the types of trainings or skills businesses said they need:

Business type	Skills needed to run the businesses
	Logical thinking
Digital marketing	Human resources development Training on IT, graphic design and photoshop
Digital marketing	Leadership and marketing training
Social media security	Social media related tech training
Telecommunications	CCNA, CCNP, MCSA and network plus
Networking	Management skills training
Database development	Marketing
Electronic production	Team work and marketing
Digital marketing	Presentation skills, public speaking and marketing training
E-commerce	Business management and leadership development training
E-commerce	Marketing, software development, HR, finance and logistic trainings

Table 3: Skill Needs for Different Businesses

#### 4.10.3 Recruitment Mechanisms

Of the 17 responses received from 10 respondents, 53% of respondents reported word of mouth as a main recruitment mechanism, followed by formal job advertisement (24%) and Facebook, friends' network, LinkedIn and Instagram (each 6%).

Recruitment Mechanisms	Responses
Word of mouth	9
Formal job advertisement	4
Facebook	1
Friends network	1
LinkedIn	1
Instagram	1

Table 4: Recruitment Mechanisms

Furthermore, almost all (80%) businesses reported difficulty in finding qualified workers, followed by 10% of businesses reporting difficulty in hiring people with certain skills (engineers with OSP certification). Only 10% of businesses reported no difficulties in getting the required local talent. As reported by businesses, a limited number of available skills in the tech sector and high salary expectations are the greatest challenges in finding the required skills in a workforce.

#### 4.11 Legal and Regulatory Frameworks

Most (62%) respondents mentioned government policies on tech businesses and startups exist, whilst 28 % respondents reported there are no such government policies. Regarding policies or legal frameworks supportive to tech businesses, 62% of respondents reported government legal frameworks and policies as supportive, whilst the remaining 39% respondents found this question difficult to answer.

Some respondents reported registration requirements for tech businesses are not the same as for other businesses. They further elaborated that policies and regulatory frameworks associated with tech businesses are not clear from the government's side, hence the tech market is a somewhat unorganized, and it is challenging to decide upon business registration. Some respondents reported that policies are neither supportive nor unsupportive, as in the past tech businesses did not exist. However, startups have to pay higher fees and invest more time to finalize registration. In addition, banks were not reported to be lending or supporting tech startups. Also, there is lack of clarity on government policies related to tech-based businesses.

#### 4.12 Tech Business Registration

Around 46% of respondents reported going to the Chamber of Commerce for tech business registration, followed by 12% who reported that businesses go to the Ministry of Industry for registration. About 8% also reported that business registration varies with the type of business, and some reported registering with international companies, NGOs and the Directorate of NGOs for business registration. Respondents also mentioned registering with the Ministry of Education, Ministry of Finance and Economy, Ministry of Trade, Central Bank of Iraq, and the Ministry of Communication. A total of 19% respondents answered that potential businesses know where to go for registration, 8% reported that businesses do not know, and 73% found it difficult to answer and hence did not address this question, which may be revealing.

Do business know where to go for registration?	Response
Yes	2
No	5
Difficult to answer	19

Table 5: Respondents Information Level on Business Registration

Registration place	Responses
Chamber of Commerce	12
Ministry of Industry	3
Varies with business type	2
Ministry of Education	1
Ministry of Finance and Economy	1
Ministry of Trade	1
Central Bank of Iraq	1
Ministry of Communication	1
Hire a lawyer	1
International company	1
NGO	1
Department of Non-Government NGO	1

Table 6: Tech Business Registration

### 4.13 Challenges

Tech startups and businesses are facing many challenges, as shown in the table below. About 15% of respondents reported market incorporation as their biggest challenge, as businesses are developing new tech products at an accelerated pace without being able to fully incorporate these products into the existing market. Analyzing current demand and competition, followed by a lack of investment, difficulty with talent identification and retention, and the public’s perception and trust in tech businesses was also reported by businesses as common challenges. Competition from big tech companies, regulatory and legal barriers, the risk of idea theft with copyright laws not being enforced, lack of government financial support, poor access to digital payment options, and restricted access to making payments outside of the country were some of the other challenges reported by respondents. Only 5% of respondents reported startup faced no challenges in the areas under study.



Figure 7: Challenges faced by Tech Startups

Furthermore, a similar set of challenges was reported by the employer survey respondents. The security situation, mainly for the businesses operating in hostile areas like Mosul (20%), government regulations and legal barriers (20%), lack of capital (20%), difficulty in getting qualified employees (10%), delay in getting services from sub-contractors (10%), lack of standardization on the cost of tech goods and services (10%) and lack customer trust towards new startups (10%) were the most common operating challenges reported among employing businesses.

Cybersecurity law enforcement, increased awareness among clients regarding tech businesses, clear government laws and regulations enforced for the tech sector could help mitigate these challenges. Improvement in the security situation, access to loans for tech sector businesses, uniformity and government support in promoting the tech sector in general (such as through the provision of patent rights) are some additional recommended areas that could improve the business ability of tech entrepreneurs.

## 5. Conclusions and Recommendations

The assessment report attempted to evaluate the current situation of the tech sector in Iraq and identify different barriers curbing the tech sector. Where opportunities do exist, IOM has the opportunity to support early stage tech startups with the potential to generate employment opportunities. The assessment also highlights that the tech industry in Iraq is at a nascent stage and with potential for decent job creation.

Gradual improvements Iraq's security situation, increased access to the internet, growing interest of young people in information communication tech, and the establishment of multiple tech incubators in the country have created the seeds for accelerated development of tech businesses in the country. Several avenues of success for tech businesses exist, as shown by several promising tech startups currently working in the country. However, challenges remain, mainly technical, legal and financial, compounded by the lack of skilled human capital, unclear legal and regulatory frameworks for tech business registration, and lack of investment in the sector.

With the EDFi, IOM aims to fund early stage tech businesses, and provide capacity building support through collaborative partnerships with Five One Labs and Asiacell. The findings of the assessment will be used to guide the EDFi intervention. The assessment therefore suggests the following recommendations for the EDFi:

### Recommendations

1. Targeting both registered and unregistered tech businesses for support.
2. Facilitating access to finance and capacity development tools, incubators, business accelerators and need-based trainings.
3. Creating alternative financing mechanisms and linkages for some of the most promising tech businesses with good potential to create employment opportunities.
4. Creating and facilitating equal opportunities for young innovators to access funding and skills development in tech businesses across the country.
5. Advocating for clear legal and regulatory frameworks for tech businesses so as to ensure protection of property and patent rights.
6. Advocating for government and private sector investment as well as incentivizing local tech innovations.



# IOM-IRAQ MISSION

## A Market Assessment of Tech Sector Businesses in Iraq

Written and designed by:  
The International Organization for Migration — Iraq Mission  
© IOM Iraq 2019  
[iraq.iom.int](http://iraq.iom.int)