United Nations Educational, Scientific and Cultural Organization
منظمة الأمم المتحدة للتربية والعلم والثقافة

Reforming Technical and Vocational Education and Training in Iraq
إصلاح التعليم والتدريب التقني والمهني في العراق

Project funded by the European Union
مشروع ممول من الاتحاد الأوروبي

#SKILLS_BUILD_IRAQ
#المهارات_تبني_العراق

Assessment of the Labour Market & Skills Analysis

Iraq and Kurdistan Region-Iraq

Transport and Storage

وزارة التخطيط
Ministry of Planning
جمهورية العراق
وزارة التخطيط - الجهاز المركزي للإحصاء
CSO
Central Statistical Organization IRAQ
Kurdistan Region Statistics Office
KRSO

Assessment of the Labour Market & Skills Analysis

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UNESCO and Sustainable Development Goals

UNESCO actively helped to frame the Education 2030 agenda which is encapsulated in UNESCO's work and Sustainable Development Goal 4. The Incheon Declaration, adopted at the World Education Forum in Korea in May 2015, entrusted UNESCO to lead and coordinate the Education 2030 agenda through guidance and technical support to governments and partners on how to turn commitments into action.

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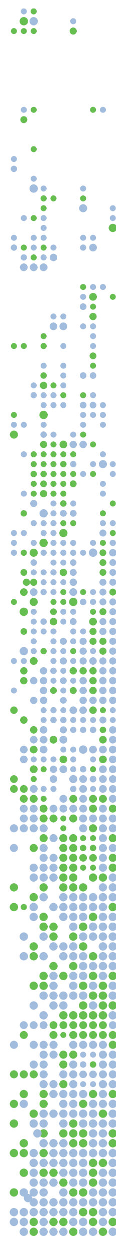

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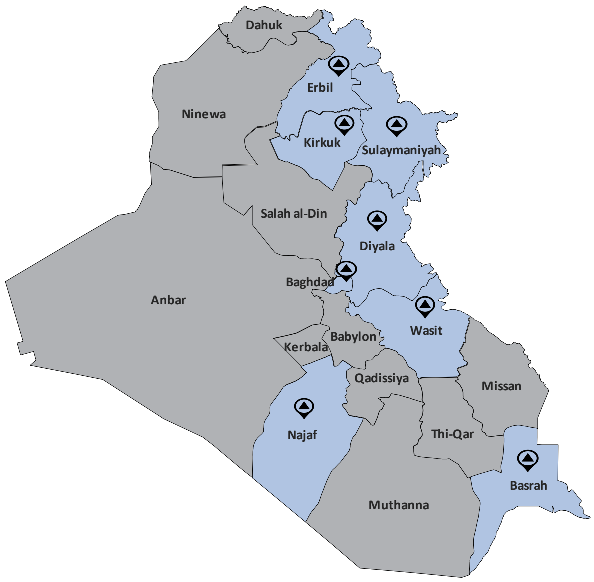
TVET Reform Programme for Iraq and KR-I

This is one of a series of reports on selected key economic sectors in Iraq and Kurdistan Region-Iraq (KR-I), prepared by UNESCO under the auspices of the European Union funded TVET Reform Programme, in partnership with the government of Iraq and KR-I. The purpose of the reports is to inform decision makers and education and training providers about issues of supply and demand in priority sectors. Research and data collection activities were implemented in 2017 and the reports were completed in 2018.

Desk-based research on the sector was based on publicly available documents and statistics; and on documents and submissions provided by the relevant ministries, agencies and organisations. Research on the supply of skills to the sector relied on data submissions from the Ministry of Education (MoE), Ministry of Labour and Social Affairs (MoLSA), Ministry of Higher Education and Scientific Research (MoHESR). Every effort was made to mitigate issues of the completeness, quality and currency of the data available.

Qualitative data for this report were collected during interviews with ministry officials and professional body representatives; and during two days of discussions with eight pilot sector councils constituted to provide public and private sector perspectives on the challenges and opportunities of the sector. A survey of firms in each sector (excluding the informal sector) was implemented in eight governorates through the Central Statistical Organization (CSO) and the Kurdistan Regional Statistics Office (KRSO).

Transport and Storage sector



The transport and storage sector provides means of transport for people in and out and around the country; it also serves the other productive sectors of the economy by delivering raw materials and local and imported goods to the places where they are needed; and transporting ready products to markets in Iraq and beyond.

Iraq's export market is dominated almost entirely by crude oil (98% of total exports in 2016). Imports into Iraq have increased dramatically over the past few years, especially from Turkey and China but also from Iran, the United States, South Korea, India, Germany and Italy. Imports are heavily reliant of sea transportation.

A significant quantity of goods enters the country via trucks, particularly through the northern border with Turkey. There are five international airports which bring a modest amount of goods, and millions of people, into the country each year, with a sixth airport currently under construction in Kerbala.

Infrastructure for transport (ports, roads and railway lines etc.) are under government control and are considered for funding purposes under the construction sector. Transport and storage companies are mainly (90%) in private hands, but highly dependent on the provision of adequate infrastructure for their survival.

Under conditions of political instability and economic downturn, the steady growth trend of the transport and storage sector from 2009 to 2014 was sharply reversed. Some trade routes were closed, or became too dangerous for normal transport services, and pipelines were damaged or destroyed.

In terms of public transport, railway services are limited to the southern part of the country and there are no public bus or coach services. Private cars and taxis are the main means of transport for citizens, and the number of private cars and government owned vehicles on the roads has increased rapidly over the past 15 years. Although there has been significant expansion of the road system in the last decade, this has not kept up with the number of cars and trucks on the road, and several major infrastructure projects have been delayed by political events of recent years.

Iraq has several major oil pipelines running through the country, used for both moving oil domestically from fields to refineries, and for exporting oil outside the country; however oil pipelines have been subject to frequent sabotage, and implementation of expansion plans, including gas pipelines has been impacted by hostile forces operating within the country.

Warehousing and storage are mostly in private hands and are generally insufficient to meet the needs; in particular there is a severe shortage of cold storage facilities and refrigerated transport services, with negative effect on the agriculture sector.

Public postal services operate to a greater or lesser extent in all governorates and private courier services, both international and Iraqi, provide services such as cargo transport, package delivery, and related services.

The top ten transport and storage occupations in Iraq and KR-I identified in the Enterprise Survey in 2017 are as follows:

Top ten most frequent transport and storage-related occupations in employment by region

Rank	1	2	3	4	5	6	7	8	9	10
Iraq	Freight handlers	Supply distribution and related managers	Security guards	Corporate service managers	Car, taxi and van drivers	Heavy truck and lorry drivers	Transport clerks	Messengers, package deliverers and luggage porters	Stockclerks	Accounting and bookeeping clerks
KR-I	Supply distribution and related managers	Corporate service managers	Sales workers not classified elsewhere	Car, taxi and van drivers	Vehicle cleaners	Freight handlers	Transport conductors	Drivers and plant operators	Sales and marketing managers	Business services & admin. managers

Employment in public sector transport and storage is decreasing due to downsizing, and employment in the private sector has been impacted by economic downturn and the security situation. The majority of employees in the sector are male.

Despite a generally positive future outlook, only 27% of the firms surveyed plan to hire within the next five years; with considerable variation across governorates. The majority of firms planning to hire are in the warehousing sub-sector.

Employers reportedly base their hiring decisions on interpersonal and demographic attributes (age, gender, nationality, social relations, interview impressions) rather than practical skills and qualifications. Generally, employers who participated in the survey seem relatively satisfied with the skills of their staff, and for some occupations the skills of staff significantly exceed their expectations. Only 29% of the surveyed firms offered any training in the last five years.

Chapter 1: Introduction to the Sector Skills Analysis Project

This report on the transport and storage sector is one of a series of eight reports on the seven economic sectors and informal sector in Iraq and Kurdistan Region-Iraq (KR-I). The series consists of:

- Report on the **Agriculture, Forestry and Fishing** sector in Iraq and KR-I
- Report on the **Manufacturing** sector in Iraq and KR-I
- Report on the **Construction** sector in Iraq and KR-I
- Report on the **Wholesale and Retail and Repair of Motor Vehicles** sector in Iraq and KR-I
- Report on the **Transport and Storage** sector in Iraq and KR-I
- Report on the **Accommodation and Food Services (Hospitality)** sector in Iraq and KR-I
- Report on the **Information and Communication** sector in Iraq and KR-I
- Report on the **Informal** sector in Iraq and KR-I

These reports are the culmination of a series of primary and secondary research activities implemented in 2017.

The Sector Skills Analysis (SSA) Project[1] is a component of the Technical and vocational education and training (TVET) Reform Programme, funded by the European Union and in partnership with the government of Iraq and KR-I. The twin aims of the SSA project are (I) to inform education policy and priorities at secondary and tertiary levels, especially curriculum development for TVET and the development of training and opportunities for unskilled and/or unemployed people (with emphasis on women and youth) to enter the labour market and participate in formal and informal economic activity and (ii) to build the capacity of stakeholders to survey businesses and analyse employer demand in order to determine the best use of funding and target relevant TVET provision to better meet the demand of the labour market.

1.1 Global expectations of TVET

TVET is widely understood to be key to achieving a range of sustainable development goals including alleviation of poverty by empowering people to work and create jobs for others; increasing productivity and economic growth; promoting social equity, stability and peace; and increasing awareness of environmental issues and promoting green practices. TVET is regarded as pivotal to the achievement of inclusive, equitable and sustainable economic growth of industry and business, youth employability and enhanced social well-being. A TVET system has potential to influence work practices in the long term by emphasising occupational and professional standards, through developing skills and knowledge for sustainable work practices, and by introducing new technologies.

A TVET system capable of achieving these aspirations should be demand-driven by the current and projected needs of the labour market and by identified social and economic development opportunities for the future, so that it is relevant to the needs of employers and the opportunities of the formal and informal sectors.

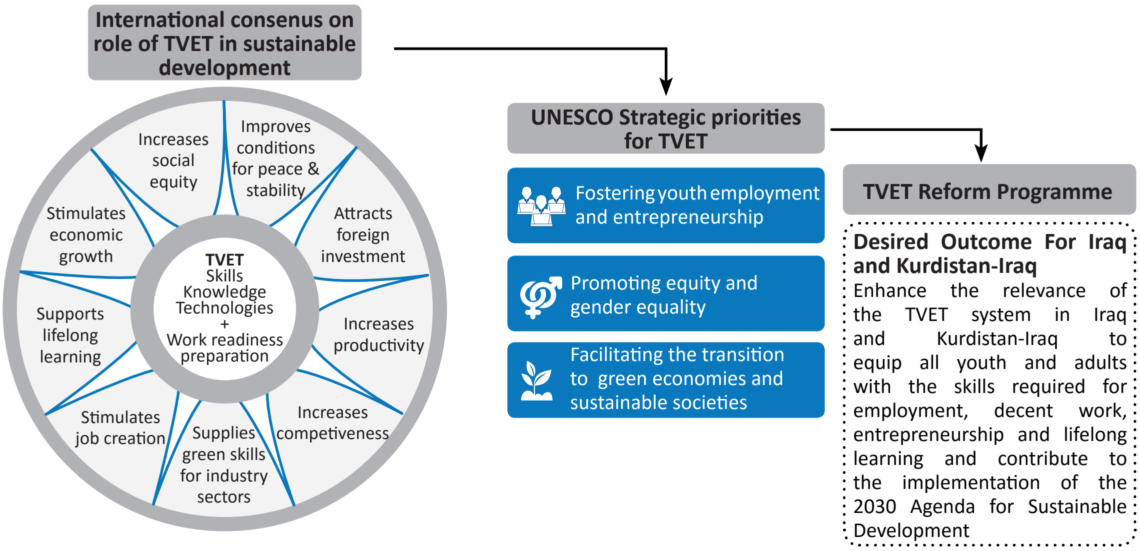
[1] The full title of the project is "Labour Market Assessment and Sector Skills Analysis. In this document, the short name "Sector Skills Analysis" is used to refer to all parts of the project, including assessment of the labour market

It needs to be accessible to all social groups (including urban and rural and marginalised segments of the population) and include a range of components to ensure that graduates (especially youth) are equipped with work-ready skills.

1.2 Context of the project

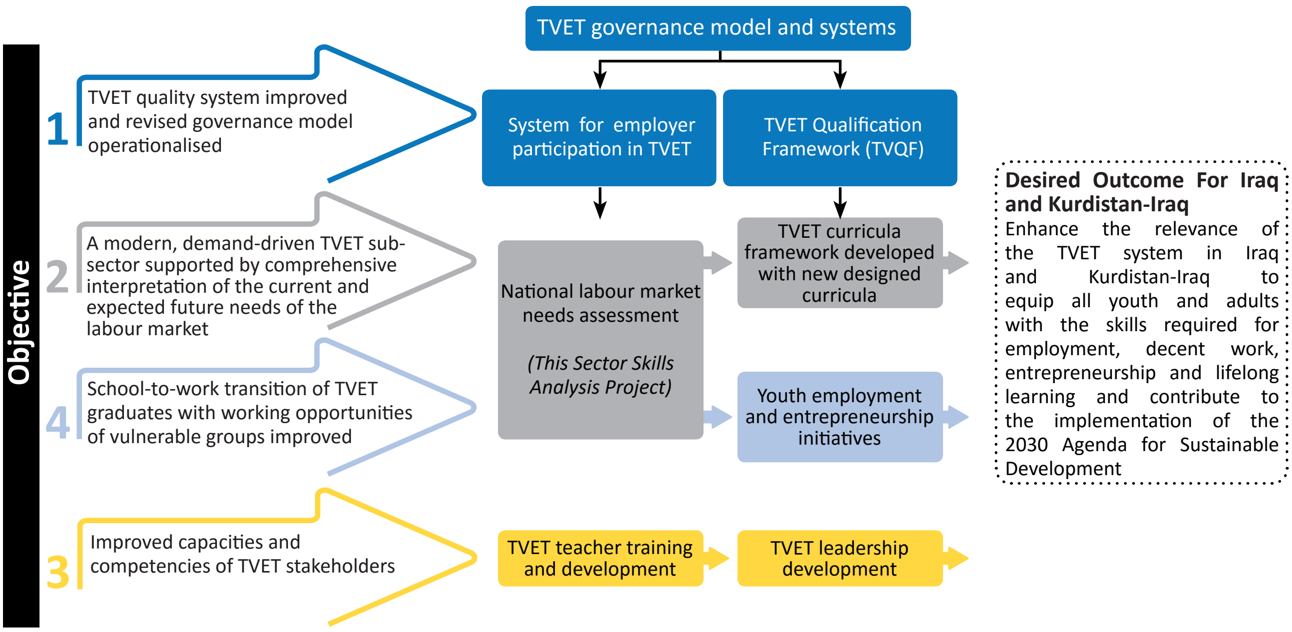
These concepts have shaped the UNESCO Global TVET Strategy and underpin the TVET Reform Programme for Iraq and KR-I (see Figure 1).

Figure 1: TVET Reform Programme for Iraq and KR-I is aligned with global thinking about TVET



This SSA Project is an essential element in the realisation of the desired outcome for the TVET system in Iraq. It constitutes a specific component in the overall design of the larger TVET Reform Programme (as shown in Figure 2), and it contributes to the other components. The larger Programme needs labour market information and analysis of skills supply to inform the development of new training programmes leading to the award of TVET Qualification Framework (TVQF) qualifications and youth employment and entrepreneurship initiatives. The Project provides skills demand and supply analysis for these purposes and it lays the groundwork for a system for employer participation in TVET, through the establishment of pilot Sector Councils.

Figure 2: Relationship between the Sector Skills Analysis (SSA) Project and other elements of the TVET Reform Programme



1.3 Scope of the project

There are no established systems in Iraq and KR-I for monitoring changes in the demand for labour and ascertaining employers' changing requirements for human capital, and there are no systematic arrangements for responding to emerging skills needs by adapting curricula, developing qualifications or designing learning provision to meet those needs. Information on labour market trends and skills needs is scarce, and any existing information is the result of ad-hoc initiatives of national and international institutions. As a result, the mix of occupational training offered, and the number of students enrolled in each occupation have little relationship with the needs of the labour market.

Assessing the needs of the labour market requires synthesis and analysis of information about the dynamic relationship between the labour market, the economy and the education and training system. The Project synthesises information about these three systems by collating data from the past (existing data and identified trends), from the present (actual current situation and needs of employers) and about the potential future (planned and untapped potential development). It includes desk review of existing data and past trends, qualitative and quantitative data from the present situation (Enterprise Survey, interviews and structured pilot Sector Council meetings) and projected and planned future development (national and sectoral strategic plans, Enterprise Survey and pilot Sector Council meetings).

1.3.1 Focus on selected economic sectors

The Project focuses on seven ISIC[2] economic sectors and the informal sector. The seven economic sectors selected for the focus of the Project are shown in Table 1.

The selection criteria for the economic sectors, which were determined in consultation with the Programme Steering Committee, the Inter-Ministerial Working Group (IMWG), the Central Statistical Organization (CSO) and the Kurdistan Regional Statistics Office (KRSO), were as follows:

- Minimum of 6 sectors relevant to both Iraq and KR-I
- Sectors considered to be drivers for inclusive, equitable and sustainable economic growth in Iraq and KR-I
- Sectors conducive to fostering youth employment, decent jobs and entrepreneurship
- Sectors that can support the reconstruction of the country and transition to green economies and environmental sustainability
- Sectors with potential for leveraging employment opportunities and business development in other sectors
- Include primary, secondary and tertiary sectors of the economy
- Take into consideration growth potential in terms of GDP, employment and exports, and changing technology
- Capable of using and applying the results and insights from a sectoral skills analysis (i.e. the sector is relatively well organised).

[2] International Standard Industrial Classification of All Economic Activities

Table 1: Selected economic sectors and subsectors

Section	Sector	Selected subsectors of interest based on consultation and desk-review
A	**Agriculture, Forestry and Fishing**	01 - Crop and animal production, hunting and related service activities 03 - Fishing and aquaculture
C	**Manufacturing**	10 - Manufacture of food products 11 - Manufacture of beverages 19 - Manufacture of coke and refined petroleum products 20 - Manufacture of chemicals and chemical products 21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations 22 - Manufacture of rubber and plastics products 23 - Manufacture of other non-metallic mineral products 24 - Manufacture of basic metals 25 - Manufacture of fabricated metal products, except machinery and equipment 26 - Manufacture of computer, electronic and optical products 27 - Manufacture of electrical equipment 28 - Manufacture of machinery and equipment 32 - Other manufacturing
F	**Construction**	41 - Construction of buildings 42 - Civil engineering 43 - Specialised construction activities
G	**Wholesale and Retail Trade, Repair of Motor Vehicles and Motorcycles**	45 - Wholesale and retail trade and repair of motor vehicles and motorcycles
H	**Transport and Storage**	49 - Land transport and transport via pipelines 52 - Warehousing and support activities for transportation 53 - Postal and courier activities
I	**Accommodation and Food Services**	55 - Accommodation 56 - Food and beverage service activities
J	**Information and Communication**	61 - Telecommunications 62 - Computer programming, consultancy and related activities 63 - Information service activities

1.3.2 Focus on a sample of governorates

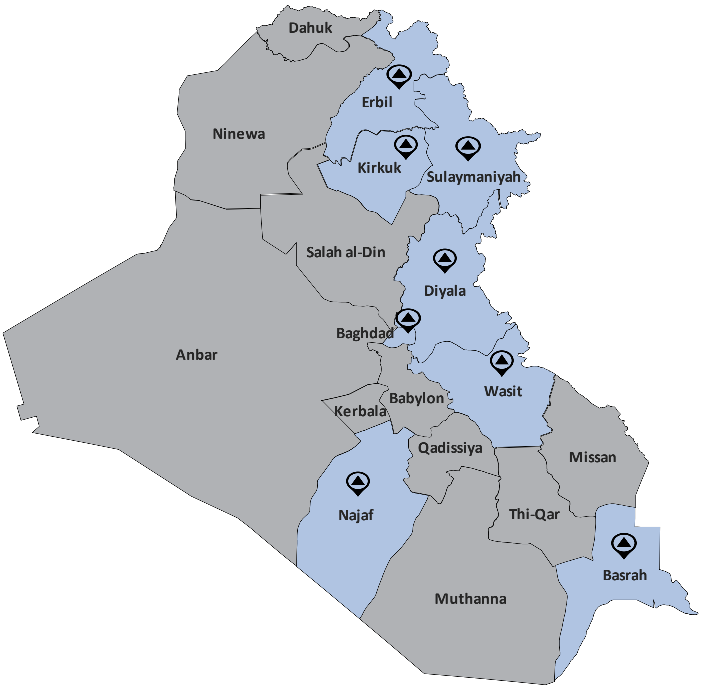
The scope of the Enterprise Survey included a sample of firms from each of the 7 economic sectors from 8 governorates, as shown in Figure 3 (survey was not conducted for the informal sector).

The selection criteria of the governorates for the Survey were as follows:

- Have at least 5 governorates in Central and Southern Iraq (CSI) and 2 governorates in KR-I to represent the whole country
- Urban and rural economic areas

- Based on population, employment trends and growth predictions
- Consistency with the selection of economic sectors (i.e. the selected sectors are active in the selected governorates).

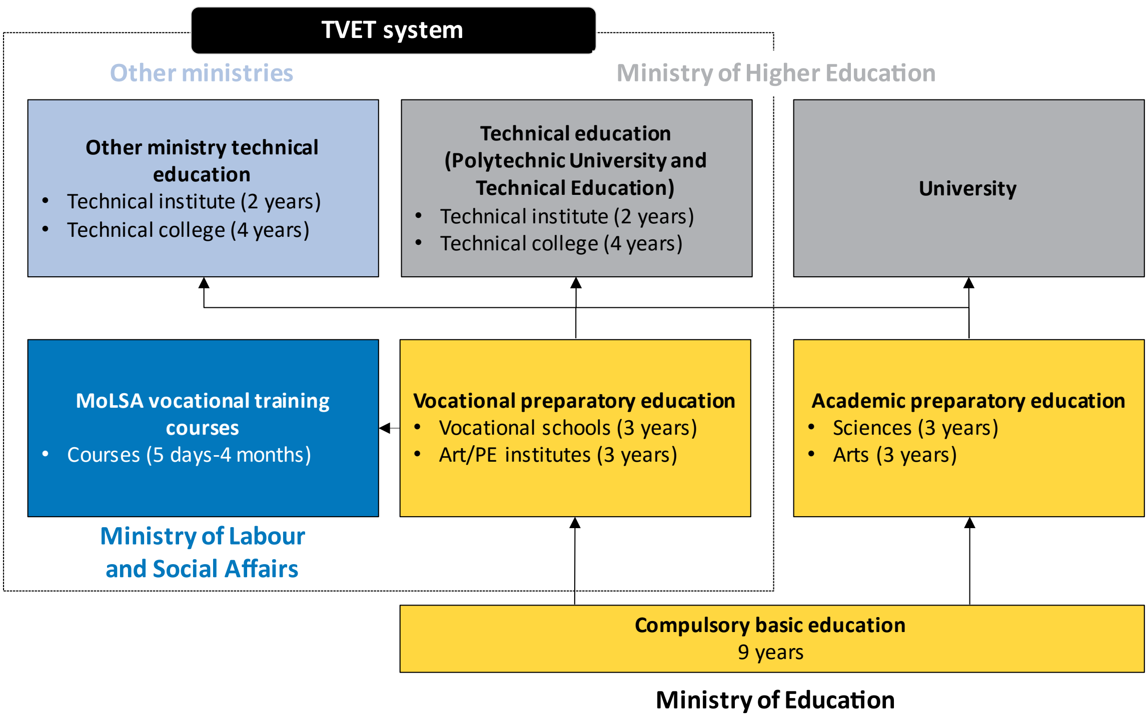
Figure 3: Map of governorates of Iraq and KR-I showing those selected for the Enterprise Survey



1.3.3 Focus on TVET skills providers

Figure 4 below provides the overview of provision of TVET by the Ministry of Education (MoE), Ministry of Labour and Social Affairs (MoLSA), Ministry of Higher Education and Scientific Research (MoHESR) and other ministries.

Figure 4: Structure of TVET provision



Vocational preparatory education is offered by the MoE in Iraq and KR-I. Vocational education is offered in 3-year programmes (equivalent to years 10, 11 and 12) in vocational schools and institutes. Due to capped numbers, a very small percentage of vocational education graduates are eligible for entry to tertiary technical education in the polytechnic universities and technical universities. In Iraq, there were 315 vocational education institutions. The total number of all vocational students enrolled in specialist vocational programmes was just over 50,000 in 2016-2017. In KR-I, there were 33 vocational schools and 28 institutes (for a total of 61 institutions). The total number of students enrolled in all three years of the programme in 2015-2016 was nearly 8,000.

In Iraq, there are 38 MoLSA training centres with an average annual MoLSA cohort size of 16,659. In KR-I , there are 7 MoLSA training centres with annual enrolment of approximately 1,500 learners.

In Iraq, there are four technical universities with 29 institutes and 16 colleges (for a total of 45 institutions) with an annual admission of approximately 30,000 students. In KR-I, there are three polytechnic universities with a total of 36 institutes and colleges, and a total estimated annual enrolment of approximately 12,000 students.

The Boards of Tourism in both Iraq (Ministry of Culture) and KR-I (Ministry of Municipality and Tourism) offer training for tourism and hospitality. The nine tourism and hospitality institutes in Iraq provide pre-service training in four 3-year programmes with a total enrolment of 756 students in 2015-2016. The operationalisation of the KR-I Tourism Training Centre has been subject to significant delays. A specialist facility with capacity for approximately 120 students is only partially equipped for training of hospitality staff; and licensed by MoHESR.

The Ministry of Communications in Iraq offers training through its Higher Institute for Communications and Post, but insufficient information was provided for inclusion in the skills analysis. Likewise, the Ministry of Agriculture has many training centres (78 not including KR-I) all over the country offering professional development to farmers and ministry staff, but no detailed information about these was accessible within the research period. The Ministry of Transport in Iraq also has three training centres, which are reportedly partially operational, but no detailed information was available for these.

Therefore, the analysis of skills supply included programmes relevant to the selected economic sectors delivered by the following provider types:

- All public vocational preparatory schools in Iraq and KR-I
- MoLSA training centres in Iraq and KR-I
- All public technical institutes in Iraq and KR-I
- All public technical colleges in Iraq and KR-I
- Travel and tourism institutes and training centres in Iraq and KR-I (Ministry of Culture, and Ministry of Municipality and Tourism).

1.4 Methodologies of the project

1.4.1 Methodology overview

Four streams of information inform the final Sector Skills Analysis (SSA):

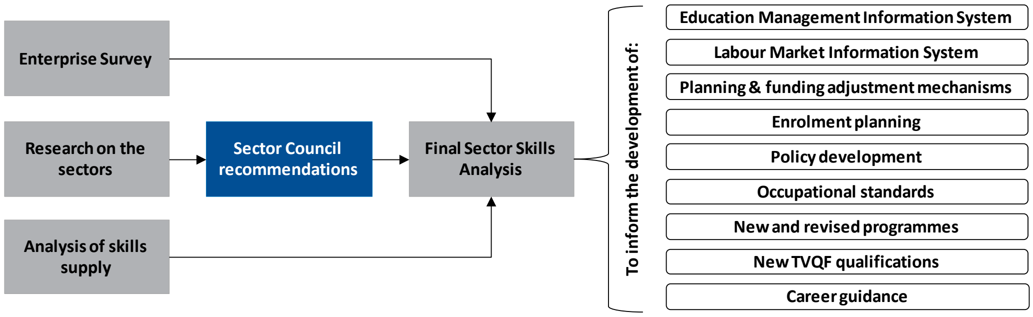
- Desk-based research on the seven ISIC economic sectors and the informal sector

- Synthesis and augmentation of the desk-based research by the eight pilot Sector Councils
- Analysis of skills supply
- Results of the Enterprise Survey (not conducted for the informal sector).

The sources of primary data for the analysis include (i) the Enterprise Survey, (ii) 32 interviews with ministries and leading private sector organisations, and (iii) eight pilot Sector Council meetings. The secondary data sources for the background research included existing documents (strategies, plans, reviews, policies, laws), and international and national websites and data sets.

The purpose of the SSA is to inform education policy and priorities, especially curriculum development for TVET and the development of training and opportunities for unskilled and/or unemployed people; and to build the capacity of stakeholders to analyse and respond to labour market demand. Figure 5 shows the multiple potential uses of the information.

Figure 5: Overview of the Sector Skills Analysis (SSA) Project



1.4.2 Desk-based research methodology

Preliminary analysis of the economic sectors of Iraq and KR-I commenced during the inception period, for the immediate purposes of selecting the sample of economic sectors and governorates for the Enterprise Survey.

After final agreement on the selected sectors, each of the selected economic sectors was researched and analysed, using the PESTLE framework (Political, Economic, Social, Technological, Legal and Environmental) as a tool for analysing, holistically, each sector from different perspectives.

1.4.3 Mapping the supply and demand systems

Background research included mapping the institutional landscape within which economic development and education and training are planned, financed, regulated and delivered.

Mapping the supply and demand systems includes analysing the mandates of, and the relationships between, organisations providing related and complementary services in the broad fields of the labour market and the TVET system.

These stakeholder organisations are the main beneficiaries of this Project, since the Project aims to influence policy and planning in these two fields, and any developments resulting from the TVET Reform Programme will be implemented by these organisations.

Therefore, it was important to have a detailed understanding of the component parts of the systems: how they work; how information flows between them; the location and processes of decision making, implementation and monitoring and evaluation; the main outputs and outcomes; and any identified constraints or issues of concern. Sources of information for mapping included both desk-based research and interviews.

1.4.4 Interview methodology

The ministries relevant to all the selected economic sectors in Iraq and KR-I were involved in the research through participation in interviews, submission of documents, and participation in the pilot Sector Council workshops. The other main public sector participants included MoLSA, MoHESR, and MoE.

32 interviews were conducted in Baghdad and Erbil between January and February 2017 and some additional interviews were conducted in Erbil in April 2017. In some cases, formal data requests were sent to the interview participants in advance, and in some cases written requests followed the interviews. The format of the interviews varied according to the availability of participants and prior access to relevant information. In most cases interviews took between 1 and 2 hours.

1.4.5 Sector Council methodology

Both the Enterprise Survey and the pilot Sector Council meetings are mechanisms for collecting information about employer demand and increasing employer participation in TVET. The qualitative data collected from the pilot Sector Councils complements the quantitative data collected in the Enterprise Survey.

Eight pilot Sector Councils were established to represent the public and private leadership of each of the selected seven economic sectors and the informal sector. Private sector representatives included the Chamber of Commerce and Industry and relevant professional federations, unions and associations.

The rationale for including an Informal Sector Council includes these considerations:

- The Enterprise Survey of employers includes mainly formal sector businesses
- Skills development should acknowledge the skills needed for informal economic development opportunities and transition to the formal sector
- The informal sector includes traditional forms of informal skills training such as informal apprenticeships which can be further developed
- Women and vulnerable groups like unemployed youth, displaced people and refugees work in the informal sector
- Entrepreneurship initiatives often start on a small scale in the informal sector
- Green skills and sustainable development practices need to penetrate all of society and all workplaces
- The informal sector employs a substantial proportion of the population.

Sector representative bodies are a necessary element of a demand-led TVET system. The system can only be ‘demand-led’ if the sectors have organised leadership that is well informed and able to advise on the skills needed by the sector.

Formal establishment of permanent Sector Councils will take time as the concept needs to be widely discussed and agreed upon, and policy and legislative implications need to be considered. Thus, for the purposes of this project, ‘pilot’ Sector Councils were constituted to act as ‘think tanks’ for the sector; to provide a forum for strategic discussion about sector growth and development; to identify challenges and opportunities; and to develop goals to address challenges and exploit the opportunities and achieve its goals.

The eight pilot Sector Councils met between April and July 2017, and played an important role in validating, augmenting and interpreting the findings of the desk-based research; and providing explanations and illustrative stories behind the statistical information presented.

Each two-day workshop (with slight variation for the Informal Sector) consisted of a structured series of progressive small group activities to explore the issues of the sector and identify the prioritised skills needs. Five worksheets were designed to guide the deliberations of the small groups and capture brief written responses from the small group activities. The structured activities were as follows:

- **Activity 1:** Define 3-4 main challenges that impact the growth and development of the sector (a problem statement)
- **Activity 2:** Identify new opportunities and untapped potential to be explored
- **Activity 3:** Formulate goal statements to address the challenges and/or seize the identified opportunities for the sector
- **Activity 4:** Identify occupations needed for the sector to address challenges, seize opportunities and achieve goals
- **Activity 5:** What should the training for the identified occupation look like?

Analysis of the written and verbal outputs of each meeting triangulated what the participants wrote down, what they presented and responded in small groups, and any other response or critique of the participants.

1.4.6 Skills supply methodology

The data supplied by MoE, MoHESR and MoLSA, and data accessed from CSO, have significant weaknesses in terms of sufficiency and adequacy for estimating the supply of skills to each economic sector in this study.

The minimum information required for a results-oriented evaluation of a TVET system generally includes enrolment by level and programme, retention, progression, completion, success, graduation and employment rates of graduates. Ideally, this information would be routinely collected by all providers and uploaded to a central TVET Management Information System (MIS). However, in Iraq, routine, standardised, continuously updated and centrally managed TVET data collection does not routinely occur, nor is there any systematic use of skills supply data to inform enrolment planning.

Weakness in the data available for estimating the skills supply included:

- The data obtained from various sources was a mix of enrolment numbers and graduate numbers. It included these variations for each specialisation and programme:
  - Enrolment in each year of a three-year programme.
  - New enrolment in the first stage of a programme each year for a 3-4-year period.
  - New enrolment for two years (2014 and 2016) over a 3-year period.
  - Graduates over a period of three years.
- In some cases, two spreadsheets provided at the same time, by the same organisation, were contradictory in some respects (e.g. different totals), which raised more questions than answers

- Spreadsheets provided by ministries included adding and formula errors (e.g. vertical summation contradicted horizontal summation). Tables provided in Word format were especially prone to this kind of error
- In some cases, much data processing effort has been devoted to inputs (e.g. number of workshops held, number of teaching and training staff, and other matters which are of exclusive interest to supply management) or issues of low significance, with little or no attention given to investigating outcomes and issues relevant to the labour market
- There appears to be no indicators or benchmarks to guide (i) what units of analysis and data are required to evaluate the quality and effectiveness of skills supply and (ii) how to recognise data which are causes for concern or require further analysis, and which data are within an agreed normal range, and do not require further analysis.

Because of the limitations of the data, it was decided that both average student cohort size and average graduate cohort size by specialisation will be used as proxies for skills supply. This means that the estimation of skills supply can only be regarded as a rough guide.

Generally, student cohort size is larger than graduate cohort size, because some students do not graduate (i.e., they fail and/or drop out). There is not enough information available to estimate a drop out-rate to apply to student cohorts at all levels. The only reported drop-out rate (5% reported by CSO in 2015) is for vocational (school) education. Longer programmes at non-compulsory levels generally have much higher drop-out rates than short or compulsory school programmes. With no scientific basis for estimating drop out and failure rates, no adjustments could be made to the average cohort size to allow for failure and drop out.

It is possible that an overestimated proxy for supply (average cohort size) is somewhat balanced out by (i) the absence of any data in this study for NGO training (mainly for refugees and IDPs) or private providers (very few), and (ii) the exclusion of informal apprenticeship training, which is unrecorded but may be substantial, especially in fields like v. This is, of course, an assumption without any evidence.

Calculating average cohort size is valid when enrolment seems steady (when the difference from one year to another is negligible), but not when there is a significant difference. A dramatic difference suggests either (i) a new or discontinued programme or (ii) some kind of external shock, such as temporary closure of a specialist institution due to the ISIL/Da'esh incursion. In the few cases where averaging does not seem to give a correct reflection of the skills supply, this is noted in the Chapter 4 tables by an asterisk (*).

In some parts of Iraq, colleges and institutes have closed. This appears to have inflated enrolment in other colleges and institutions (with big differences between 2014-2015 and 2015-2016 cohorts). Information provided by the MoHESR was incomplete for 2015-2016. In many cases, only one enrolment figure is available. Therefore, for all Technical Foundation University programmes, the 'cohort size' is the last known enrolment (see Chapter 4 tables, noted by an asterisk*).

As can be seen from the discussion above, at best the figures provided in this report for skills supply are indicative. However, since there has been no previous study on this scale to quantify the supply of skills to the specific sectors of the economy, this assessment can provide a benchmark estimation based on the best evidence available. For the first time in this study the unit of analysis is not the institution or the governorate which *supplies* the skills, but the economic sector which *demands* the skills.

1.4.7 Enterprise Survey methodology

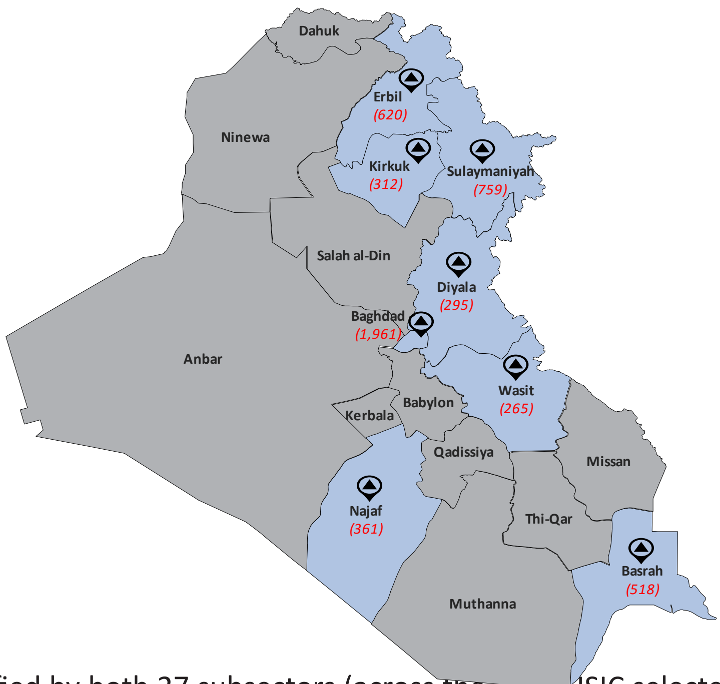
The survey was carried out so that it can inform reforms to the TVET system i.e. to make it more demand driven. In view of this, firms were surveyed (excluding for the informal sector) regarding the number and kind of employees at present, with consideration of labour requirements for the future. The goal of the survey was to enable a view into the future skill needs of Iraq's economy so that relevant capacity could be built to fulfil such needs, in terms of offering the relevant TVET training programmes at TVET institutions.

Sample design

The sample was chosen from the *CSO (Central Statistical Organization) Business Register*. Established in 2009, the Register contains all firms in Iraq found during a census survey, numbering 490,080 across the 18 governorates of Iraq and KR-I. It is developed at the establishment level, meaning that all units of a firm (the headquarters as well as all subsidiaries) are identified within the Register ('population frame'). This is presented in Appendix 1.

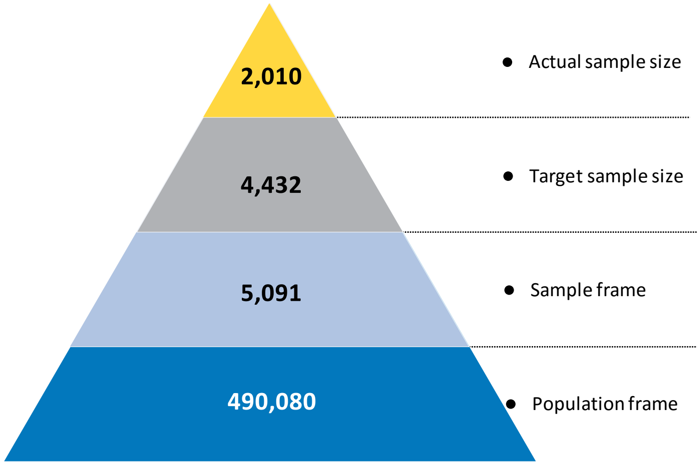
The sample taken aimed to assess the needs of firms, with 10 or more employees, within the 8 selected governorates. From the Register ('population frame') there are 5,091 such firms ('sample frame') in total, which can be seen below in Figure 6. A complete breakdown of the sample frame can be found in Appendix 2.

Figure 6: Sample frame for the Enterprise Survey



The Register was stratified by both 27 subsectors (across the seven ISIC selected economic sectors) and the 8 selected governorates. A simple random sampling method (each firm equally likely to be selected) was used for each of the 216 strata (27x8) with the goal of minimizing the margin of errors within each stratum. The result was a target sample size of 4,432 firms of which 2,010 were surveyed ('actual sample size'). More details on the sample sizes are provided in Figure 7 and in the following sections.

Figure 7: Enterprise Survey population and sample frames & target and sample sizes



Sample size

The determination of the sample size depended on the:

- Types of questions being asked (i.e. population parameter of interest)
- Degree of desired confidence and precision of final estimates
- Anticipated response rate.

In this survey, the questions of interest had 3 possible responses (multinomial response). For example, asking a company how important (not important/somewhat/very) is having relevant technical skills is in the occupation. In this case, the parameters of interest are the proportion of firms that place importance on technical skills (not/somewhat/very). Therefore, the target sample size should be calculated to ensure that these proportions are accurately estimated by the sample.

As is typical, a 5% margin of error, and 95% confidence level were selected. This means that the sample size was calculated so that the estimated proportions are within 5% of the true proportions 95% of the time. That is, we want the 95% confidence interval for the proportions of each response to have a width at most of 0.05 (5%). These confidence intervals are calculated as the proportion plus or minus the margin of error:

$$p \pm e,$$

where the margin of error is dependent on the sample size.

For example, if 'very important' was answered to the above question 80% of the time, then we would like a large enough sample size, so that we would be 95% sure that the true proportion of firms who value technical skills as 'very important' is between 75% and 85%.

The response rate was estimated to be 95%, indicating that 95% of firms sampled were expected to answer the survey questionnaire.

As mentioned in the preceding section, the sample was selected to allow for analyses within each stratum. Therefore, required sample sizes were calculated for each stratum, with the total target sample size being the sum of the stratum sample sizes. The benefits of sampling this way are two-fold. Firstly, this approach ensures that each stratum is represented sufficiently to allow accurate analyses at that stratum level. Secondly, by minimizing the margin of errors within each stratum, the overall margin of error of the survey is greatly reduced.

Based on the above assumptions, the sample size within each strata was calculated as:

$$\boldsymbol{n_h} = \left(\frac{\boldsymbol{z}^2 \boldsymbol{p}(1-\boldsymbol{p})}{\mathrm{e}^2 + \frac{\boldsymbol{z}^2 \boldsymbol{p}(1-\boldsymbol{p})}{\boldsymbol{N_h}}} \right) \boldsymbol{x} \frac{1}{1-\boldsymbol{NR}}$$

Where:

$\boldsymbol{n_h}$: the required sample size in stratum h

$\boldsymbol{p}$: the proportion of firms that select a particular response within a given question

$\boldsymbol{z}$: the value (z-score) associated with a 95% confidence level ($\boldsymbol{z}$ = 1.96)

$\boldsymbol{e}$: the margin of error

$\boldsymbol{N_h}$: the number of firms in the CSO Business Register in stratum h

$\boldsymbol{NR}$: the anticipated non-response rate

For example, for the telecommunication firms in Baghdad, there are $\boldsymbol{N_h}$= 120 firms in the Register of size 10 or more employees. To find the sample size required for a margin of error of 5% ($\boldsymbol{e}$ **= 0.05**) with a 95% confidence level ($\boldsymbol{z}$**=1.96**) and 5% non-response rate ($\boldsymbol{NR}$ **=0.05**) we need only to determine a value of $\boldsymbol{p}$ to use in the above formula. Often, previous surveys or pilot data are used to determine an approximate value for $\boldsymbol{p}$. Since no pilot data exists for a survey of this kind, we want to use a value of $\boldsymbol{p}$ that will result in a conservative value of $\boldsymbol{n_h}$. In this case, $\boldsymbol{n_h}$ in the formula above is largest when $\boldsymbol{p}$ **=0.5**. Therefore, we use $\boldsymbol{p}$ **=0.5** to ensure that the value of $\boldsymbol{n_h}$ will be sufficiently large to estimate any true value of $\boldsymbol{p}$ **.**Inserting all these values into the above formula gives a stratum sample size of $\boldsymbol{n_h}$**=97**. A similar calculation was done for all 216 strata. The result was a total target sample size of 4,432 to ensure the 5% margin of error for each stratum. The complete breakdown of the target sample size can be found in Appendix 3.

In the above formula, the calculated target sample size applies to estimating the proportion of a single response to a question, i.e., the possible responses are treated as binary for the purpose of calculation (the single response/not). For example, if we are interested in the needed sample size to estimate the proportion of firms who answered 'very important' to the 'technical skills' question, then for the purpose of the calculation, the possible responses are treated as 'very important' and 'any other response'. As mentioned above, the case that requires the largest sample size is when the proportion of firms answering 'very important' is 50% ($\boldsymbol{p}$ = 0.5). Therefore, $\boldsymbol{p}$ = 0.5 is used in the above formula to determine the sample size needed to accurately estimate the proportion of firms answering 'very important'. To determine the sample size needed to estimate the 'somewhat important' and 'not important' categories an analogous approach is taken. Since we use $\boldsymbol{p}$ = 0.5 in all 3 cases, we get the same result from the above formula. This means that the same value for $\boldsymbol{n_h}$ is sufficient to estimate each of the 3 proportions accurately.

Since in the above we set each of the 3 proportions to be 50% ($\boldsymbol{p}$= 0.5) for the purpose of the calculations, we are ignoring the fact that the 3 proportions must sum to 100%. That is, we are treating the 3 proportions as independent when in reality they depend on each other. Ignoring this dependency is not of concern as the calculation leads to having a sufficient sample to ensure each question is answered to within the specified margin of error independently of one another.

Alternative methods that properly account for this dependence, such as those in Thompson (1987)[4], can be used to estimate the sample size. For reference, using this approach the total sample size for the stratum margin of errors to be 5% is 4,457. For this survey, the calculated total size of 4,432 (as outlined above) was used for the sample size as it is sufficient to ensure each question is answered to within the 5% margin of error within each stratum.

As discussed below, these sample sizes proved to be challenging to obtain, and in some strata replacement methods were required which still allowed for the analyses undertaken to find significant results. In total, 2,010 firms with 10 or more employees were surveyed (see Appendix 4 for breakdown). The fact that the Register has not been updated since 2009 makes it possible that these 2,010 firms represent a greater proportion of the population.

Design of the questionnaire

The survey explored information about the employers' current workforce and workforce management practices. In particular, it collected information about current and future employment opportunities; about occupations in employment; about the skills of current and prospective employees, and the hiring and service training practices of the firms (as illustrated in Figure 8).

Figure 8: Enterprise Survey lines of enquiry

[3] Thompson, S. "Sample Size for Estimating Multinomial Proportions," February 1987

Implementation of the survey

The Register is typically updated annually for medium (11-29 employees) and large (30+ employees) firms. However, given recent turmoil in Iraq with the dual crisis of decreased oil prices and the ISIL/Da'esh conflict, the Register has only been updated for large firms in the manufacturing sector since 2009. As a result, all other sectors in the Register were out of date, and many of the firms listed had ceased operations. Therefore, many of the initial firms randomly selected to be surveyed were no longer operational and replacement firms were identified by CSO regional offices. These replacements were selected from the same stratum in such a way as to ensure similar characteristics to the no longer operational firms.

In some strata, the CSO regional office could not identify a sufficient number of firms with 10 or more employees. In these cases, the threshold was lowered, first to 7 or more, and in some cases to 5 or more employees. This replacement was done in an attempt to maintain as closely as possible the original sample size, and stratum allocation.

Despite this replacement strategy, the final actual sample taken contains 2,010 firms with 10 or more employees, and an additional 643 firms with 5-9 employees (totalling 2,653). Since the original sample was chosen from the firms of 10 or more employees, the primary analyses focus on this group only. This allows for the most accurate representation of the target population, and most accurate calculation of the sample weights.

Although not included in the primary analysis, the 643 firms of size 5-9 have been analysed as an independent subset as to make best use of the data. These analyses are presented in Chapter 5.

Survey quality assessment

A subsample of the firms were interviewed and audit analysis was done to ensure that interviews had been completed. Information was also collected from interviewed firms selected for the monitoring exercise to evaluate the quality of the interviews and the understanding of the objectives of the survey and its usefulness. The proportion of firms to be interviewed was targeted at 10%.

As noted in Table 2 below, calls were made to a total of 583 of the total records reaching 448 which corresponds to a sample size of 18% of the total. Of the 448 contacted, 400 of the firms surveyed (89% of the sample) verified that interaction between a CSO/KRSO surveyor and a company representative took place.

Table 2: Enterprise Survey lines of enquiry

	Iraq	KR-I	Total
Total firms surveyed	1,787	866	**2,653**
Total calls made	412	171	**583**
Contact made	295	153	**448**
% Contacted	16.5%	17.7%	**16.9%**
Verified	260	140	**400**
% Verified	88%	92%	**89%**
Inconclusive survey respondents	34	14	**48**

Definition of Terms

- *Contact made: All respondents that were reached by phone. This group does not include wrong numbers where an individual was reached, or calls where a person was reached but language precluded identification.*
- *Verified: All respondents that were reached by phone and with whom an interview by a CSO or KRSO surveyor was determined to have been made.*
- *Inconclusive: All respondents that were reached by phone but whose participation in the survey could not be verified.*

As one would expect, the time spent on the survey varied between interviewers. Using time spent on individual survey interviews as a primary indicator of whether a valid survey was performed, the results show that more than 70% of respondents indicated that the interviewer spent at least 30 minutes doing the interview. This 30-minute benchmark was applied as the minimum time required based on the training conducted for both CSO and KRSO.

As a part of the planned monitoring process, field personnel were instructed to submit reports. However, some of the field personnel did not respect the reporting schedule. In some cases, information was not transmitted until the end of the survey collection period, eliminating the possibility of corrections and feedback to weaker interviewers.

While the results support the conclusion that the survey activity was completed successfully, based on the information provided by respondents, there are indications that the quality of survey results varied from interviewer to interviewer. Some surveys did not meet the benchmark minimum time needed, and interviewers may not have effectively communicated with the company representatives. This is further supported by the responses from several respondents indicating that they did not understand the reason for the survey.

Analysis of the data

From the initially planned sample of 4,432 firms, 2,010 (45.4%) completed the entire survey questionnaire. Although this response rate is lower than hoped, the fact that the Register has not been updated since 2009 makes the true population size difficult to estimate. Therefore, it is possible that these 2,010 firms represent a greater proportion of the population.

Margin of error. The non-response rate and degree of replacement varied by governorate and subsector. Therefore, the margin of errors within the strata can be expected to vary. For example, in the manufacture of food products subsector in Baghdad, the calculated sample size (based on 5% non-response rate) for a margin of error of 5% was to try sample 144 of the 211 total firms in this stratum. In the actual sample, only 81 were obtained (56.2%). Therefore the true non-response rate for this stratum was 44%. We use the following formula to compute the margin of error in each of these situations:

$$e = \left(\frac{z\sqrt{p(1-p)}}{\sqrt{n}}\right)\sqrt{\left(1-\frac{n}{N}\right)}$$

where $\boldsymbol{e}$ is the margin of error, $\boldsymbol{z}$ = 1.96 (for a 95% confidence level), n =0.5 is the assumed proportion of a specific answer (as in the 'Sample size' section above), $\boldsymbol{p}$ is the sample size, and N is the population sample size.

In the above example, if we sample the full 144, the margin of error is 4.6%. If the non-response rate was 5% (as originally assumed) then the sample size is 137 and the margin of error is 5%. Finally, if the sample size is 81 (actual), then the non-response rate is 43.8% and the margin of error is 8.5%.

The differences in the above margin of errors result in differences in the width of the confidence intervals for the survey estimates. Specifically, holding everything else fixed, the confidence intervals will be (in this case) 8.5%/5% = 1.7 times wider. For example, if 20% ($\boldsymbol{p}$=0.2) of firms answered 'very important' to technical skills question then in the above example with a sample size of 137 the 95% confidence interval would be [16%, 24%]. With the increased non-response rate (and therefore a higher margin of error) the confidence interval would be [13%, 27%].

Most results are available at the subsector and governorate level, however, given the small number of firms in some strata, it is important to verify the response rate for these strata before presenting the results. In all governorates, there was no responses to the survey in two subsectors (32 – Other manufacturing and 62 – Computer programming, consultancy and related activities). The target sample size was small in each of these two subsectors, which helps explain the no response rate. These subsectors are not included in the results.

In the firms that did respond, missing data was not a problem, and therefore imputation methods were not required.

Weighting. In a given sample, it is preferred that it represents the true population with respect to all variables under consideration in the survey. For example, if the sample contained 60% males in telecommunication firms and the true population contains 70% for a given stratum, population inferences can therefore only be made by appropriate weighting.

Sample weights for each stratum were calculated based on the Register. The strata weights were based on the inverse probability of selection for a given company in that stratum. That is, the weights were calculated as:

$$W_{h*} = N_h/n_h$$

where $\boldsymbol{N_h}$ is the number of firms in the Register of size greater than 10 for stratum h and $\boldsymbol{n_h}$ is the size of the sample of firms of size greater than 10 drawn from stratum h.

As non-response may cause some groups to be over- or under-represented, these weights were further adjusted to obtain final strata weights of:

$$W_h = W_{h*} \times \frac{n_h}{n_{hr}}$$

where n_{hr} is the number of respondents in stratum h.

For example, according to the Register, in Baghdad, there are 120 telecommunication firms of at least 10 employees of which 97 were selected to be sampled. Of these 97, 23 responded and were interviewed for the survey. Therefore, the weight for this stratum was calculated as:

$$\left(\frac{120}{97}\right) \times \left(\frac{97}{23}\right) = 5.22$$

Across all strata the average sample weight was 2.96.

The above weights are based on the Register from 2009 and are therefore subject to bias if the true population has changed significantly since then. Given this potential problem, the survey data is analysed both with and without weighting and the primary report includes only the unweighted data, as this is deemed less likely to introduce significant bias. As a result, inferencing is limited because of cases where, for example, there could be a high range of variation in responses and reliable conclusions cannot be drawn. Some cases include:

- Cross strata (e.g. technical workers are paid more in Governorate A than Governorate B)
- Aggregation across strata (e.g. how important are technical skills in the construction sector? That is, aggregation across all the construction subsectors).

For the firms of size 5-9, sample weights should be used with extreme care as the population strata sizes in the Register are quite large, and the sample sizes are quite small. Using sampling weights as outlined above could lead to situations in which 1-2 sampled firms are weighted to represent 100 or more firms in that stratum. Given these concerns, weights are not computed for the size 5-9 firms and only unweighted data is displayed.

Limitations and potential bias. There are several limitations in the interpretation of the survey results, many of which are a result of the lack of up to date population of firms to draw the sample from.

As previously mentioned, the Register was last updated in 2009 for small- and medium-sized and non-manufacturing large firms. Given the change in economic and societal conditions in Iraq during this time, it is unlikely that the Register provides an accurate representation of the population of firms in the 8 selected governorates. This potential weakness was identified prior to the survey, but given that the Register was the only national reference of firms available, it was determined that it was the best possible reference population.

This discrepancy between the Register and the true population of firms on the ground led to many cases where those firms selected for the sample were no longer operating. Therefore, CSO used the replacement strategy, outlined previously in Chapter 1, to attempt to maintain the needed stratum sizes. Since the firms selected as replacements were not from a national register and were the result of field knowledge from local CSO offices, there is the potential that these replacement firms do not constitute a random sample of the population. Therefore, depending on the true populations of the stratum, this replacement strategy may introduce bias towards those firms known to CSO and possibly larger firms.

Furthermore, in cases where there were insufficient number of firms of size 10 or more the inclusion criteria were reduced to include firms of 7 or more employees, and in some stratum 5 or more employees. There is a total of 643 such firms. Given that the sample was created based on those firms in the Register with 10 or more employees, these firms of smaller size are not representative of the population sampled from. Therefore, these 643 firms of size less than 10 have not be used in the primary analyses referring to firms of larger size.

In principle, these 643 smaller firms could be used to attempt to make inference about the population of firms sized 5-9, although this has several limitations. Most importantly, this sample size is too small to accurately represent the 12,952 firms of size 5-9 in the Register at the subsector level in each governorate.

Moreover, the selection of these 643 firms was non-randomly drawn from the 12,952 firms in the Register and their selection was highly dependent on stratum (as this replacement strategy was only used in strata where not enough larger firms were available). Nonetheless, these 643 firms may be used to provide a snapshot of possible needs of smaller firms, and the data resulting from them are presented in Chapter 5. No strong conclusions should be drawn from them, but the data may help inform future areas of research.

Despite these replacement strategies, the overall sample size (2,010 firms of 10 or employees, 643 of size 5-9) is still potentially low for making inference at the strata level. Therefore, the margin of errors within the strata may be higher than the pre-specified 5%. These margin of errors within the strata depend on both the number of firms sampled within strata, and the variability in the answers given and therefore are difficult to predict prior to analysis. In general, those strata where the sample sizes are lower will likely yield higher margin of errors.

Finally, as mentioned previously, the discrepancy between the Register and the true number of firms in operation makes the calculation of sampling weights problematic. As outlined in Chapter 1, the strata weights are based primarily on the probability of a firm being sampled from the Register. Therefore, since the Register is out of date and some firms were sampled (via replacement) that were not part of the 2009 Register, it is likely that the sampling weights are not calibrated to the true population. Nonetheless, they constitute the best available given the available information, but any analysis involving them should be interpreted with care.

Chapter 2: Introduction to the context for skills development

2.1 Overview of the economic sectors in Iraq and KR-I

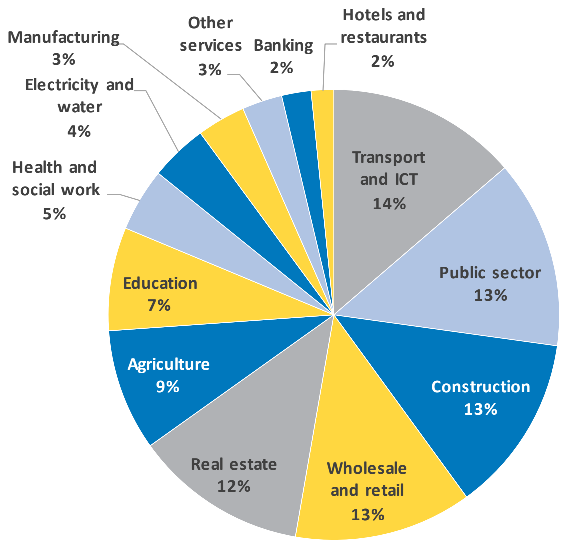
Within the Middle East region, Iraq is a medium-sized economy, with a GDP of 574 billion USD in 2015, which is less than a third of the GDP of Turkey or Saudi Arabia and around half of Iran's or Egypt's, but much larger than the GDP of Jordan or Lebanon. The Iraqi population of around 38 million represents less than half of the population of Egypt, Iran or Turkey, similar to that of Saudi Arabia but much larger than Jordan or Lebanon. Standards of living are lower than the MENA average, with an income per capita of 15,780 USD in 2015, much lower than that of Gulf States, behind that of Turkey or Iran, but higher than Lebanon, Egypt or Jordan.

Business conditions are very low compared to the region, with Iraq ranking 165th, much lower than Gulf States or Turkey (69th), Jordan (118th), Iran (120th), Egypt (122nd) or Lebanon (126th). Iraq receives significant FDI, mainly in the oil sector, comparable in the past five years to that of Iran or Egypt, lower than that of Turkey or Gulf States but higher than Jordan or Lebanon. Life expectancy, at around 70 years, and literacy at around 80%, are far below those of neighbouring countries.

Like many large oil-exporters, the Iraqi economy is not very diversified and the government plays a key role in the economy. Indeed, oil activities represented between 45 and 55% of Iraqi GDP between 2010 and 2014, while oil accounts for over 90% of government revenues. In 2014, the largest non-oil economic sectors are transport, storage, information and communication (14% of non-oil GDP), the public sector (13%), construction (13%), wholesale and retail (13%) and real estate (12%).

The public sector accounts for over 60% of Iraq's production, both because of the size of public administration and of its control of large activities: oil, mines, electricity and water. In addition, two-thirds of the banking sector and one-third of the manufacturing sector are run by the state, and it finances most of the construction projects.

Figure 9: Contribution to Iraqi GDP (non-oil economic sectors), 2014



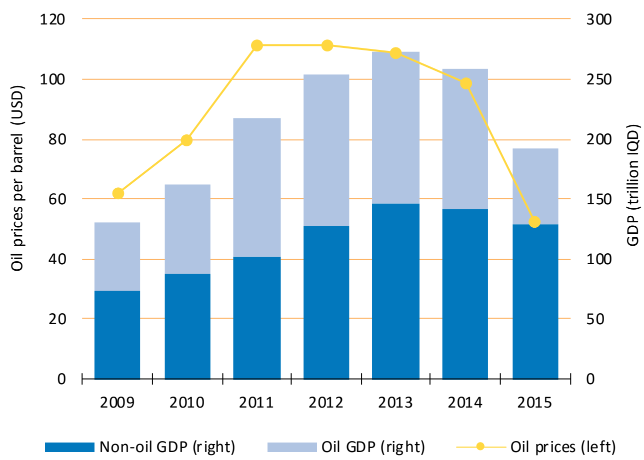
The government also has a monopoly on the purchase, sale and import of several agricultural and industrial goods, and it subsidizes consumption and investment of many goods.

KR-I represents around 11% of Iraqi non-oil GDP. The public sector is as important as in the rest of the country, representing 28% of the region's non-oil GDP, and construction accounts for nearly 20%. In parallel, the private sector plays a larger role in other business sectors.

Iraq relies very much on imports, importing over 15% of its GDP in most recent years. Iraq's main imports are machinery and mechanics, as well as electrical and electronic equipment, both accounting for 10-12% of total imports. China, Turkey and the UAE are its main suppliers. On the other hand, KR-I was responsible for 40% of Iraqi imports in 2014, purchasing mainly from Turkish, Iranian, Chinese and American suppliers.

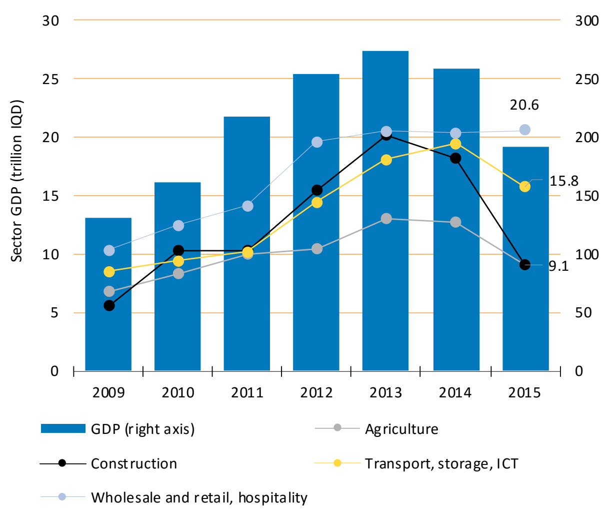
2014 marked a turning point. The ISIL/Da'esh insurgency in mid-2014 caused significant economic damage. Trade routes were closed, economic activities in the northern regions were held hostage, most notably the agricultural production of the largest Iraqi crops, wheat and barley, which severely declined. Military expenditure also increased substantially. Simultaneously, in 2014, oil prices were halved on international markets, drying up the government's main source of revenues and foreign currency. As a result, the government fiscal deficit more than doubled, from 5.6% of Iraqi GDP in 2014 to 13.7% in 2015. Meanwhile, the economic and political turmoil drove away tourism and foreign investment, which fell by around 30%.

Figure 10: Oil GDP, non-oil GDP and oil prices, 2009-2015



Iraq's real GDP fell modestly in 2014. In 2015, it grew by 2.4% because of a significant increase in oil production but the sharp fall in the value of that production caused Iraqi nominal GDP to fall by around 30% in 2015, triggering a severe economic recession across economic activities. Sectors in ISIL-held areas were more severely hit, as were sectors that relied extensively on public financing such as construction. Indeed, the sector lost half of its value in 2015, while other more resilient sectors, such as wholesale and retail, fared better. In 2016, growth resumed, with an estimated 11% increase in real GDP.

Figure 11: Selected sectorial GDP, 2009-2015



Upon normalization of the political situation, the country still faces a number of important challenges including economic diversification away from oil-related activities, fighting corruption, training and integrating youth and women in the labour force, building institutional capacity and reducing the size of the informal sector.

2.2 Overview of the demographics and the labour market in Iraq and KR-I

Table 3: Key demographic and labour market statistics

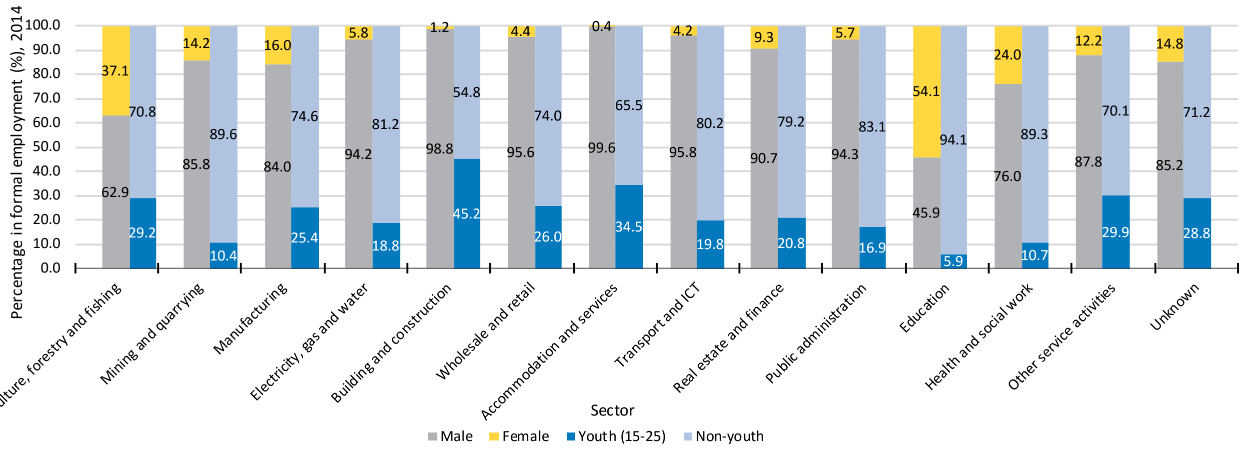
Population	• Estimated at approximately 38 million in 2016[4] • Growth rate estimated at 3.3%[5]
Age of the population	• Estimated 40.2% are under 15 years • Only 3.2% are over 65[6]
Gender of the population	Approximately 49% are female
Education level of the population	• In 2011 38% had no education[7] • Approximately 50% had primary and intermediate schooling. 11% had a diploma or above
Location of the population	Approximately 70% urban and 30% rural[8]
Working age population	21.5 million[9]
Economically active and inactive	• 42% of working age population was economically active in 2011[10] • National labour force: Estimated at 8 million (2011) to 10.5 million (2017)[11] • In 2014 76.2% of the economically inactive were female, 23.8% were male youth (15-25) represented 42.2% of the economically inactive[12] • In 2014 the formally employed labour force consists of 86.1% males, 13.9% females (12% in KR-I in 2012[13]). Youth (15-25) represented 24.5% of the formally employed[14]
Unemployment	• In 2014 67% of unemployed were males and 33% were females. 51.7% of unemployed were youth[15] • **National:** 34.1% of 15-19 year olds available for and actively seeking work are unemployed[16] • **KR-I:** in 2012 the unemployment rate for female youth was exceptionally high, at 48.3%, compared to 13.4% for young men[17]
Public Sector employment	• **National**: the government provides 40% of all jobs[18] and employs 60% of female workers • **KR-I:** in 2014 the public sector employed 80% of all employed women and 45% of all employed men[19]
Private sector employment	60-70% of jobs in formal and informal private sector employment
Oil employment	Oil accounts for 32% of GDP[20] and over 90% of government revenue, but only 1% of employment[21]

The population of Iraq is approximately 38 million, of which 70% live in urban areas. Around 40% of the population are children under 15 years, and the population is growing at a rate of 3.3% on average. Less than half of the working age population is economically active (i.e. working or looking for work).

[4] CSO
[5] UN Statistics Division
[6] CSO
[7] CSO; UN
[8] CSO
[9] CSO
[10] UN
[11] ILO
[12] CSO
[13] Save the Children Assessment of Youth Labour Market and Entrepreneurship Opportunities in the KRG (2014)
[14] CSO
[15] CSO
[16] CSO
[17] Save the Children Assessment of Youth Labour Market and Entrepreneurship Opportunities in the KRG (2014)
[18] UNDP
[19] Save the Children Assessment of Youth Labour Market and Entrepreneurship Opportunities in the KRG (2014)
[20] CSO
[21] UNDP

Figure 12 shows employment of male, female and youth workers by economic sector. The education and agriculture sectors have the biggest proportion of women in their workforce, followed by health & social work. Traditional male domains (such as construction) and public facing sectors such as accommodation & services, and wholesale & retail employ a very small proportion of women. Building & construction, and accommodation & services employ the largest proportion of youth (15-25), followed by agriculture, wholesale & retail, and other service services.

Figure 12: Formal employment in Iraq by economic sector and worker profile, 2014



Source: CSO

2.2.1 Public sector employment

For most MENA countries, including Iraq, the public sector is the largest formal employer. Typically, in these countries, the civil service has grown disproportionately large as a result of a social contract in the 1970s and 80s which effectively offered employment to all university and TVET graduates. Even though the public sector is no longer able to absorb growing numbers of these graduates, the public sector is by far the most preferred employer and almost all formal employment is still in the public sector. In some MENA countries (e.g. Jordan), there is a waiting list for public sector positions, and the informal sector is seen as a transition zone where young people wait for public sector administration jobs to be offered. In both Iraq and KR-I there are now measures in place to reduce the size of the public sector.

According to a Save the Children Assessment[22], the public sector in KR-I employs a larger percentage of the workforce, and a much larger proportion of working women than the national average shown in Table 3. Reportedly more than half of all employed people in KR-I work for the government. This number includes people who work directly for the government, a small number who work for state-owned enterprises, and a small number who work in mixed public-private enterprises. According to KRSO, approximately 80% of all employed women and 45% of all employed men work for the government.

The planned downsizing of the public sector in Iraq and KR-I has implications for the informal sector, since the private sector remains underdeveloped, and primarily informal in its operation. The private sector in Iraq consists largely of informal trade. The formal private sector is not ready to absorb the excess of the public sector as well as an estimated million new entrants to the labour market every year.

[22] Save the Children *Assessment of Youth Labour Market and Entrepreneurship Opportunities in the KRG* (2014)

2.2.2 Women in employment

87% of women in Iraq are economically inactive (not working or looking for work) and 78% are housewives.[23] In KR-I, only 12% of women are economically active. Of those who are economically active (working or looking for work) in Iraq, 13% are unemployed. In 2014 only 13.9% of all citizens who were formally employed were women.

Traditional societal norms cast women as mothers.[24] The working hours of other types of work, that might keep them out of the house after dark, or roles that require them to work with males not in their families, are barriers that contribute to females in Iraq and KR-I not working. However, the UN reported a change in attitudes, noting that 66% of youth, compared to 42% of older people, support women's right to work outside the home.[25] Nationally 60% of all female workers are employed by the government. In KR-I this number is reportedly closer to 80%. In 2011 only 2% of all private sector workers were women.[26] Female unemployment is reportedly lower in rural areas due to high female employment in agriculture.

2.2.3 Foreign workers in employment

Although, according to the Labour Law (under revision) there is no specific requirement for at least 50% of employees of companies to be Iraqi, this condition is part of the Investment Law. In both Iraq and KR-I, the Investment Law states that the investor may employ local and foreign manpower but should give priority to local manpower with an equal skill set.[27] In recent years, however, the government has stopped the granting of work permits for Arab and non-Arab expatriates workers in several instances.[28]

It is difficult for MoLSA to control the number of foreign workers since reportedly *Recommendation 46 (2012)* allows for employers to employ 50% foreign labour, and *Law 80 (2013)* allows foreign companies with government contracts to bring in their own labour without approval for one month. Some of these unregistered workers do not register, or return to their home country, and become illegal immigrants.

MoLSA in Iraq and KR-I issue work permits for 'domestic' and 'project' foreign workers. The cost to the applicant of obtaining a permit is insubstantial, and no disincentive. MoLSA does not have records of technical or professional level foreign workers. There is no complete record of the technical skills or qualifications of foreign workers. Classification and quantification of the skills of foreign workers would be a strong indicator of skills needed in Iraq and KR-I. Information from MoLSA KR-I shows that just over 10,000 foreign workers got permits for project and domestic work in 2015. Foreign workers originate mainly from many countries. In 2015 the largest numbers came from Nepal, Indonesia, India, Ghana, Georgia and Pakistan. Others have come from Iran, Syria, Turkey, the Philippines, Somalia, Ethiopia and Bangladesh. Positions as maids and nannies are often given to women from Bangladesh and Ethiopia.

Foreign labour can be found in all sectors of the economy, in both skilled and unskilled roles. In some sectors, foreign workers are preferred, for example in the hotel and construction industries. The HR

[23] CSO

[24] Save the Children *Assessment of Youth Labour Market and Entrepreneurship Opportunities in the KRG (2014)*

[25] UN Women in Iraq. Factsheet – CSO/KRSO/UNFPA/Pan Arab Project for Family Health, Iraqi Women Integrated Social and Health Survey (I-WISH 2011), 2012

[26] UN Women in Iraq. Factsheet (CSO/KRSO/UN) Iraq Knowledge Network, 2011

[27] Law No. 4/2006. Investment Law in the Iraqi Kurdistan Region

[28] http://www.tamimi.com/en/magazine/law-update/section-6/march-5/employment-of-expatriate-workers-in-iraq.html

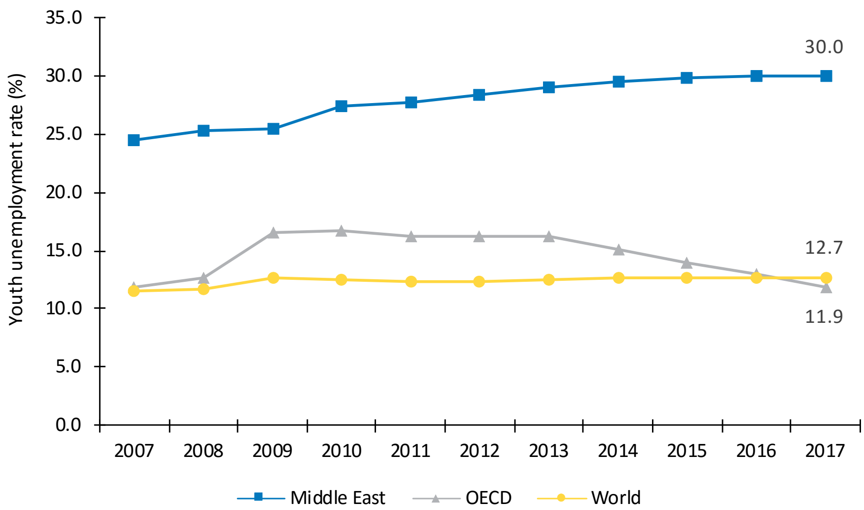
manager of a five-star hotel in Erbil reported in 2014 that of a staff of 303, only 55 were Iraqi Kurds, because Iraqi Kurds do not have the market-relevant skills needed and they lack the necessary command of English and Arabic.[29] Employers and policy makers who were interviewed for this report generally agreed that graduates of the TVET system in Iraq do not have enough practical experience to be useful on the job.

There is a perception amongst employers that foreign workers will work harder and for longer hours, for less money[30] , and make fewer demands on their employers. The typical transaction type described by a foreign labour recruitment agency is 'no questions asked' in exchange for low rates of pay. In 2014, it was reported that foreign labour will work for two-thirds the wage expected by Iraqi youth. Refugees will apparently accept even less than foreign labour. Because exchange rates have changed.

2.2.4 Youth unemployment in Iraq

According to the ILO, the Middle East region has the highest youth unemployment rate in the world at a level of 30% in 2017 (Figure 13). The youth unemployment rate for the Middle East has been more than twice the global and OECD youth unemployment rate since 2014. The OECD youth unemployment rate is reported at 12%, but some individual OECD countries (e.g. Spain, Italy and Greece) have higher youth unemployment rates than the regional rate for the Middle East.[31]

Figure 13: Youth unemployment rates for the Middle East, OECD and world, 2007-2017



Sustainable development indicators for decent work and economic development include substantially reducing the proportion of youth not in employment, education or training (NEET). Very high unemployment of youth is associated with poverty and social unrest.

The Save the Children Assessment of the Labour Market (2014) states that at the start of 2010, Iraq had the highest rates of unemployment in the Middle East: more than half of the country's young urban males were unemployed as well as the large majority of young women. The official national unemployment rate in Iraq is 11%[32] , youth unemployment stands at 18%, while female youth unemployment reaches 27%, against 17% for males.[33] Youth unemployment rates for KR-I are reported as 48.3% for young women and 13.4% for young men.

[29] Save the Children *Assessment of Youth Labour Market and Entrepreneurship Opportunities in the KRG (2014)*
[30] Ibid
[31] OECD
[32] UNDP
[33] CSO. Labour Force Factsheet (2011)

The youthfulness of the Iraqi population (40.2% are under 15 years) has implications as millions of new workers will enter the labour force in the next 20 years. In KR-I alone it is estimated that over the next 20 years between 850,000 and 1.1 million new workers will enter the labour market.[34] No comparable data was available for the whole of Iraq.

2.3 Overview of the skills supply in Iraq and KR-I

2.3.1 Planning for TVET

The National Development Plan (NDP) for Iraq 2013-2017 has been replaced with the new NDP 2018-2022. The NDPs include some objectives relevant to TVET reform. Other planning for TVET (vocational schools) is included in the National Strategy for Education and Higher Education in Iraq for 2012-2022. There is also a TVET Strategy (2014-2023) for Iraq and KR-I, which is a ten-year strategic plan developed by an inter-ministerial group with funding from the EU and support from the British Council. The TVET Strategy provides analysis of the challenges and opportunities and sets out objectives for eight axes which include these focus areas:

1. Legal and governance framework
2. Infrastructure and equipment
3. Enrolment and private sector participation
4. Quality of staff and recognition of graduates' skills (including NQF)
5. Labour market observatory and occupational standards
6. Research and innovation
7. Quality and accreditation
8. Funding.

In both Iraq and KR-I, the Ministries of Planning are at the centre of planning activities. The identified needs of districts and governorates filter upwards, through municipalities and governorates and other ministries to the Ministry of Planning. The Ministries of Planning work with development partners; commissioning and receiving studies; and co-ordinating and developing overarching planning agenda, in collaboration with the Ministry of Finance. Therefore, planning is an iterative process, which synthesises information from many sources, including 'bottom up' information from all parts of the country, and 'top down' information which is responsive to international developments and country and sector-wide analysis.

Some ministries have quantitative human resource development information which can feed straight into skills training and Human Resource Development planning (HRD). For example, the Ministry of Health in KR-I has produced detailed analysis of over- and undersupply (based on established norms of number of inhabitants per health professional) of all types of health personnel.

The development of a labour market information system has long been suggested and planned, and even attempted, but so far without significant advancement until the implementation of this UNESCO programme. Lack of labour market information has been a major inhibitor to any kind of structured HRD planning.

[34] Save the Children *Assessment of Youth Labour Market and Entrepreneurship Opportunities in the KRG (2014)*

CSO and KRSO (attached to the two Ministries of Planning) conduct surveys periodically. The last Household Survey was in 2011-12 with an update in 2014. The last Employment and Unemployment Survey was in 2008. Other surveys reviewed for this Sector Skills Analysis project include, for example:

- CSO Hotel and Tourist Accommodation Survey 2012
- CSO Survey of Household Industries 2012
- CSO Repair of Machinery, Equipment and Appliances Services Survey for 2012
- CSO Report on University Education 2013-2014
- CSO Report on Vocational Education 2014-15
- CSO/KRSO Survey of Street Vendors 2015.

Both CSO and KRSO periodically collect and publish data on the productive sectors of the economy, such as crops in agriculture, building and construction, manufacturing and trade. Typically, CSO and KRSO reporting on survey data is descriptive but not analytical. The reader must derive the meaning from the data provided in the tables. The data does not seem to be collected to satisfy specific lines of enquiry, relevant to planning and decision making.

From the interviews conducted for this Sector Skills Analysis Project it does not appear that CSO and KRSO work plans are based on the commissioning of specific surveys and reports by the Ministry of Planning or by other ministries specifically to inform planning. CSO and KRSO operations are based on commitment to updating existing information; so that planners can help themselves to statistical data which exist, as it seems relevant to their purposes.

2.3.2 Financing TVET

Interviews held in Iraq and KR-I suggested that specific budget allocations for education and training are subsumed within the overall budget for ministries' running costs.

Each ministry negotiates its annual budget based on its own perceived short term operating and capital development needs, within parameters which are based on previous budget usage. The MoHESR, for example, will negotiate for a budget slightly larger than the previous budget, irrespective of the development plans of other ministries, which may have implications for HRD.

Ministries (such as MoE, MoHESR and MoLSA) have a budget for the delivery of their core business services, irrespective of the number of students trained. Interviews in Iraq and KR-I suggested that the allocation of funding from the ministries to their education and training institutions is based on historical operating costs, with no mechanisms which enables budgetary consideration to be given to changes in the number of students, or running cost implications of delivering new or amended programmes. There is no per full-time-equivalent student cost formula which provides a baseline for different types and specialisations and levels of education and training.

There is no TVET levy fund in Iraq or KR-I. In many countries education and training is partially funded by a levy on private sector business. Different countries have developed different approaches, and the levy can be based on a percentage of taxable income, payroll or work permits. Contributors to the levy fund also have access to education and training for their local staff.

Education and training at all levels is fully subsidised by the state for those students who meet the required academic entry criteria. Students receive living allowances and other subsidies.

Many countries have found full state-funding of all tertiary education unsustainable in the context of the ”massification” of tertiary education, and have introduced various cost sharing schemes. Full government subsidy of all students does not discriminate between those that need financial assistance and those who could afford to contribute to their own education and training. In some countries where all the living expenses of students are fully funded by the government, students prefer to remain enrolled for as long as possible, since study with benefits is preferable to unemployment.

MoHESR is able (by decision of the Council of Ministers) to supplement the state budget allocation through the ‘parallel system’ of fee-paying students who did not quite meet the criteria for state sponsorship. This provides another source of income for polytechnic and technical universities. Separate streams of government funded students (who got good grades at school) and privately funded students (who did not get good enough grades to meet the entry requirement) are common in some post-Soviet countries. This practice is associated with some risks such as compromising the quality of the qualification by lowering the entry requirement, and institutions may be tempted to raise the official entry requirement for the purpose of generating more income. There may be other ways for institutions to generate income (such as education with production) which are less discriminatory and less compromising.

The mandate of MoLSA is to provide training to people who are registered umemployed. Nevertheless, there is some evidence of private sector companies requesting professional development training for their employees on a per-student fee basis from MoLSA training centres, such as the Swedish Academy in Erbil. Engagement of the private sector in requesting and paying for training seems to be uncommon. In general, social demand, rather than labour market demand, is the driver of enrolment. Numbers of students enrolled are only constrained by space in the classrooms.

2.3.3 Demand for TVET

Social demand for education and training is largely dictated by society values and beliefs. Within such values and belief systems, in many developing countries including Iraq, there may be a strong belief in a hierarchy of occupational status, in which young people with the “best” results should become doctors, and those with the next best grades should, for example, become lawyers or engineers. This is reinforced by the post-secondary admission system that limits entry into programmes which lead to such occupations. In this way, many young people train for the highest status occupation for which they can meet the entry requirement, rather than the occupation which suits them in terms of their aptitude or the occupation for which there is labour market demand.

Another factor which determines enrolment behaviour in Iraq, and in many other developing countries, is the historical legacy of public service employment, which was permanent and pensionable with many benefits. Even though the governments of Iraq and KR-I no longer absorb all graduates, and plan for mandatory downsizing of the public service, the idea of being qualified to work in the public service is still a very compelling option for young people and their families.

Certain occupations are very low down in the occupation hierarchy, such as hospitality services, and ‘dirty jobs’ such as blue-collar jobs in construction. Working in the private sector is unattractive, since it is believed that the work in the private sector offers lower pay, less job security and little or no social security. The private sector is very small as well as underdeveloped (mostly informal), and therefore offers less opportunities than the public sector.

2.3.4 Employment of graduates

As a result of these dynamics of preference, there may be a surplus of graduates for high status occupations such as engineers, and “white-collar, high security” jobs such as administrators, bankers and statisticians, and these graduates may be more likely to face unemployment than their peers. However, since there is no practice, in any of the education and training providers, of systematically following up TVET graduates (tracer studies) to find out how well their training prepares them to enter the workforce or pursue further study, there is only anecdotal evidence about employment and unemployment of graduates in each field of work.

Interviews with the Vice President and the Career Development Advisor of a Polytechnic University in KR-I, and with MoHESR and MoLSA in Iraq and KR-I, confirmed that there is no surveying of graduates (tracer studies), and despite the strong direction in the TVET strategy, there is still very little meaningful interaction between employers and training institutions.

Many countries which have experienced extreme regime changes (like post-Soviet countries), seem in some respects, to have “thrown out the baby with the bathwater” in their drive to distance themselves from the past. In Iraq, there is sense that some of the systems of the past had merit and should not have been discontinued without anything to replace them.

One example of a discontinued good practice from the past is the practice of surveying graduates. Even though the intention to survey graduates is still current and even recently renewed, it was not possible, over the course of several interviews, to locate a single example of a past or current graduate survey instrument.

2.3.5 Relationships between TVET providers and employers

Good practices of the past which were impacted negatively, and even completely disrupted, by political and social upheaval include the practices of close relationship between training providers and (often adjacent) production sites including factories, farms and service providers. These relationships offered easy access to work-based practice experiences, continuous employer feedback on student and graduate skills, and employment opportunities for graduates.

Another loss is the practice of ”training-with-production,” which includes actual production of goods and services for sale (revenue steam for the institution and the ‘workers’) and actual work experience for trainees, within the concept of training. More recently there is a small resurrection of this concept in the form of 14 “experimental” agriculture “training-with-production” programmes (MoE Iraq) with financial benefits for all parties, including trainees.

Many of the interviewees and pilot Sector Council participants, in both Iraq and KR-I, made the point that the training in technical fields which is currently offered in the institutes and colleges of MoHESR is very theoretical in nature, and is designed to prepare people for desk jobs in ministries. This is reportedly true of most fields of training, including those which would be expected to lead to practical work, such as agriculture and highway engineering. The Contractors Union reported that despite the availability of graduates in construction trades, the standard practice of building contractors is to hire unqualified labour or unskilled labour, and train them on the job.

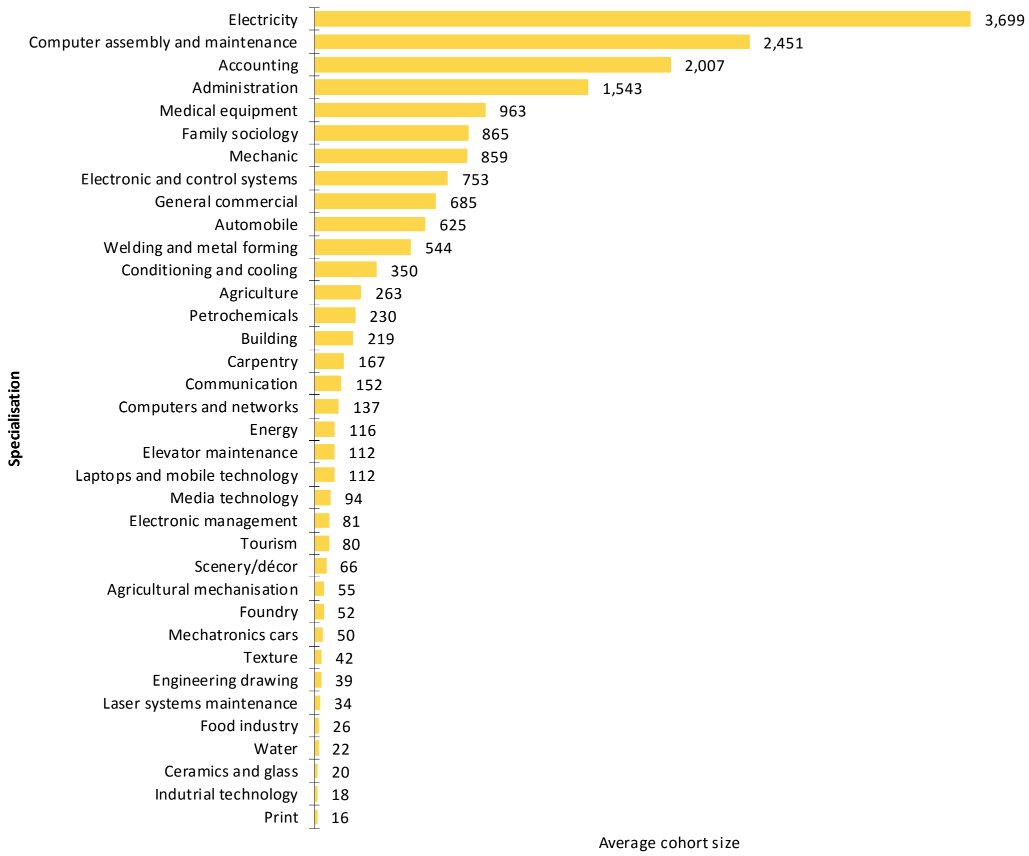
The concept of ‘summer training’ which is intended to provide work experience for TVET students during ‘vacation’ periods is an example of a potential enhancement of the training to increase the practical skills and employability of graduates. The fact that educators are not paid to supervise summer training is certainly a contributing factor to the failure of the concept to provide meaningful work experiences for learners. Supervision of work-place-based work experiences should be part of the assigned workload of educators and trainers. Work experiences need to be designed with close alignment to the competencies (learning outcomes) to be achieved, and closely supervised and monitored to ensure that learners have sufficient range of opportunities to practice and demonstrate their competence. Work experience should be a meaningful and worthwhile experience which is valued by learners, as well as a 'credit-bearing' component of the training programme.

An example of good practice for 'summer training' was provided by the Ministry of Transport (MoT) which offers 'summer training' to over 750 students each year. Experience with public universities is not positive (students don't show up), but MoT has good experience with some private universities (e.g. Al Mansour). Their students are supervised by University staff and can be sent to the field (i.e. they have useful skills) and the University requests a report on each student. This successful experience can provide a model of good practice.

2.3.6 Provision of vocational preparatory education by MoE

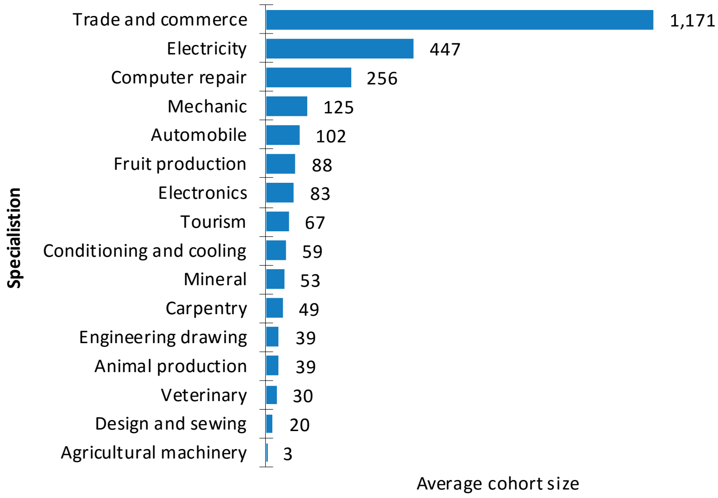
Vocational preparatory education consists of 3-year programmes (equivalent to Years 10, 11 and 12) in vocational schools and institutes. Over 400 schools and institutes offer these programmes in Iraq and KR-I with a total enrolment of just under 60,000 students (over 50,000 in Iraq and around 8,000 in KR-I). More specialisations are offered in the governorates of Iraq than in KR-I (as shown in Figures 14 and 15). In Iraq, electricity and computer maintenance are the most popular vocational specialisations. In KR-I, student enrolment in trade and commerce programmes (accounting, administration, and commercial and tourism management) account for approximately half of all MoE vocational education enrolment.

Figure 14: Vocational education average cohort size by specialisation in Iraq, 2015-2017



Source: Author compiled from tables provided by MoE Directorate of Vocational Education, February 2017

Figure 15: Vocational education average cohort size by specialisation in KR-I, 2015-2016



Source: Author compiled from tables provided by MoE Directorate of Vocational Education, January 2017

2.3.7 Provision of technical education by MoHESR

TVET programmes are offered in institutes and colleges. Institute programmes are 2-year programmes leading to diploma qualifications and college programmes are four years long, leading to bachelor degree qualifications.

In Iraq, there are 4 technical universities with 29 institutes and 16 colleges (total 45 institutions). Data received from MoHESR for this report are insufficient to estimate an average cohort size, and numbers are affected by closure of some institutes and colleges in areas which were under ISIL/Da'esh control.

Table 4: Total enrolment in Iraq technical universities, 2014-2015

Technical university	Total enrolment 2014-2015	New intake 2014-2015
Northern Technology University	8,708	2,870
Central Technology University	40,169	12,200
Middle Euphrates Technology University	27,323	9,227
South Technical University	21,360	5,606
Total	**97,560**	**29,903**

In KR-I, there are 3 polytechnic universities with a total of 36 institutes and colleges, and total estimated enrolment of 12,341 students each year.

Table 5: Total enrolment in KR-I polytechnic universities, 2013-2016

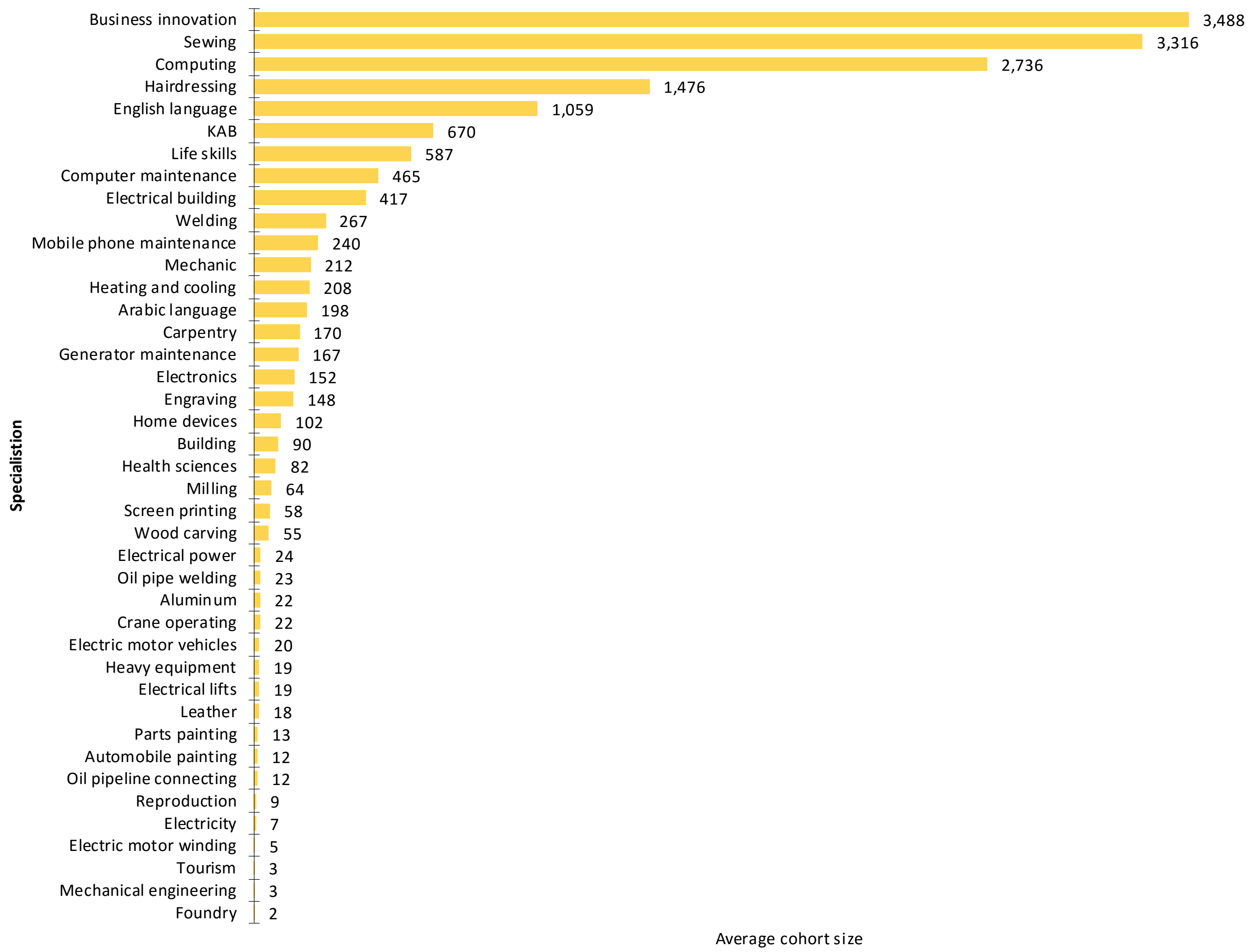
Polytechnic university	Total enrolment over the period 2013-2016	Average cohort size per year
Duhok Polytechnic University	9,648	3,216
Erbil Polytechnic University*	14,295*	4,765
Sulaymaniyah Polytechnic University	13,082	4,360
Total	**37,025**	**12,341**

*One of EPU's submission had an incorrect total of 13,981

2.3.8 Provision of vocational training by MoLSA

In Iraq, there are 38 MoLSA training centres with an average annual MoLSA cohort size of 16,659. Students are 66% female. The largest enrolment in this group is in business innovation (which may be linked to small loans) and is followed by the next four largest specialisations of sewing, computing, hairdressing, and English language. These top 5 specialisations make up over 70% of total enrolment (Figure 16).

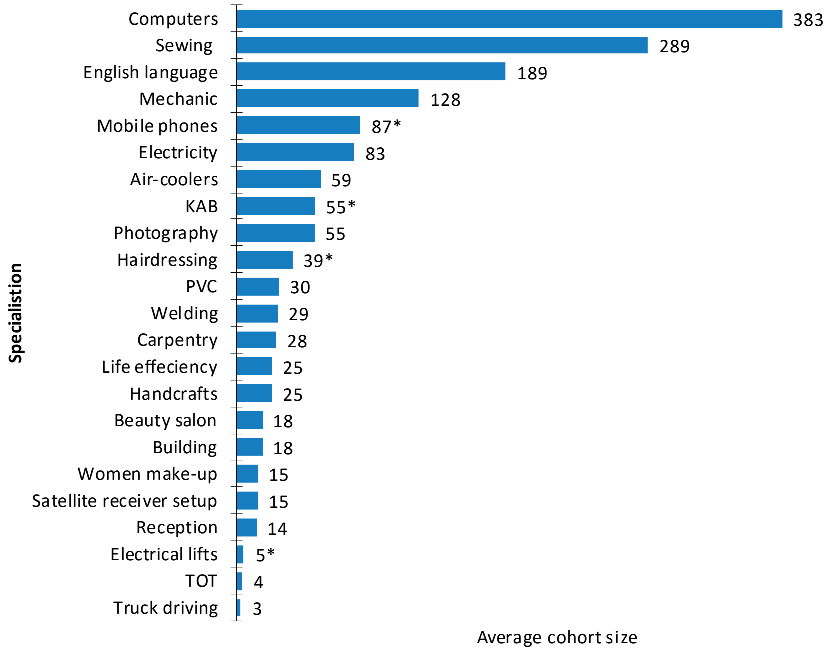
Figure 16: MoLSA Iraq vocational training average cohort size by specialisation, 2013-2015



Source MoLSA Iraq

In KR-I there are 7 MoLSA training centres. Total enrolment was 1,504 in 2014 and 1,414 in 2016. The data from MoLSA KR-I shown in Figure 17 below is an amalgamation of three data sets with data cleaning modifications. Computer, sewing and English language courses have the biggest share of enrolment (over 50%). MoLSA KR-I students are 55% male and 45% female. Dahuk has by far the largest share of MoLSA enrolment in KR-I (34% of enrolment) and Erbil has the second highest share (18%).

Figure 17: MoLSA KR-I vocational training average cohort size by specialisation, 2014-2016



Source: MoLSA KR-I, and Swedish Academy enrolment for 2015

*Note: * represents adjusted figures*

2.3.9 Provision of technical and vocational training by other ministries

Tourism and Hospitality

The nine tourism and hospitality institutes in Iraq provide pre-service training in four programmes each of three years duration with a total enrolment of 756 students in 2015-2016. The institutes are as follows:

- Baghdad Center for Tourism & Hospitality, Rasafah (3 branches)
- Najaf Center for Tourism & Hospitality
- Karbala Center for Tourism & Hospitality
- Ninive Center for Tourism & Hospitality
- Dkar Center for Tourism & Hospitality
- Basra Center for Tourism & Hospitality
- Muthana Center for Tourism & Hospitality.

Data from the Board of Tourism Iraq includes both enrolment and graduation rates but it is not possible to extrapolate a sensible graduation rate from these data (graduate cohorts appear to be more than 100% of the relevant enrolment cohort which may indicate a high repetition rate). What is clear from both enrolment and graduation data is that numbers of enrolment have more than doubled since 2012 and the number of graduates is nearly four times the number in 2012.

Four specialities (cooking, hotel management, accommodation, and reception) are offered in 3-year programmes. The three years of training are organized as follows: two years of theoretical and practical training and a year of internship in a reputable touristic establishment (public or private).

Information on new enrolments in 2015-2016[35] (189 for accommodation and 202 for reception) suggests that in the future there will be more graduates in these two areas, whereas enrolment for cooking (182) and hotel management (183) suggest little expected growth in skills supply in those two areas.

The KR-I Tourism Training Centre has a training and production kitchen, restaurant, canteen and hotel rooms. However, currently the facility is substantially used by the Ministry of Municipality and Tourism for office space, since the delivery of programmes is not expected to start until a future date.

Agriculture

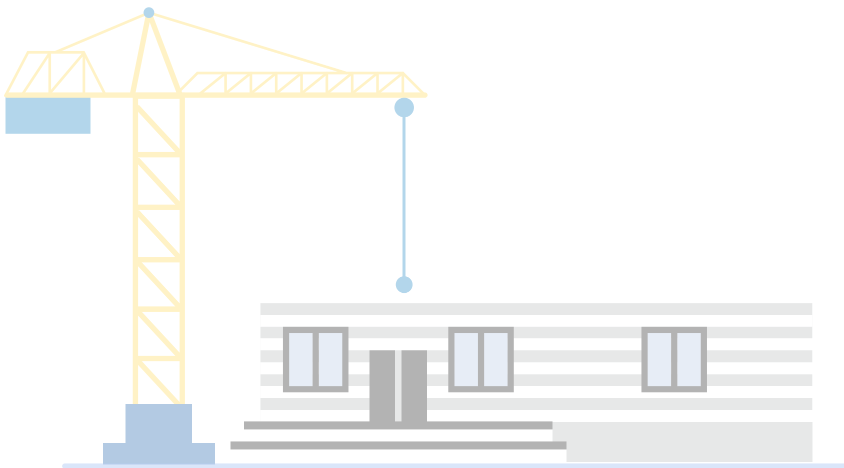
The Ministry of Agriculture Iraq has 78 training centres all over the country for professional development of farmers and Ministry staff. Specialised training includes focus on rural women and rural youth.

Communication

The Ministry of Communications (MoC) Iraq offers training through its Higher Institute for Communications and Post.

Transport

The Ministry of Transport's Department of Training and Development coordinates three existing training centres for civil aviation (two campuses), sea port and railways, which are partially operational.



[35] Board of Tourism Iraq

Chapter 3: The transport and storage sector in Iraq and KR-I

3.1 Key statistics and overview of the sector

Table 6: Key statistics of the transport and storage sector

Size of sector	8 billion IQD in 2015
Importance of sector	• Estimated 6% of non-oil GDP in 2014[36]
Employment	• Between 4 and 5% of employment • Employment is 96% male and 20% youth (15-25 years old)[37]
Share of the private sector	93%[38]
Largest subsectors	• Land transportation • Pipeline transportation • Warehouses and storage
Main governorates active	• Baghdad • Basrah
Current conjuncture	• High growth between 2009 and 2013, sharp decrease in 2015
Main challenges	• Closing of trading routes • Transport infrastructure

The transport and storage sector plays an essential role in facilitating and supporting other sectors of the economy. As such, a strong transport and storage sector is key to promoting growth in other sectors of the economy and it relies heavily on the strength of other sectors to grow. The government plays a key role in the sector and is responsible for ensuring that infrastructure is in proper, functioning condition.

The sector follows closely the rest of the economy in both strength and makeup. There are significant areas of growth and expansion within the sector, but the security situation has inhibited expansion in many parts of the country. Figure 18 below shows Iraq's main cities. Naturally, the transportation network and transport and storage activities match the larger urban areas, as well as the international trade routes.

[36] CSO

[37] Ibid

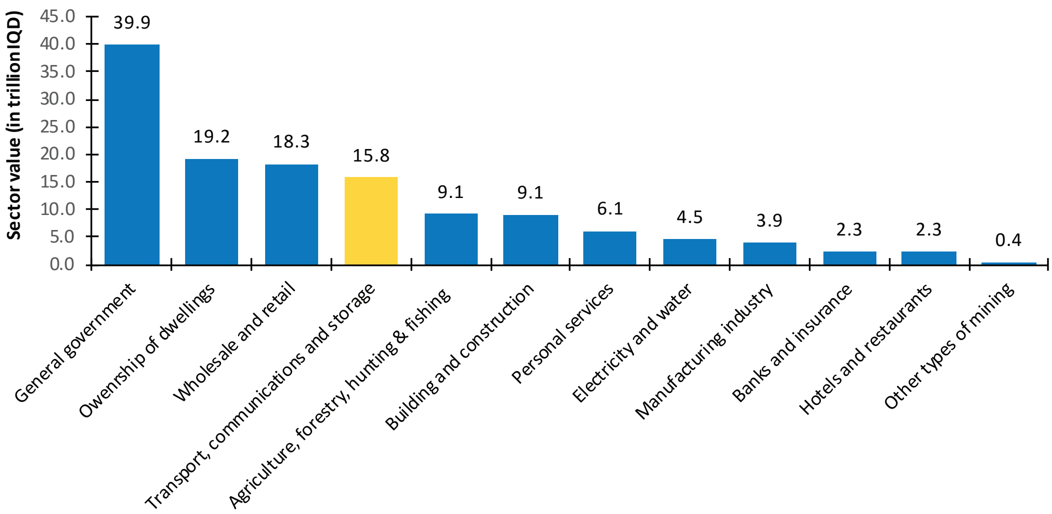
[38] Ibid

Figure 18: Map of major cities of Iraq and KR-I

Source: Author

Three versions of ISIC are used in the production of statistical information for the sector. In ISIC Versions 2 and 3, transport and storage are classified together with information and communication. In ISIC Version 4 transport and storage is separate from information and communication. In 2015 "transportation, communication and storage" was worth 15.8 trillion IQD in the whole of Iraq, equivalent to 12.1% of non-oil GDP (Figure 19).

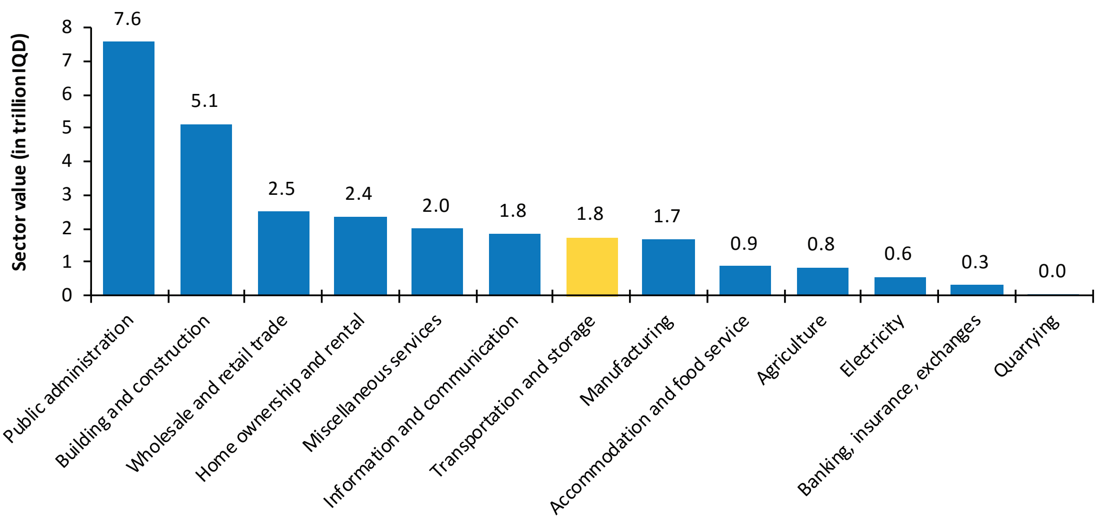
Figure 19: Components of non-oil GDP in Iraq including KR-I, 2015 (current prices)



Source: CSO

Using KR-I data the "Transportation and storage" sector represents approximately 1.8 trillion IQD and 6% of non-oil GDP in the region (Figure 20).

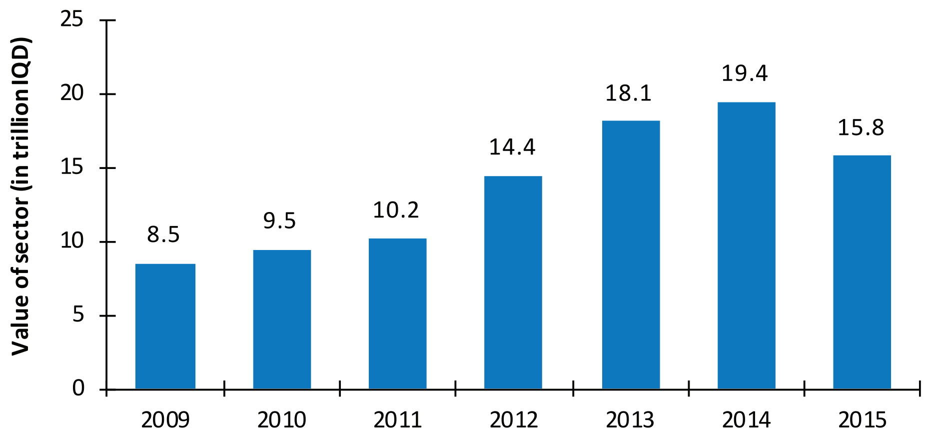
Figure 20: Components of non-oil GDP in KR-I, 2012 (current prices)



Source: Abramzon et al.

Like the rest of the economy, the transport sector grew rapidly at 17.9% per annum on average between 2009 and 2014, before falling between 2014 and 2015 (Figure 21). The general slowdown in economic activity, the closing of trading routes and the fall in oil prices all contributed to the slowdown in the sector.[39]

Figure 21: Evolution of the transport, communication and storage sector, 2009-2015



Source: CSO

The transport sector is reportedly not a priority sector for the government. The transport sector receives a small share of the National Development Plan (NDP) for the years 2013 to 2017. The NDP allocated 9.5% of investment to the communication and transportation sector; significantly less than the 38.2% allocated to the industrial sector, or the 28.6% to the building and services sector. In fact, the communication and transportation sector received the smallest share of all sectors included in the plan.[40] This is reflective of the fact that investment in infrastructure is accounted for in construction investment, and apart from the provision of infrastructure, the transport sector is overwhelmingly private in nature to which over 90% of production in the sector is private.[41]

[39] It is assumed that the transport and storage sector has followed a similar trajectory as the larger transport, communication and storage sector. This is likely given the issues mentioned here and development in the subsectors, discussed in the next sections

[40] Other sectors received: industrial sector, 38.2%; building and services sector, 28.6%; agriculture sector, 13.4%; education sector 10.3%.

[41] CSO

Other industries rely on an adequate transport sector in order to create growth, whether through domestic trade or international exports, and the sector cannot be overlooked as it is essential to the economy as a whole. The sector is essential for facilitating exports and imports between Iraq and its trading partners. The ports in the south, particularly Umm Qasr, give Iraq an important gateway to the world, and the vast majority of its imports come into the country via sea; these imports were valued at over 39.5 billion USD in 2015. A significant amount of goods enter and exit the country via trucks, as well, particularly through the northern border with Turkey, and move along the over 110,000 kilometres of paved roadway throughout the country. Likewise, five functioning international airports bring a modest amount of goods, and millions of people, into the country each year, with a sixth airport currently under construction. Rail service exists, but has been reduced due to instability. Postal and storage services also facilitate commerce and communication, but are underdeveloped in many parts of the country.

Political instability, coupled with a collapse in oil prices, has halted new projects, and destroyed much of the essential infrastructure, particularly in the areas located between Baghdad and KR-I. Areas recently reclaimed by the government will need massive investment in order to rebuild the transport sector.

3.2 Structure of the sector and types of enterprise

Nearly every sector of the economy is dependent on transport and storage systems, including the public sector. Thus, direct stakeholders of the transport sector include large parts of both the public and private sectors. Specific to the industry, however, there are unions, professional associations, and ministries with a direct interest in the industry. These include:

- Ministry of Transport (Iraq), and public companies under its purview, such as Iraqi Airways, Iraqi Republic Railroads, and General Company for Ports of Iraq, the State Company for Travellers & Delegates Transportation and the State Company for Land Transportation
- Ministry of Transport and Communication (KR-I)
- Ministry of Oil (Iraq), and the Oil Pipelines Company
- Ministry of Natural Resources (KR-I)
- International airlines with flights into Iraq or KR-I
- Iraqi Post and the Kurdistan postal service
- Private cargo and logistics companies operating in Iraq and the Kurdistan Region, such as DHL, Agility, and Panalpina.

3.3 Types and distribution of products and services

3.3.1 Categories of transport and storage activity

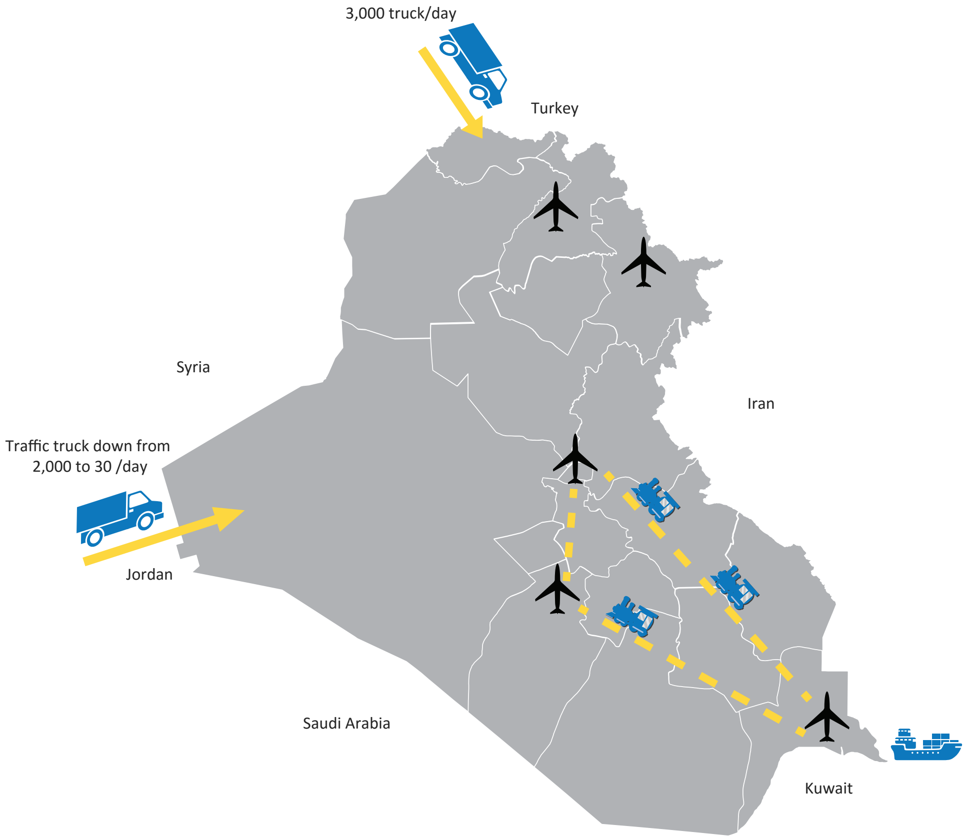
Selected economic activities under consideration for the transport and storage sector in Iraq include four sub-sectors: land transport, warehousing for transport, and postal and courier activities as shown in Table 7.

Table 7: ISIC-4 Classification of activities in transport and storage

Section: H (Transport and Storage)		
49	**Land transport and transport via pipelines**	
	491	Transport via railways
	492	Other land transport
	493	Transport via pipeline
52	**Warehousing and support activities for transportation**	
	521	Warehousing and storage
	522	Support activities for transportation
53	**Postal and courier activities**	
	531	Postal activities
	532	Courier activities

Figure 22 shows the distribution of major transport infrastructure and activity in Iraq. Political events over the last several years have significantly skewed the distribution of transport activity towards areas with relative stability. Also of note are the large areas of Iraq covered by wetlands or desert, which is partly responsible for the concentration of transport services away from the middle of the country. Iraq's second largest city, Mosul, is now devoid of any significant transport infrastructure. Many transport routes, such as those between Iraq and its neighbours Jordan and Iran, remain underdeveloped. Truck traffic from Turkey relies on poor highway infrastructure to bring goods into the northern part of the country.

Figure 22: Distribution of transport in Iraq



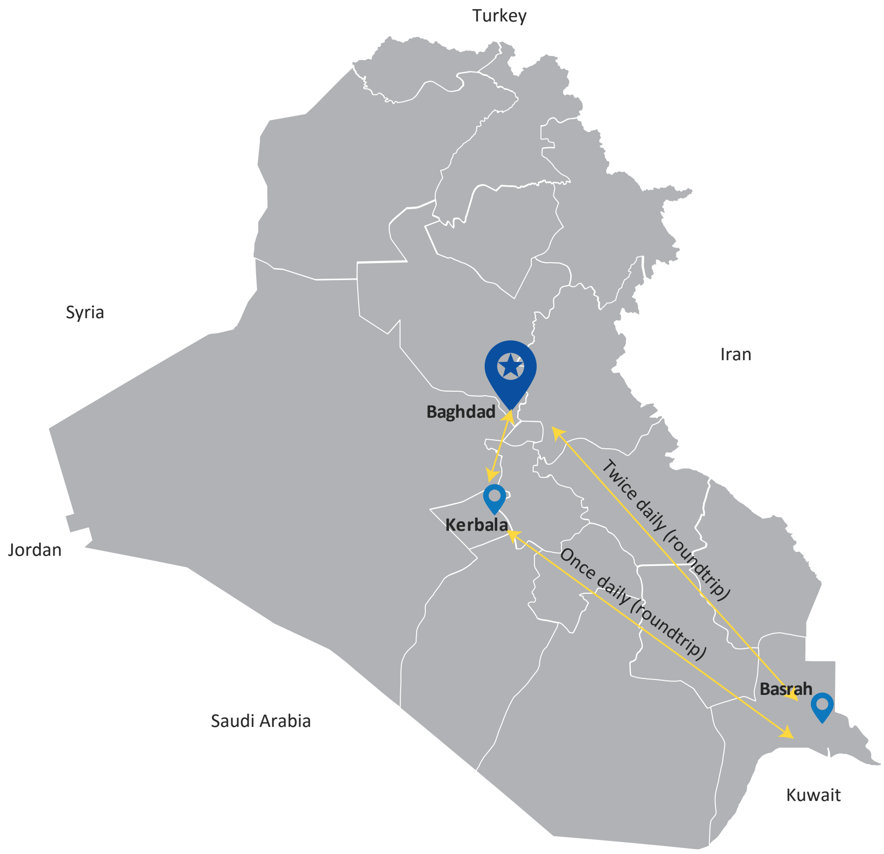
Source: World Bank; Washington Post; CSO

3.3.2 Geographical distribution of land and pipeline transport services

Railroad transportation

As of 2015, there were 2,890 kilometres of railway in Iraq, under the direction of the publicly-run Iraqi Republic Railways.[42] According to the Ministry of Transport, trains currently run between Baghdad and Basrah, and between Kerbala and Basrah,[43] and the service saw 393,000 paying passengers in 2015.[44] There is also a link between Baghdad and Kerbala. The General Company for Iraqi Railways has initiated a bid for proposals to add 32 kilometers of track from Basrah to the Iranian border at Shalamcheh, Iran.[45] Figure 23 shows the currently functioning passenger rail routes for Iraqi Republic Railways.

Figure 23: Iraqi Republic Railways currently functioning passenger rail service



Source: Ministry of Transport

According to CSO, 1.7 million tons of goods were transported by railway in 2013, and over 60% of these through the Basrah-Baghdad route. In 2014, the quantity transported fell to 1.1 million tons, likely because of the closing of routes going through territory controlled by ISIL/Da'esh.

Under Saddam Hussein's rule, the railway that existed in KR-I was removed, and the rail line currently ends at Kirkuk. The Iraqi government has plans to expand the railway to the Turkish border from Kirkuk via Mosul, but the government of KR-I has an alternative plan, which would add 625 kilometres of railway from Kirkuk to the Turkish border via Sulaymaniyah, Erbil, and Dahuk. However, rail services are currently only operating in the southern part of the country (Figure 23).

[42] This is the translation given by the Ministry of Transport's website. The word 'general' can also be translated as 'public' and is often translated as 'state company'
[43] Iraqi Republic Railroads
[44] CSO
[45] Al Jazeera. "Iraq Prepares for Rail Project with Iran," 27 December 2016

Other land transportation

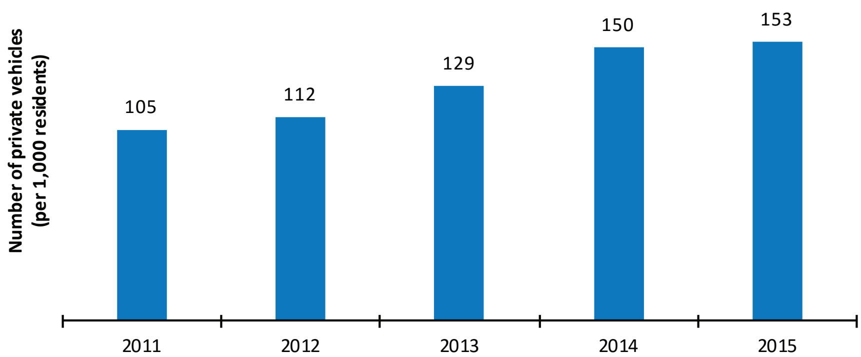
As the World Bank stated in a 2013 report for their Transport Corridors project (discussed below):

"Iraq continues to suffer from weak and under-developed infrastructure sectors, and the roads sector is no exception. The lack of a sectoral strategy, chronic underfunding, weak institutions, and a complex conflict-affected environment compound the problem. Transport infrastructure, as the most common enabler of development, lacks capital investments to maintain basic standards."[46]

Things have only deteriorated since that report was written in 2013.

Under Saddam Hussein's regime, it was very difficult for private citizens to import private vehicles. In the first nine months after the 2003 coalition invasion, the US government estimates that a half million cars were imported into the country, and the highway infrastructure has struggled to keep up with the increase.[47] In 2015 there were more than 5.5 million private vehicles registered, compared with just over 1.5 million in April 2003. Figure 24 shows the increase in the number of private vehicles per thousand residents over the last five years. Otherwise, shared taxis are the main means of intra-city transportation of Iraqis, especially in large urban areas like Baghdad.

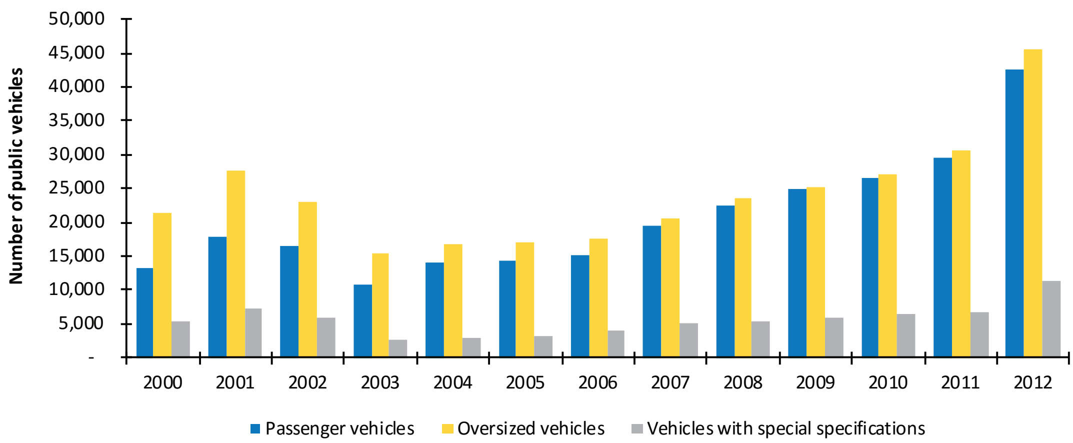
Figure 24: Private ownership of vehicles in Iraq (per 1,000 residents), 2011-2015



Source: CSO

The Iraqi government is very active in land transportation, in part through its State Company for Land Transport, and State Company for Passengers and Delegates transport. In 2012 the public sector owned around 42,000 passenger and 46,000 oversized vehicles (e.g. buses, trucks). More than half of passenger cars, trucks and cars with special specifications are owned by the Ministry of Interior.

Figure 25: Number of public vehicles by type, 2000-2012



Source: CSO

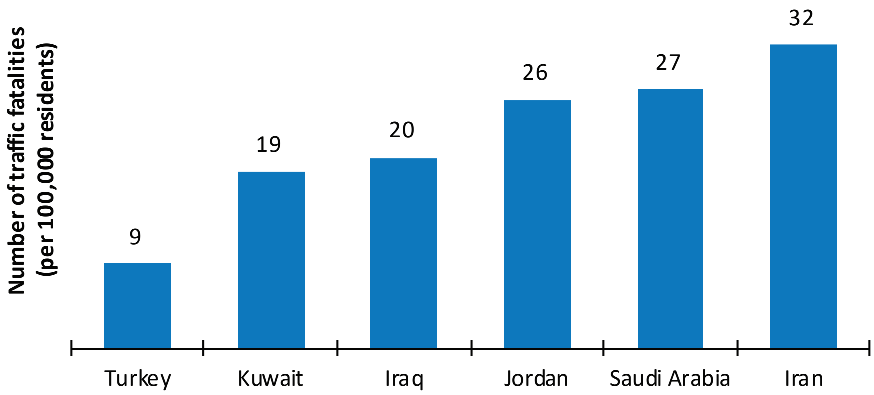
[46] World Bank. "International Bank for Reconstruction and Development; Project Appraisal Document on a Proposed Loan in the Amount of $355 million to the Republic of Iraq for a Transport Corridors Project," 21 November 2013

[47] Chandrasekaran, R. Imperial Life in the Emerald City. 2010, pp. 265-267

Iraq had 110,345 kilometres of paved roads in 2015, more than double what existed in 2010 (41,716 kilometres). In 1985 there were just 22,397 kilometres.[48]

Over the period from 2010 to 2015, the country saw a 12% decrease in traffic accidents.[49] Figure 26 shows Iraq's traffic fatality rate compared to its neighbours in 2013. Iraq fares well compared to other countries in the region.

Figure 26: Number of traffic fatalities in Iraq and its neighbours, 2013 (per 100,000 residents)



Source: World Health Organization (no data available for Syria)

The World Bank has pledged to loan 355 million USD to Iraq for a project to revive two transport corridors in the country, focusing resources on restoring Expressway One in the south, and a section of highway between Girsheen and the Suhiela intersection in KR-I. This second part, in KR-I, is part of a larger expansion of the route from the Ibrahim al-Khalil border crossing near Zakho, and Semel (Simele), located near Dahuk, intended to facilitate the movements of goods from Turkey into KR-I and the rest of Iraq.[50] 20 million USD will go to institution strengthening and capacity building in the roads sector. As of March 2017, 187 million USD has been committed to the Expressway One portion in the south, and an additional 56 million USD was expected to be committed to the KR-I portion of the project.[51]

In March 2017, a new road was opened between Erbil and Dahuk, reducing the distance between the two cities by 30 kilometres.[52] However, much of the road between the two cities is very narrow, with heavy traffic operating on only one lane in each direction.

Transportation via pipeline

Iraq has several major oil pipelines running through the country, used for both moving oil domestically from fields to refineries, and for exporting oil outside the country. The Iraqi-Syrian (Kirkuk-Banias), pipeline operated for five decades before being disabled by attacks in 2003. This pipeline has reserves of 2.5 billion barrels of oil. Currently, the only fully operational pipeline carries oil from Kirkuk to Ceyhan, Turkey (see more below in section regarding KR-I), where it is exported to Europe and beyond. This pipeline has been subject to frequent sabotage since the 2003 coalition invasion. There are two branches of the Kirkuk-Ceyhan Oil Pipeline (KCP) and the alternative Taqtaq-Peshkhabur branch has been in use since the capture of the Mosul-Kirkuk branch by ISIL/Da'esh.[53]

[48] Library of Congress. "Iraq: Country Study," 1990
[49] Accidents went down from 10,082 in 2010 to 8,836 in 2015
[50] World Bank
[51] Ibid
[52] Rudaw. "New Road Opens between Erbil and Dohuk," 8 March 2017
[53] LNRG Technology. "Overview of Mideast Hydrocarbon Pipelines 2017," 30 January 2017

Plans have been proposed by the State Company for Oil Projects (SCOP) to construct a double oil and gas pipeline between Iraq and Jordan, from Basrah to Aqaba, with the first phase of construction expected to begin during 2018. However, as the pipeline was originally planned to pass through territory which was controlled by ISIL/Da'esh in 2017, the route was planned to be diverted further south.[54]

Figure 27: Oil pipelines in Iraq and KR-I

Source: Institute for the Analysis of Global Security: Energy Security

A new gas pipeline is slated to open soon between Iran and Iraq, which will bring 50 million cubic metres of gas per day into Basrah, following a 2013 agreement between the two countries. However, the project has experienced a number of delays.[55] In 2011, the governments of Iran, Iraq, and Syria agreed to build a natural gas pipeline spanning the three countries, which would allow gas from southern Iran to be moved through Iraq to Syria, and ultimately to customers in Europe. Events in the region since that time, discussed in further detail in Section 3.6, have prevented the project from getting started.[56]

Currently, oil from KR-I is exported via the KCP pipeline.[57] Talks are underway to construct another pipeline that would send oil from KR-I to Iran, with revenues going directly to Erbil.[58] While some media had reported that an agreement had been reached, Iranian and KR-I officials denied any such agreement as of January 2017.[59] There are also plans for a new gas pipeline from KR-I to Turkey, through which KR-I hopes to export 10 billion cubic metres a year of natural gas to its northern neighbour.[60]

[54] Mohammed, A. "Iraq invites bids to build first phase of oil export pipeline to Jordan," Reuters, 11 December 2016
[55] Rudaw. "Iranian gas to flow into Iraq years after initial agreement," 22 January 2017
[56] UPI. "Islamic pipeline seeks Euro gas market," 25 July 2011
[57] KRG. "KRG statement on first oil sales through pipeline export," 23 May 2014
[58] Khajehpour, B. "Iran's pipeline politics reaches Iraqi Kurdistan," al-Monitor, 29 June 2016
[59] Rudaw. "Tehran: No KRG-Iran agreement on oil pipeline construction," 4 January 2017
[60] Razzouk, N. "Iraq's Kurds to Start Natural Gas Exports to Turkey in 2019-2020," Bloomberg, 15 January 2016

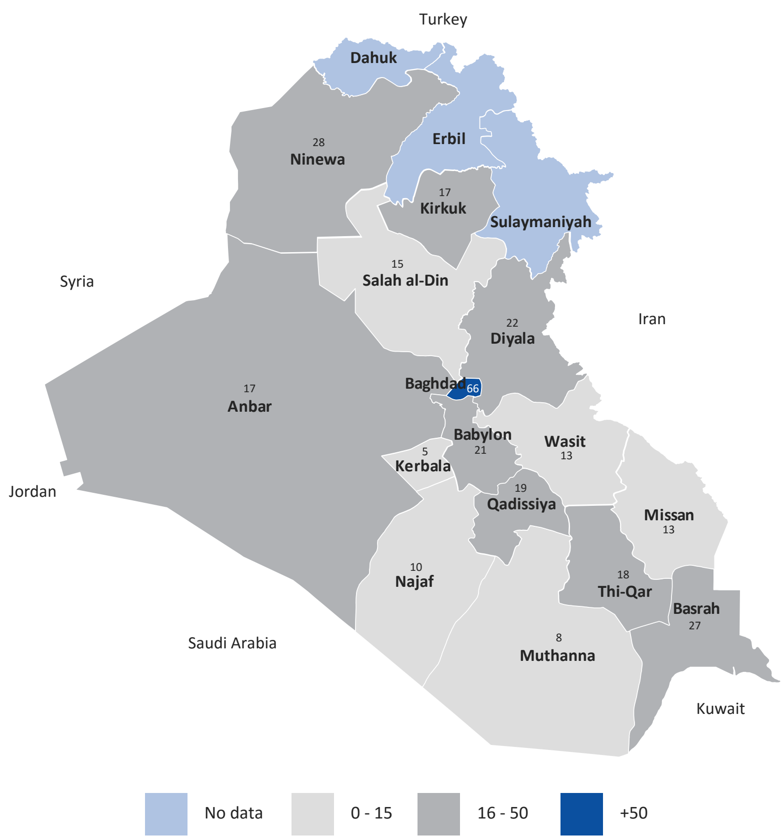
3.3.3 Geographical distribution of warehousing and support activities for transportation

CSO does not keep statistics specific to warehousing or storage in Iraq, and so it is difficult to get a complete picture of the sector. However, a number of private logistics companies operating in Iraq and KR-I offer warehousing and storage services, including DHL, Agility, and Panalpina. There is a significant lack of cold storage in Iraq, which is a barrier to other industries, such as agriculture, for scaling up their activities. For example, a former employee of the US Department of State cited the lack of cold storage as one of the reasons for the failure for a US-funded chicken factory project.[61]

3.3.4 Geographical distribution of postal and courier activities

Iraqi Post, owned by the public enterprise Iraqi Telecommunications and Post Company (ITPC) and falling under the auspices of the Ministry of Communications, officially provides postal services in Iraq. Iraqi Post has approximately 300 post offices in the country, and just over 50,000 post office boxes as of 2015. Figure 28 shows the distribution of public post offices by governorate in areas outside of KR-I.

Figure 28: Post offices in Iraq (excluding KR-I) by governorate, 2015



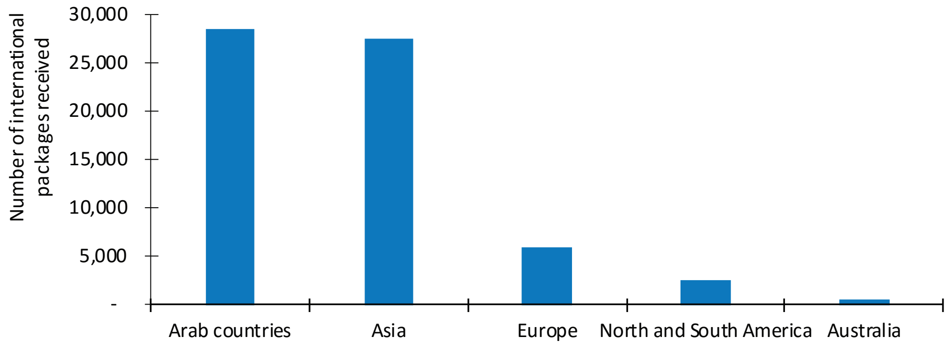
Source: CSO

Local post shows a huge disparity in post received per governorate. For example, in Baghdad in 2015 there were over 120,000 local letters received, both registered and regular. No other province had more than nine thousand – a disparity which vastly outstrips the population difference between Baghdad and other governorates.

Figure 29 shows the number of packages received by region for 2015, showing that the significant bulk of packages were received from Asia and from other Arab countries.

[61] Van Buren, P. "How the US taxpayer got plucked in Iraq," Al Jazeera, 6 October 2011

Figure 29: Number of international packages received by region of origin, 2015



Source: CSO

KR-I operates a government-run postal service separate from Iraqi Post, the government-run postal service operating in the rest of the country. Before 2003, post from KR-I was generally sent via Turkey's postal service. Since 2003, KR-I has operated a postal service, which is recognised by the Universal Postal Union (UPU). International mail is routed through Amman, Jordan. Domestic letter stamps cost 500 IQD, and international letter stamps 1,000 IQD, as of 2014.[62] According to the Ministry of Communications and Transport, KR-I's postal service brought in over 2.3 billion IQD (over 2 million USD) in revenue in 2015.[63]

There are also a number of private companies, both international and Iraqi, which provide services such as cargo transport, package delivery, and related services. These include international companies such as FedEx and DHL, and Iraqi companies.

3.4 International trade and investment

A strong transport and storage infrastructure is key to facilitating exports from other industries. As discussed in further detail below, political and security events in the last several years have significantly hindered the transport sector, including between Iraq and other countries. For example, truck transport between Iraq and Jordan has suffered significantly, and the cost of using this method has increased greatly.

Iraq's export market is dominated almost entirely by crude oil. In 2016, Iraq's crude oil exports were valued at approximately 46.7 billion USD, while total exports were valued at approximately 47.7 billion USD, making oil worth around 98% of total exports. Most of the remainder (0.8 billion USD) were gold exports. Between 2014 and 2016, oil exports increased enormously, from 107 million tons to 168 million tons (+57%), although the value of those exports fell significantly (-45%) because of the fall in oil prices.[64]

Conversely, imports into Iraq increased over the period 2013 to 2015. Turkey and China were the largest suppliers of goods to Iraq, accounting for about one quarter of total Iraqi imports each. Iran, the United States, South Korea, India, Germany and Italy were the other main partners of Iraq, accounting for less than 10% of Iraqi imports each. Figure 30 shows the method of transport used to bring in imports for 2015. Imports are heavily reliant of sea transportation.

[62] Cohen, L.E. "Kurdistan's Postal Service Seeking Its Own Address," American Philatelist, July 2014
[63] Kurdistan 24. "KRG 2015 postal service revenue exceeds $2m," 20 January 2016
[64] International Trade Center. "Trademap"

Figure 30: Imports by mode of transportation, 2015 (in billion USD)

Source: CSO

3.5 Employment in the sector

The transport sector is an important employer in Iraq. In 2011, around 11% of employed men worked in the “transport, storage, communication and information sector” (TSCI; 11.4% in 2006[65]), against around 2% of women[66] (2.9% in 2006). Employment in the sector was 96% male and 4% female in 2014. Around 20% of working youth (15 to 25 years old) are employed in the sector. Governorates, however, have very different shares of employment in TSCI. Although no more recent data is available, in 2006 Baghdad had the highest share, with about 15% of its workers in TCSI. In KR-I, 6% of employees worked in the TSCI sector. Using the distribution of GDP in KR-I would yield an estimate of 3% of employment in the transport and storage sector.

Public sector employment in the transport sector has suffered over the last few years due to tightening budgets and security issues. While some entities, such as Iraqi Airways, have maintained somewhat steady employment numbers, the trend for other public employers, such as the General Company for Marine Transport, is downward. Political factors, including a move to downsize the public sector since 2003, and the collapse in oil prices have played the decisive role in this downward trend in employment. Until a change occurs in both the security situation and oil prices, the trend is unlikely to be reversed.[67] The private sector, on the other hand, will continue to rely on the strength of the economy as a whole in order to sustain and grow employment; and on the resolution of security issues which have prevented movement within Iraq and between Iraq and its neighbours. Overall, public employment in the transport sector, excluding KR-I, exceeded 22,000 in 2015, mostly in ports and railways.

Public sector employment in KR-I within the transport sector will continue to suffer given the austerity measures KR-I is operating under currently. Planned transport projects, such as the Erbil bus and tram projects, and the railway extension into KR-I, will be sources of employment if they successfully get off the ground. For example, KR-I officials estimated that the proposed tram and bus systems for Erbil city would require over 2,000 employees each.[68] Representatives of the Contractors Union in KR-I said that the halt in public sector transport projects has significantly hurt their industry.

[65] CSO. “IHSES 2007,” 2008
[66] CSO. “Labour Force Factsheet,” 2011
[67] CSO. Iraqi Republic Railways had 8,466 employees in 2011, and 6,626 in 2015. Iraqi Airways had 3,061 employees in 2011, and 3,053 in 2015
[68] Ministry of Transport and Communications officials

3.6 Classifications of occupations in the sector

In this Sector Skills Analysis report several classification systems for occupations and education are relevant. Table 8 provides a schematic illustration of how the levels of these different systems are related to each other. It also provides the context in which the classifications of ISCO (International Standard Classification of Occupations) and ASCO (Arab Standard Classification of Occupations) specific to transport and storage (Table 9) can be understood.

Table 8: Relationships between different classification and levelling systems

ISCO	ISIC		ISCED	ASCO	EQF	Example qualifications
3-4	01	**Managers**	5 and 6	1 Professional	8	PhD
4	02	**Professionals**	5a and 6		7	Masters
					6	Bachelor
3	03	**Technicians**	5b	2 Technician	5	Diploma
2	04	**Clerical workers**	4	3 Craftsman	4	Certificates
	05	**Service and sales workers**				
	06	**Agriculture and Fisheries workers**	3	4 Skilled worker	3	Preparatory School Cert.
	07	**Craft and related trade workers**				
	08	**Plant and machine operators**	2	5 Semi skilled	2	Certificates
1	09	**Elementary occupations**	1	Foundation skills	1	Basic Education

Table 9 shows the potential range of specialised occupations in the subsector, as classified in the ISCO, with cross referencing to ASCO.

Table 9: Occupations and ISCO/ASCO classifications

Level	ISCO classification and name	ASCO classification	ASCO description
1 Managers	1324 Supply, distribution and related managers	1325	مديرو النقل والتخزين والاتصالات
2 Professionals	2164 Town and traffic planners	2164	مهندسو تخطيط المدن والمرور
	2165 Cartographers and surveyors	2165	المساحون
3 Technicians and Associate Professionals	3112 Civil engineering technicians	3112	فنيو الهندسة المعمارية والمدنية
	3154 Air traffic controllers	3132	فنيو الملاحة الجوية
	3155 Air traffic safety electronics technicians	3132	فنيو الملاحة الجوية
	3331 Clearing and forwarding agents	3331	وكلاء الشحن والتخليص
	3351 Customs and border inspectors	3351	مفتشو الجمارك
4 Clerical workers	4323 Transport clerks	4323	كتبة الشحن والنقليات
	4321 Stock clerks	4321	كتبة المخازن والمستودعات
	4412 Mail carriers and sorting clerks	4412	كتبة البريد والفرز والسعاة
5 Service and sales workers	5112 Transport conductors	5112	مفتشو التذاكر
	5111 Travel attendants and travel stewards	5111	المضيفون
8 Plant and machinery operators and assemblers	8311 Locomotive engine drivers	8311	سائقو القطارات
	8312 Railway brake, signal and switch operators	8312	عمال الفرملة وإشارات تبديل السكك الحديدية
	8331 Bus and tram drivers	8320	سائقو المركبات
	8322 Car, taxi and van drivers	8320	سائقو المركبات
	8332 Heavy truck and lorry drivers	8320	سائقو المركبات
	8342 Earthmoving and related plant operators	8341	سائقو الآليات الثقيلة
	8343 Crane, hoist and related plant operators	8342	مشغلو معدات توليد الطاقة المتنقلة ومعدات السقالة والروافع
9 Elementary occupations	9333 Freight handlers	9333, 9151	عمال الشحن

3.7 Factors impacting on the growth and development of the sector

3.7.1 Political factors

Political factors have devastated many sectors of the economy in Iraq and KR-I, the transport and storage sectors being no exception. Sectarian and political fragmentation has led to truck drivers fearing to cross between areas under the control of differing groups.[69] Political factors particularly affect ground transport between Iraq and its neighbors. In 2014, according to the Washington Post, truck drivers were paying between 200 and 300 USD to pass through ISIL/Da'esh-controlled territory from Amman to Baghdad.[70] The Financial Times reported in 2015 that the amount was between 300 and 400 USD.[71] According to the Jordan Truckers Union, the number of trucks crossing daily from Jordan to Iraq has dropped from up to 2,000 a day before the US invasion to only 30 a day since the rise of ISIL/Da'esh in 2014.[72] Media reports suggest that Jordanian drivers have generally stopped making the trip, leaving the dangerous drive primarily to Iraqi drivers.[73]

Another land border, between KR-I and Syria, has been opened and closed repeatedly, reflecting political relations between KR-I and the PYD, who controls the Syrian side of the Semalka (Faysh Khabur) border crossing.[74]

3.7.2 Economic factors

As discussed elsewhere in this report, the transport and storage sector is uniquely tied to the strength of other sectors of the economy. Given the dominance of the public sector in Iraq generally, the economy is also dependent on the financial state of the government, in Iraq as a whole as well as in KR-I. The collapse of oil prices in 2014 was devastating to Iraq's economy as a whole, including the transport and storage sector. That this drop coincided with the political factors named above, principally the rise of ISIL/Da'esh, has been catastrophic for the economy. Additionally, the drop in oil prices has meant that many public works projects are on hold, preventing development to the transport infrastructure. For example, according to the Ministry of Transport, the contract with the Ministry of Environment to de-mine the proposed route for a new rail service to the Iranian border has been suspended due to lack of funds.

[69] Cockburn, P. "Isis bombers, bribery and endless checkpoints – the death-defying trials of an Iraqi trucker," The Independent, 2 June 2016
[70] Booth, W. "A highway through hell for the truckers who haul vital goods into Islamic State territory," Washington Post, 29 November 2014
[71] Reed, J. "Trucks struggle to navigate Iraq's Isis-controlled roads," Financial Times, 14 April 2015
[72] Booth, W. "A highway through hell for the truckers who haul vital goods into Islamic State territory," Washington Post, 29 November 2014
[73] Obeidat, O. "Iraq militant threat brings Jordan truck shipping to a halt," Jordan Times, 12 February 2015
[74] Kurdistan 24. "Iraqi Kurdistan-Rojava border affected by political rifts," 29 April 2016

3.7.3 Social factors

The transport sector in Iraq is largely dominated by men. Within the public sector, the workforces of Iraqi Airways and the Civil Aviation Authority are around one quarter female; whereas less than a quarter of railway employees are women, and only a small percentage of public port and marine transport workers are women.[75]

Similar statistics were not available for the private sector. However, Al Arabiya news outlet did a report in 2013 about a woman who had worked in a gas plant in al-Diwaniyah for 33 years, including as a truck driver. That this story was considered newsworthy is evidence of the rarity of a woman working in this field, but nonetheless shows that women in Iraq can and do work in fields traditional held by men.[76]

Aid agencies have reported shortages in transport resources as a barrier to providing effective aid to internally displaced persons (IDPs) and refugees in Iraq.[77] Additionally, USAID reported in 2015 that host communities in parts of Iraq had harassed truck drivers transporting humanitarian aid, reflecting larger discontent with IDP populations in those areas.[78]

3.7.4 Technological factors

International mobile taxi applications such as Uber are not yet available in Iraq, though a few companies have attempted to create local versions that would allow users to book a taxi from their mobile phone. In November 2016 the website Bite.Tech, which covers technology issues in Iraq, reviewed several of the apps and found that none of them functioned properly.[79] The same site later profiled Karwa, a new application operating only in Baghdad, which was developed by Iraqis and is tailored to the unique situation in the country. For example, the app includes a box to describe the exact location for pick up, given the use of landmarks instead of numbered addresses in Iraq, and the app uses the Iraqi dialect.[80] The app is still in the start-up phase.

[75] CSO
[76] Awad, S. "Iron Woman in Iraq Repairs Machines and Drives Trucks," Al Arabiya, 8 September 2013
[77] USAID. "Iraq – Complex Emergency," 27 December 2016; International Organization for Migration. "IOM Provides Transportation Assistance to Displaced Persons in Erbil, Iraq," Press Release, 19 September 2014; UNESCO. "UNESCO works to meet huge education needs of displaced students in Iraq," 10 November 2016
[78] USAID. "Iraq – Complex Emergency," 26 June 2015
[79] Tannourji, D. "Taxi Service Apps in Iraq," Bite.Tech, 23 November 2016
[80] Saeed, L. "Bite.Tech Business Review: Karwa (Taxi Service)," Bite.Tech, 15 February 2017

3.7.5 Environmental factors

Iraq has a significant air pollution problem, and the transportation sector plays a contributing role. In 2014, the World Health Organization (WHO) categorised Iraq as having the 26th worst air to breathe in the world.[81] While the country's ongoing conflicts are largely blamed for many of the pollutants found in Iraq's air, the transport sector also plays a role in the poor air quality in Iraq. For example, Iraq is one of only six countries which still allows the use of leaded petrol, along with Afghanistan, Algeria, Myanmar, Yemen, and North Korea.[82] The American Chemical Society specifically cited Iraq's use of leaded petrol as a risk to air quality in Iraq.[83]

Additionally, ISIL/Da'esh has used Iraq's oil pipelines as an environmental weapon. In the city of Qayyarah, for example, they blew up pipelines and wells in 2016 as they were retreating, forming pools of oil that were set on fire, causing significant air pollution, not to mention the damage to infrastructure and loss of resources.[84]

3.7.6 Legal factors

Truck drivers launched protests in 2017 over the presence of what they describe as unofficial customs checkpoints and unfair fees and taxes imposed. They even closed the Baghdad-Kirkuk road using earthen barriers.[85]

Smuggling goods between Iraq and its neighbours is an overlooked part of the transport sector; it is said to be a consequence of legal constraints such as heavy tariffs and the banning of certain goods, which incentivises smuggling them into the country rather than using legitimate trade routes. For example, smugglers travel on foot or horseback between the Kurdish Regions of Iraq and Iran carrying goods between the two countries. A case of 24 beers that costs 1 USD in Iraq will sell for 20 USD in Iran, where it is illegal.[86] According to smugglers, the Iranian government regularly opens fire on them as they carry a wide variety of goods, ranging from electronics to food to alcohol to gasoline.[87]

[81] World Health Organization. "Public Health Environment: Ambient Air Pollution"
[82] The Telegraph. "British company selling toxic lead fuel to poor countries," 14 January 2013
[83] American Chemical Society. "U.S. troops exposed to polluted air in Iraq, researchers report," Press Release, 30 March 2011
[84] Kalin, S. "Oil fires cast black cloud over Iraqi town retaken from Islamic State," Reuters, 30 August 2016
[85] Rudaw. "Truck Drivers Cut Baghdad-Kirkuk Road with Earthen Barriers," 12 March 2017
[86] Meyer, S. "Smuggling Between Iran and Iraq," Time; Alcohol was recently banned in Iraq as well, but the law is not currently being enforced in KR-I
[87] McKay, H. "Deadly mission: Kurds risk all smuggling alcohol into Iran, even as Baghdad mulls ban," Fox News, 18 November 2016

Chapter 4: Skills supply to the transport and storage sector

4.1 Skills supply to the transport and storage sector

In this analysis of skills supply to the transport and storage labour market, the estimated cohort size is a proxy for the number of new entrants to the labour market with the skills relevant to work in the economic sector.

This is only a rough indicator since skills supply for transport and storage offered through Ministry of Transport, on-the-job training by employers, and professional development short training courses offered by companies or private training providers is not included.

According to the pilot Sector Council, the Ministry of Transport in Baghdad has 3 training centres for civil aviation, sea port and railways which formerly provided 2-3 years training programmes, leading to the award of diploma qualifications, but after 2003 these qualifications were discontinued. In the past two years, efforts are being made to rehabilitate these institutes, but the main challenge is lack of expert staff. Staff of the institutes for civil aviation, sea port and railways are reported to be old now and not able to prepare technicians for today's industry. Iraqi Airways is trying to improve its services to meet international standards, but needs more support for training. Since 2015-2016 Iraq Airways has been training new staff for air hostess training. Air hostesses training is on-going and is also accredited by IATA. Diploma in air traffic control is being resurrected, in co-operation with an IATA accredited German organisation to offer IATA approved training. Old planes are used for practical training.

In the following tables skills supply is organised by skill area, irrespective of the level or duration of education and training.

- MoLSA courses are short duration training offered at lower levels. These do not currently lead to the award of any recognised qualification
- MoE Vocational Preparatory School is three years in duration
- Diplomas awarded after successful completion of a two-year programme by institutes (referred to as 'technical' in the tables)
- Bachelors are awarded after successful completion of a 4/5-year programme by colleges.

Transport and storage skills are organised as:

- Pipeline skills
- Civil engineering[88]
- Air conditioning and refrigeration
- Truck driving
- Surveying[89]
- Materials management.[90]

[88] Civil engineering (excluding specifically transport related) have also been included in the report on Construction
[89] Surveying technologies have also been included in the report on Construction
[90] Materials management has also been included in the report on Wholesale and Retail

Table 10: Transport and storage skills in Iraq

Institution	Name of specialisation	Estimated cohort size (or last known intake*)
Technical / Mosul	Civil techniques	0*
Technical / Kirkuk	Civilian techniques	125*
Technology Baghdad	Civilian techniques	140*
Technical / Najaf	Civil techniques	88*
Technical / Musayyib	Civilian technologies	82*
Technical / Kerbala	Civil techniques	64*
Technical / Babil	Civil techniques	99*
Technical Basrah	Civil techniques	132*
Technical / Nasiriyah	Civilian techniques	46*
Technical / Anbar	Civil techniques	0*
Technical / Architecture	Civil techniques	35*
Air conditioning and refrigeration		
MoE Vocational schools	Conditioning and cooling	350
MoLSA	Heating and cooling	208
College of Technology / Kirkuk	Refrigeration/Air Conditioning Eng.	24*
College of Technology / Mosul	Refrigeration/Air Conditioning Eng.	0*
Baghdad Technical College	Refrigeration/Air Conditioning Eng.	34*
Technical College / Basrah	Refrigeration/Air Conditioning Eng.	62*
Surveying technology and techniques		
College of Technology / Kirkuk	Engineering of surveying techniques	27*
Technical / Kirkuk	Surveying techniques	89*
Baghdad Technical College	Engineering of surveying techniques	38*
Technical / Mosul	Surveying techniques	0*
Technology Baghdad	Surveying techniques	68*
Technician / Baquba	Surveying techniques	90*
Technical / Kut	Surveying techniques	59*
Technical / Samawa	Surveying technology	100*
Technical Basra	Surveying technology	154*
Technical / Architecture	Surveying technology	29*
STU Technical / part of	Surveying technology	49*
Materials management		
Technical Basra	Materials management techniques	311*
Technical / Kufa	Materials management techniques	123*
Technical / Hawija	Materials management techniques	316*
Technical / Kirkuk	Materials management techniques	68*
Administration of Rusafa[91]	Materials management techniques	572*
Management / Technical	Materials management techniques	102*
Technical / Anbar	Materials management techniques	0*
Technician / Baquba	Materials management techniques	725*
Technical / Kut	Materials management techniques	195*
Technical / Babil	Materials management techniques	418*
Technical / Diwaniya	Materials management techniques	400*
Technical / Architecture	Materials management techniques	153*
STU Technical / part of[92]	Materials management techniques	277*

* Figures with (*) show where the estimation was based on adjusted figures, or on only one cohort

[91] As named in the original data from Central Technical University
[92] As per the original data from Southern Technical University

Table 11: Transport and storage skills in KR-I

Institution	Name of the Specialisation	Estimated cohort size (or last known intake*)
Civil engineering		
SPU Technical College of Engineering	City planning engineering	173
DPU Technical College of Engineering	Highways & bridges engineering	62
EPU Technical College of Engineering	Highway engineering	54
EPU Technical College of Engineering	Civil engineering	43
Erbil Technology Institute	Highway technology	71
Truck driving		
MoLSA KR-I	Scania Truck Driving	4*
Air conditioning and refrigeration		
Vocational School	Cooling	59
Technical College of Engineering	Refrigeration & Air Conditioning	36
Zaxo Technical institute	Refrigeration & Air Conditioning	36
Erbil Technology Institute	Air-conditioning Technology	55
MoLSA KR-I	Air-cooler	59
Surveying skills		
Darbandikahn Technical Institute	Surveying	197
Kalar Technical Institute	Surveying	173
Sulaymaniyah Technical Institute	Surveying	145
Akre Technical institute	Surveying	83
Zaxo Technical institute	Surveying	86

* Figures with (*) show where the estimation was based on adjusted figures, or on only one cohort

4.2 Implications of the data

This may be the first thematic study of the provision of technical and vocational programmes in the country which looks at common and differentiated offerings of the providers. As shown in the previous tables above, for example, there is clearly a need for rationalisation in some areas to reduce duplication and gain economies of scale. The recommendations in Chapter 6 may influence decision-makers to rationalise the programmes currently being offered i.e. reduce or discontinue provision in some fields and develop and/or increase in others. In many countries rationalisation has been guided by the desire to differentiate provision and create 'centres of excellence'. An advantage of increased specialisation is concentration of expertise and expensive equipment and other resources. A disadvantage is that students need to travel away from their home town in order to pursue specialised training. Information on the provision of programmes (skills supply) is indicative and should be used to supplement the qualitative and quantitative information on the demand for skills which is presented in Chapter 5.

Chapter 5: Demand for skills in the transport and storage sector

Information on the demand for skills comes from two main sources: the meeting of the pilot Sector Council and the Enterprise Survey. The outcomes of the pilot Sector Council meeting and Enterprise Survey provide this information in the form of qualitative and quantitative data, respectively, and is presented in the following sections.

5.1 Outcomes of the Transport and Storage Sector Council meeting

The pilot Sector Council, representing the leadership of the sector, was established by nominations based on information gathered in fieldwork interviews and during desk research, and drawing on professional networks and databases.

A demand-led TVET system requires that the leadership of the sectors is organised into representative bodies to advise on the training needs of their sector. Thus, in the future, permanent sector councils will need to be formally established through legislation.[93] The membership of formally and legally established sector councils will need to be decided by the sector itself, probably in consultation with the members of the original pilot Sector Council.

The pilot Transport and Storage Sector Council meeting was held in Erbil on 14-15 May 2017. The meeting was attended by public and private representatives of the sector from Iraq and KR-I.

5.1.1 Challenges of the transport and storage sector

The sector has experienced some discontinuity of leadership with three changes of Minister in Baghdad in 2016. The transport private sector participants believe the role of government should be limited to legislation and supervision of implementation of the legislation; rather than hands-on implementation and operational provision of services; and the Ministry of Transport (MoT) participants confirm that MoT legislation is now being revised to reduce role of government.

Growth of the transport sector depends on private investment since government has serious financial constraints; but lack of security, difficulties implementing the spirit of the investment law, outdated banking sector, and other factors scare away investors. For example, railways are vital to the economy; the rail system in Iraq needs investment and protection of that investment, so that investors are willing to invest.

The transport infrastructure is weak, even compared to neighbouring countries. However, transport is not a priority of the government (defence, health and education are the major priorities), even though transport is fundamental to the growth of the other economic sectors. Participants agreed that the private sector needs to take the initiative to address challenges which cannot be overcome by the government.

Dishonesty is a problem affecting the transportation of goods. Goods disappear on route. According to the participants financial and administrative corruption (in both the public and private sector), including bribes, resistance to transparency, and corrupt hiring practices are all endemic.

Technologies that exist elsewhere to enhance transparency, such as e-government, GPS tracking,

[93] In the document 'Government Restructuring for the TVET Sector in Iraq', developed under the UNESCO TVET Reform Programme for Iraq and KR-I, 'Sector Council' is referred to as 'Sector Skills Advisory Coordination Services (SACS)' bodies as their role includes the development and validation of respective sector national occupational skills standards and qualifications

credit card payments, and electronic booking and ticketing, are not used. These gaps lead to declining revenues, which in turn weakens services further, in a vicious cycle.

The pilot Sector Council participants had the impression that each ministry works alone. The business of several ministries (e.g. Agriculture and Manufacture) is heavily reliant on transport, but there is little co-ordination between them. The Ministry of Planning needs to play a stronger coordination role.

The pilot Transport and Storage Sector Council is not alone in identifying widespread failure to implement laws as a major challenge. All the pilot Sector Councils discussed this same issue from their different perspectives. If traffic laws, for example, are not implemented, roads are unsafe.

People are hired based on factors other than qualification; tribal affiliations are more powerful than the law; and hiring is often based on connections (family, tribe, political party). Public sector employment is more attractive than private sector employment, in part because of retirement packages (now being equalised with the private sector by revising the Labour law). Public sector employees are reportedly unproductive (according to studies quoted by participants, Iraqi public servants work for 12-17 minutes per working day). Performance and productivity of public sector employees needs to be improved through performance management and downsizing. Work ethic appears to be a major problem, affecting both public and private sectors. People seem to lack initiative and need to take more responsibility for their own on-going professional development.

There is no central employment organisation (labour exchange/ recruitment agency) where transport employers can look for specialist staff. Graduates of public institutions are reportedly not sufficiently prepared for work in the transport sector, and they are not being employed by the private sector.

The Ministry of Transport employs 31,700 people and struggles to get suitable training for them. The Ministry's own Department of Training and Development coordinates three existing training centres for civil aviation (two campuses), sea port and railways, which are partially operational, as well as other training for Ministry staff e.g. languages and weather. Staffing is a challenge. In addition to training being delivered locally, the Ministry accesses some training opportunities available outside Iraq, but these trainings are thought to be not specific enough to meet the needs (e.g. for drivers).

The private enterprises of the oil sector offer training using experts from Dubai, but according to representatives, it takes too long to upgrade the skills of people who don't speak English, and local workers reportedly have poor work ethic. The private sector representatives emphasised the importance of English, and commended local female employees who are perceived to be more productive than local male employees.

The Ministry of Transport provides 'summer training' to 746-800 students each year. This does not work well with the public sector universities (absenteeism is prevalent), but MoT has good experience with some private universities (e.g. Al Mansour). Their students are supervised by University staff and can be sent to the field (i.e. they have useful skills) and the University requests a report on each student. This successful experience can provide a model of good practice.

5.1.2 Opportunities identified by the Transport and Storage Sector Council

- Railways and river transport could be better utilised; however, rail does not provide door-to-door service, and can be expensive
- Solar and wind power could be used to illuminate roads and ports

- Underground, metro, or teleferique could be used in some cities to reduce traffic; and enforcing weight limits on trucks could preserve roads
- GPS to track public and private sector assets, usage, and goods has been tried unsuccessfully before, but could be resurrected
- Rest stops and services on highways
- Support sectors which rely on transport should be developed, which in turn will boost the transport sector (e.g. agriculture and manufacturing)
- The pilot Sector Council could serve as facilitator and leader for better coordination within the sector and with other sectors
- Foreign offices to promote Iraqi transport sector abroad
- Plans should be based on forecasting as well as statistics; people need skills for planning based on future scenarios
- Tariffs, fees, fines for speeding can generate money which can be used for improved infrastructure, to reduce accidents.

5.1.3 Goals of the Transport and Storage Sector Council

1. Raise awareness and generate interest in the private sector for the advantages and the investment opportunity of hybrid cars

2. Promote and support profitable investment in environmentally sustainable projects such as recycling and solar energy

3. Encourage and support private sector investment in public transport (e.g. metro, tram, bus) and in private toll roads linking to neighbouring countries

4. Facilitate investment in small private airlines and private airstrips to facilitate access directly from other countries to business and tourism locations in Iraq

5. Support the banning of leaded fuel in Iraq

6. Support requirements for the use of carbon-monoxide filters in cars

7. Support regulation on the import of cars to limit imports to safe and environmentally-friendly vehicles

8. Support regulation against de-forestation and encourage the planting of trees.

5.1.4 In-demand occupations identified by the Transport and Storage Sector Council

Table 12: In-demand occupations identified by the Transport and Storage Sector Council

ISCO	ASCO	Occupation	Comment
1324	1325	Supply, distribution and related managers	Especially for private sector needs modern administration and finance management
2165	2165	Cartographers and surveyors	For planned railway construction; suitable for women
3155	3132	Air traffic safety electronics technicians	Short training needed; suitable for women
5112	5112	Transport conductors	Short training needed
5111	5111	Travel attendants and travel stewards	Unmarried, young females
8311	8311	Locomotive engine drivers	
8312	8312	Railway brake, signal and switch operators	Male occupation
8331	8320	Bus and tram drivers	New occupation needs training for planned tram system
8343	8342	Crane, hoist and related plant operators	For sea port

5.2 Results of the Enterprise Survey for the transport and storage sector

The following sections provide both top-level and in-depth information into the labour market outlook and educational/training needs of medium- (10-29 employees) and large-sized (30+ employees) firms across the selected six governorates in Iraq and two in KR-I.

Firms were drawn in a stratified manner (by governorate and subsector) from CSO's 2009 Business Register and in some cases based on CSO field offices' knowledge of the labour market. Given the outdated Register and the significant changes in the country during the years since 2009, the Register is not thought to accurately represent the current labour market. Therefore, in all proceeding analyses, the data is not weighted according to the Register, and instead the raw results are presented. In cases where firms' responses are quite varied by strata, this approach may lead to some strata being under- or over-represented in the total counts, but nonetheless characterises the more reliable presentation of the survey results.

5.2.1 General overview of the sampled firms from the Enterprise Survey

In total, 153 firms were sampled from the transport and storage sector. The majority (111) of firms were listed as being involved in warehousing, with another 40 firms being involved in land and pipeline transport (Table 13). The firms were split evenly between Iraq (76) and KR-I (77), with Sulaymaniyah being the largest governorate with 52 firms, accounting for over one-third of the sample.

The numbers in brackets in Table 13 indicate the number of medium- (10-29 employees) and large-sized firms (30+ employees), respectively. From the total of 153 firms, 118 (77%) of firms were of medium size. Of the 35 larger firms, 14 are land or pipeline transport companies and 19 in warehousing. The subsequent sections do not disaggregate the results into medium- and large-sized firms, as the responses between these groups did not differ significantly.

Table 13: Number of transport and storage firms sampled by governorate and subsector

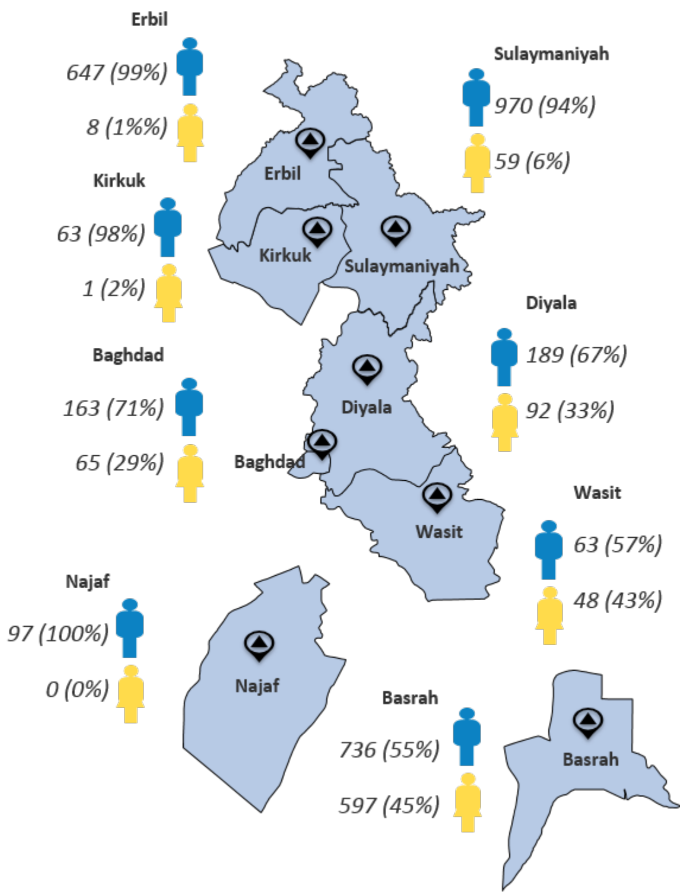
Subsector	Baghdad	Basrah	Diyala	Erbil	Kirkuk	Najaf	Sulaymaniyah	Wasit	Total
Land and pipeline transport	0	12 (7,5)	1 (1,0)	9 (4,5)	4 (4,0)	8 (8,0)	6 (2,4)	0	40 (26,14)
Postal and courier activities	1 (0 medium, 1 large)	0	0	1 (0,1)	0	0	0	0	2 (0,2)
Warehousing for transport	11 (10,1)	28 (21,7)	6 (4,2)	15 (11,4)	0	1 (1,0)	46 (42,4)	4 (3,1)	111 (92,19)
Total	12 (11,1)	40 (28,12)	7 (5,2)	25 (15,10)	4 (4,0)	9 (9,0)	52 (44,8)	4 (3,1)	153 (118,35)

Of the 153 firms sampled, the main economic activity of 145 firms (95%) was in services. The firms varied in size from 10 to 190 employees, with a median size of 16, indicating that most firms are relatively small. The total number of employees across all of the firms was 3,798, of which the majority (78%) were permanent, male employees (Table 14). Women were more highly represented (32%) in the temporary workers than any other category, and overall there is a large gender imbalance. The predominance of males and the type of employee breakdown was consistent across all governorates. Wasit and Basrah both had the highest rate of female employees (nearly 50% in all subsectors), while other governorates were nearly all male (Figure 32).

Table 14: Employee type by gender

Type	Male	Female	Total
Permanent	2,412 (78%)	685 (22%)	3,097
Temporary	264 (68%)	122 (32%)	386
Daily	252 (80%)	63 (20%)	315
Total	2,928 (77%)	870 (23%)	3,798

Figure 32: Number of employees by gender in selected governorates

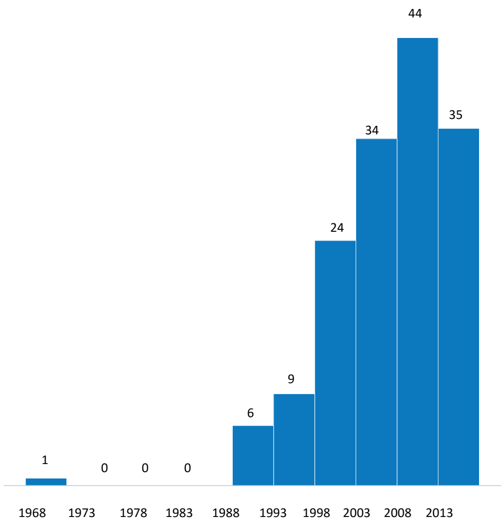


The legal status of firms was mostly individual owned, indicating high rates of entrepreneurs (Table 15). Approximately 20% of firms did not indicate their legal status, indicating possible discomfort or lack of knowledge around this question. Finally, the majority of firms were started after the year 2000 (Figure 33), while all firms but one were founded after 1988. This indicates that overall the sector is relatively young, and that many firms lack longevity.

Table 15: Legal status of firms

Subsector	Individual ownership	Limited company	Joint stock company	Not stated
Land and pipeline transport	27 (67.5%)	2 (5%)	3 (7.5%)	8 (20%)
Postal and courier activities	1 (50%)	0 (0%)	1 (50%)	0 (0%)
Warehousing for transport	71 (64%)	15 (13.5%)	2 (1.8%)	23 (20.7%)

Figure 33: Firms starting year of operation



5.2.2 Analysis of occupations in the transport and storage sector

Each company was asked to list the top 7 occupations (based on frequency) in their workforce as well the qualification levels of people in the occupations. The classification of qualification levels are based on these descriptions:

- Basic-skilled Worker (no diploma or a certificate for primary or middle education)
- Semi-skilled Worker (has followed some vocational training)
- Skilled Worker (professional secondary education/vocational training certificate)
- Professional Technician (diploma from a technical institute)
- Professional Academic (diploma from a higher education institute)
- Technical Specialist (bachelor degree from a technical faculty/university)
- Academic Specialist (bachelor degree from a faculty/university)
- Higher Technical Specialist (technical master degree or equivalent)
- Specialist Technical Expert (technical doctorate degree or equivalent)
- Specialist Academic Expert (doctorate degree or equivalent).

In 'A' level occupations (professional and technical) there was a significant proportion of academic specialists (29%) but also the amount of academically qualified people in skilled occupations was high (33%) indicating that 'A' level graduates are working below the level of their qualification within the sector. On the other hand, in 'B' level occupations (basic-skilled, skilled and semi-skilled), nearly half (47%) have basic-skilled qualifications.

Table 16: Occupation level by qualification

Occupation level	Basic-skilled	Semi-skilled	Skilled	Prof. Technician	Prof. Academic	Tech. Specialist	Acad. Specialist	Higher Tech. Specialist	Specialist Tech. Expert	Specialist Acad. Expert
'A' level	7 (3%)	1 (<1%)	79 (33%)	27 (11%)	30 (13%)	24 (10%)	70 (29%)	0 (0%)	0 (0%)	0 (0%)
'B' Level	169 (47%)	47 (13%)	72 (20%)	23 (6%)	15 (4%)	9 (3%)	24 (7%)	0 (0%)	0 (0%)	0 (0%)

Table 17 below shows the top ten transport and storage-related occupations found in the survey (in order) in 2017 in employment across the sector in Iraq and KR-I, respectively. Four of the top ten occupations appeared in both Iraq and KR-I, while the remaining varied:

- Freight handlers
- Supply distribution and related managers
- Corporate service managers
- Car, taxi and van drivers.

Table 17: Top ten most frequent occupations by region

Rank	1	2	3	4	5	6	7	8	9	10
Iraq	Freight handlers	Supply distribution and related managers	Security guards	Corporate service managers	Car, taxi and van drivers	Heavy truck and lorry drivers	Transport clerks	Messengers, package deliverers and luggage porters	Stockclerks	Accounting and bookeeping clerks
KR-I	Supply distribution and related managers	Corporate service managers	Sales workers not classified elsewhere	Car, taxi and van drivers	Vehicle cleaners	Freight handlers	Transport conductors	Drivers and plant operators	Sales and marketing managers	Business services & admin. managers

5.2.3 Analysis of job skills in the transport and storage sector

One of the main purposes of the survey was to assess the skills that employers value, and need more of in their firms. To assess this, each firm was asked to provide the following for 12 key job skills (description of skills can be found in Appendix 5):

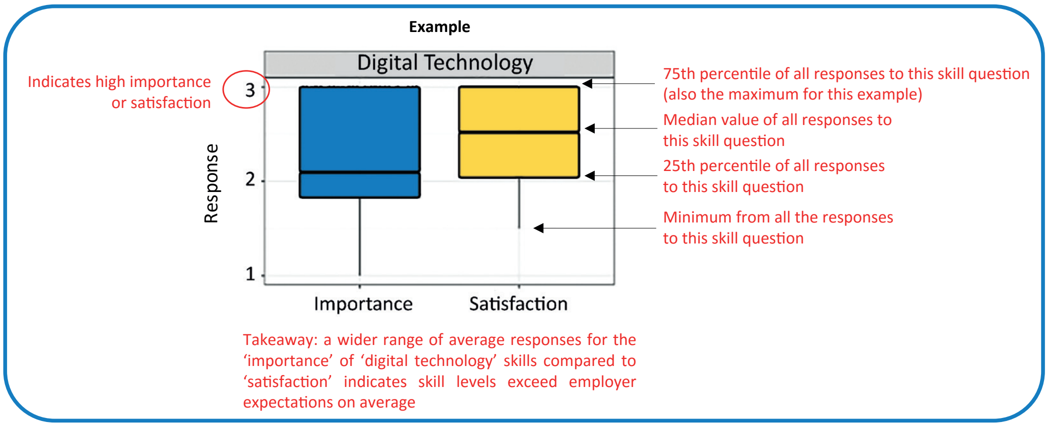
- Importance (not, somewhat or very important)
- Satisfaction (not, somewhat or very satisfied).

These questions were answered by each firm for each of their seven most common occupations. In order to better understand the gaps in skills in the relevant transport and storage-related occupations we focus our analysis on the gap between how important a skill is thought to be, and how satisfied employers are of their workers in having this skill.

To assess the overall response to these questions, the average answer of importance and satisfaction were calculated for each occupation. These values were then placed via side-by-side boxplots in Figures 34 (Iraq) and 35 (KR-I). A value of '1' on the y-axis indicates low perceived importance or satisfaction, while 3 indicates high importance or satisfaction. The horizontal black line in each box indicates the median value, while the bottom and top of the box indicate the 25th and 75th percentile, respectively. Black dots indicate outliers (in this case occupations with exceptionally low scores). This representation allows both the overall patterns in response and the identification of potential gaps between importance and satisfaction of the sector at a high-level. This view is only indicative for the sector as a whole, and not specific occupations.

There is a lot of similarity between Iraq and KR-I. In both regions, the importance is relatively spread between moderate and high, depending on skills, and likewise for satisfaction. In Iraq there is more variability in terms of both importance and satisfaction (i.e. firms answers are more varied). In both regions, the satisfaction by employers with creative thinking, digital, and foreign language skills appear to be the lowest as it has the greatest range in responses. Teamwork, communication and general knowledge skills appear as the most important in both regions. In neither region does there appear to be major gaps between importance and satisfaction of the various skills although there are slight gaps in general knowledge skills for both regions and technical skills in KR-I.

Figure 34: Side-by-side boxplots of the average importance and satisfaction of 12 key skills for transport and storage-related occupations in Iraq



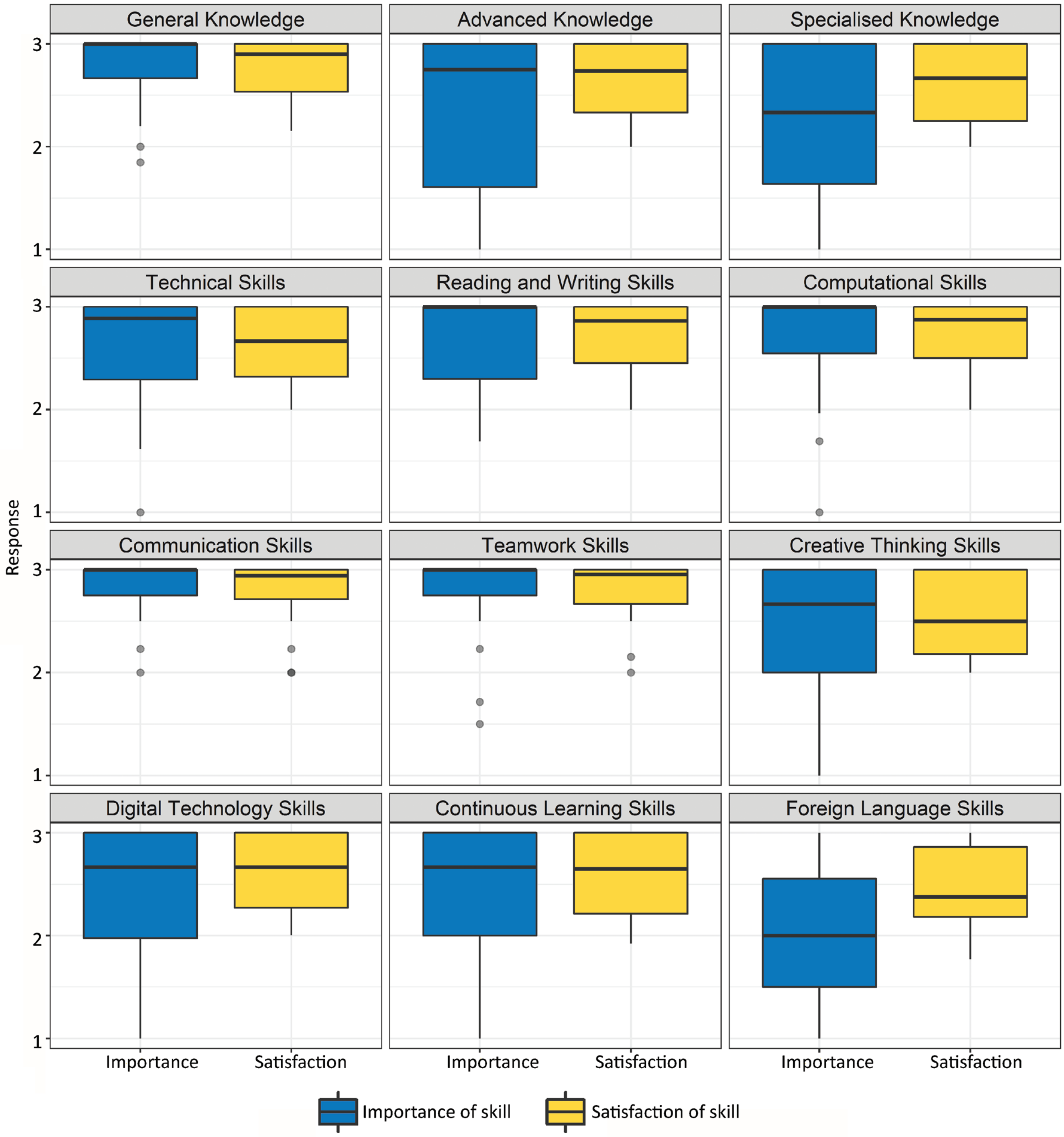
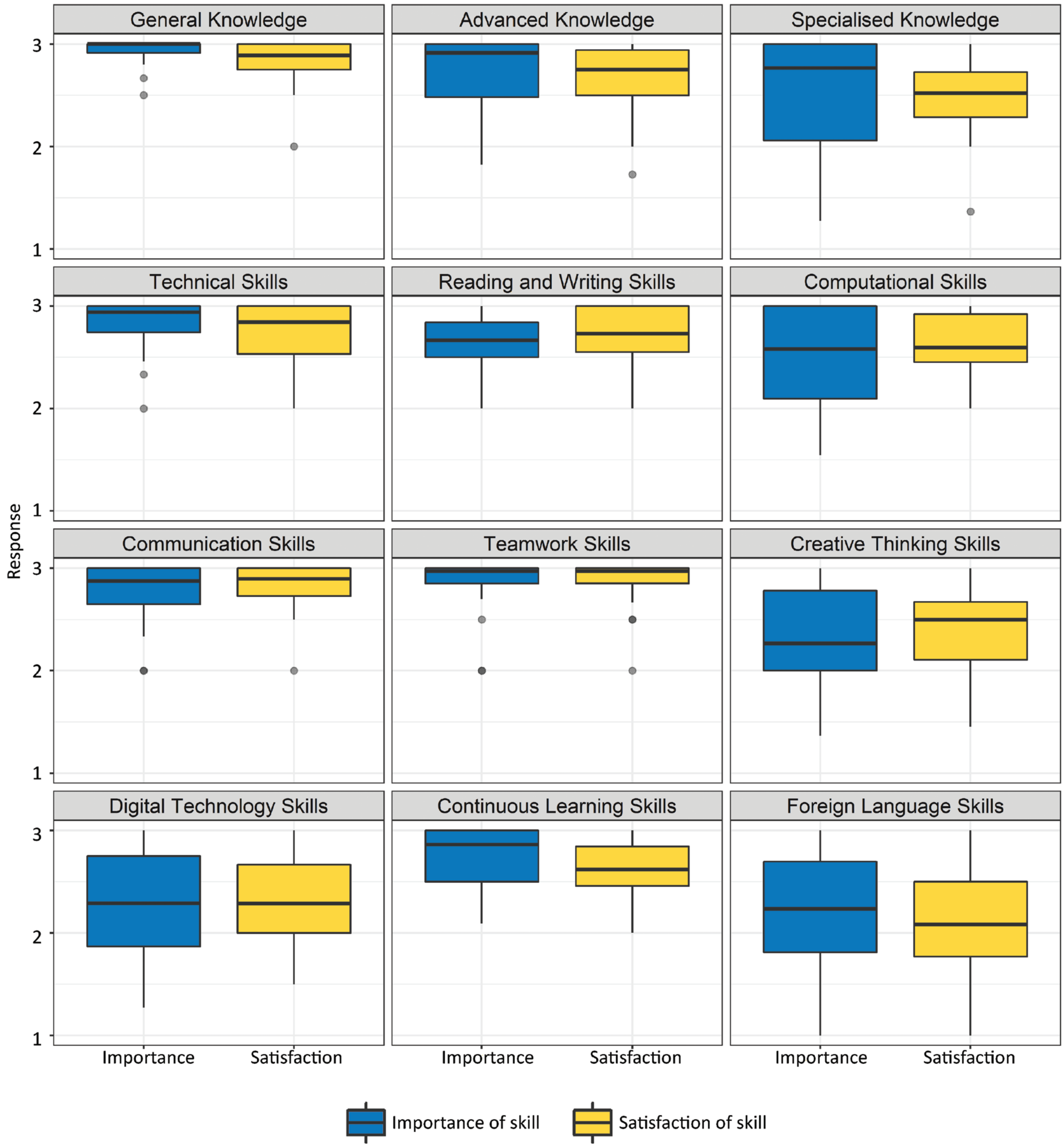


Figure 35: Side-by-side boxplots of the average importance and satisfaction of 12 key skills for transport and storage-related occupations in KR-I

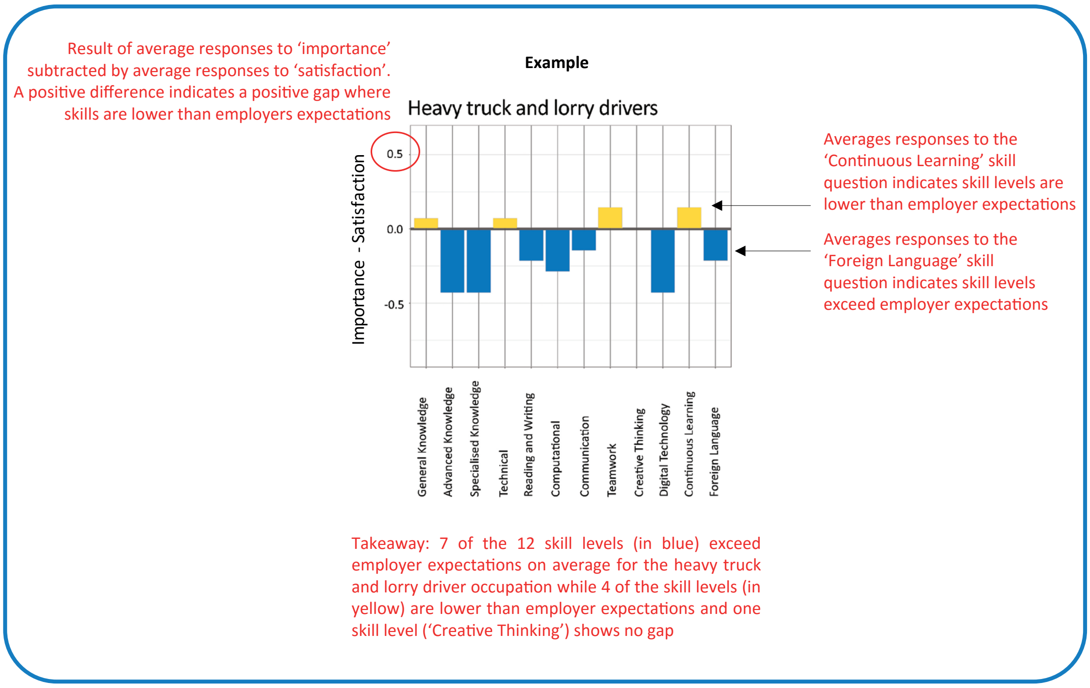


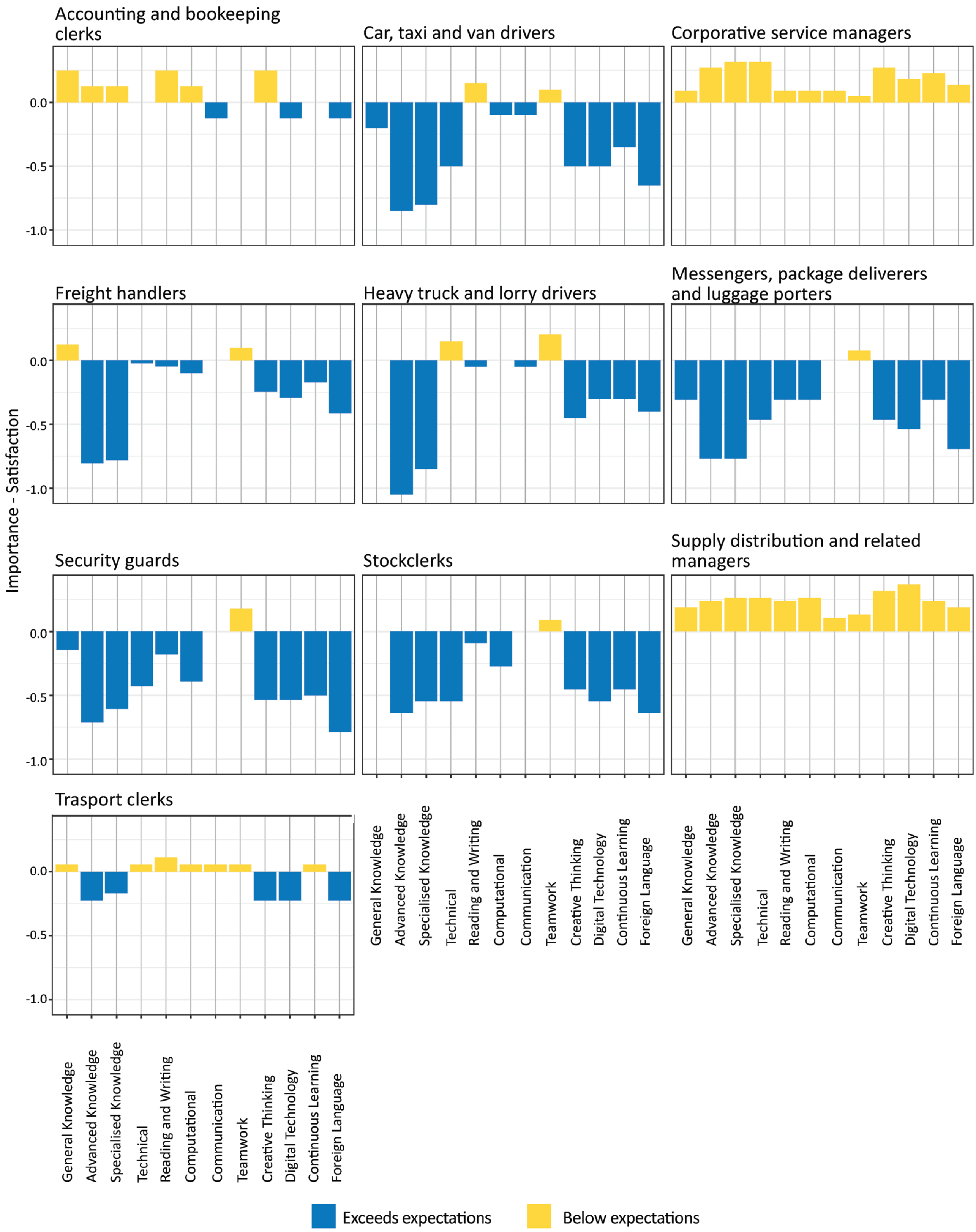
To understand potential significant skill gaps in a more granular way, we analysed the top ten transport-related occupations in the sector reported in Table 17 above and plot the average differences between importance and satisfaction (Figure 36 and 37). A complete list of transport and storage-related occupations and their average levels of importance and satisfaction are presented in Appendix 6, including transport and storage-related occupations found in other sectors as part of this Sector Skills Analysis (SSA) Project.

A score of zero (no bar) shows no gap between importance and satisfaction. The bar shows the size of the gap between importance and satisfaction for each skill. A positive bar (above the horizontal axis) means there is a gap, and the height of the bar shows how big the gap is. A negative bar (below the horizontal axis) means that the skill level exceeds employers’ expectations (i.e. the workers have skills beyond what is thought to be important for the occupation).

As in the high-level skills graphs previously shown, there are minimal gaps across the top ten occupations in both Iraq and KR-I. The general pattern actually appears to be higher satisfaction than importance, indicating that employees are more than meeting employer expectations across the measured skills. The only exceptions are supply and distribution related mangers in both Iraq and KR-I and corporate service managers in Iraq, where minor gaps appear to exist across nearly all skills. This may indicate a lack of available talent for these specific occupations.

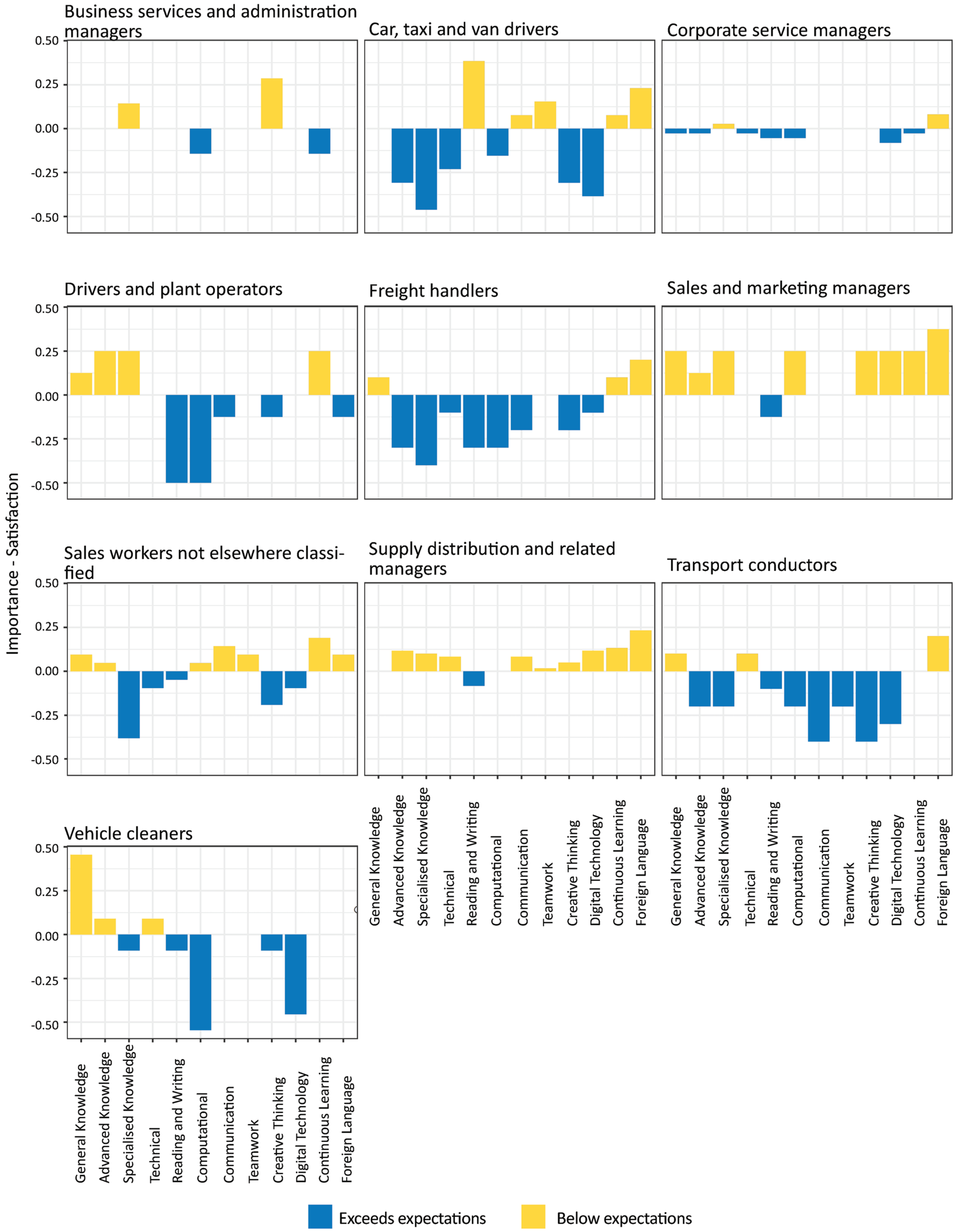
Figure 36: Gap between average importance and satisfaction of 12 key skills for the top ten most frequent transport and storage-related occupations in Iraq





Accounting and bookeeping clerks
Car, taxi and van drivers
Corporative service managers
Freight handlers
Heavy truck and lorry drivers
Messengers, package deliverers and luggage porters
Security guards
Stockclerks
Supply distribution and related managers
Trasport clerks
Importance - Satisfaction
0.0
-0.5
-1.0
General Knowledge
Advanced Knowledge
Specialised Knowledge
Technical
Reading and Writing
Computational
Communication
Teamwork
Creative Thinking
Digital Technology
Continuous Learning
Foreign Language
Exceeds expectations
Below expectations

Figure 37: Gap between average importance and satisfaction of 12 key skills for the top ten most frequent transport and storage-related occupations in KR-I



5.2.4 Analysis of training, recruitment and future growth of the transport and storage sector

Across all the surveyed firms, about 29% have provided training courses for their employees over the past 5 years (Table 18). This proportion is quite low and is consistently low across governorates. This low proportion does not seem to be due to having difficulty in finding relevant courses or competent trainers (Table 20) even though the number who have a relationship with an institute is only 2% of the firms (Table 19). In all governorates, the majority of firms report no difficulty. It is therefore possible that other factors such as cost, time, or lack of perceived need are the reasons why firms have not been training employees. Perhaps by providing funding, or good reasons for continuing employee training, firms would be more inclined to participate in bettering their employee's skills through external training.

Table 18: Number of firms who have organised employee training courses in the last five years

Subsector	Baghdad	Basrah	Diyala	Erbil	Kirkuk	Najaf	Sulaymaniyah	Wasit	Total
Land and pipeline transport	0/0 (0%)	7/12 (58.3%)	1/1 (100%)	1/9 (11.1%)	0/4 (0%)	1/8 (12.5%)	3/6 (50%)	0/0 (0%)	13/40 (32.5%)
Postal and courier activities	1/1 (100%)	0/0 (0%)	0/0 (0%)	1/1 (100%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	2/2 (100%)
Warehousing for transport	4/11 (36.4%)	3/28 (10.7%)	2/6 (33.3%)	7/15 (46.7%)	0/0 (0%)	0/1 (0%)	13/46 (28.3%)	1/4 (25%)	30/111 (36%)
Total	5/12 (41.7%)	10/40 (25%)	3/7 (42.9%)	9/25 (36%)	0/4 (0%)	1/9 (11.1%)	16/52 (30.8%)	1/4 (25%)	45/153 (29%)

Table 19: Number of firms who have a relationship with a training institution

Subsector	Baghdad	Basrah	Diyala	Erbil	Kirkuk	Najaf	Sulaymaniyah	Wasit	Total
Land and pipeline transport	0/0 (0%)	0/12 (0%)	0/1 (0%)	0/9 (0%)	0/4 (0%)	0/8 (0%)	1/6 (16.7%)	0/0 (0%)	1/40 (2.5%)
Postal and courier activities	0/1 (0%)	0/0 (0%)	0/0 (0%)	0/1 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/2 (0%)
Warehousing for transport	0/11 (0%)	0/28 (0%)	0/6 (0%)	1/15 (6.7%)	0/0 (0%)	0/1 (0%)	1/46 (2.2%)	0/4 (0%)	2/111 (5%)
Total	0/12 (0%)	0/40 (0%)	0/7 (0%)	1/25 (4%)	0/4 (0%)	0/9 (0%)	2/52 (3.8%)	0/4 (0%)	3/153 (2%)

Table 20: Number of firms who have difficulty finding relevant training and trainers

	Difficulty finding relevant training courses	Difficulty finding competent trainers
Baghdad	0/12 (0%)	0/12 (0%)
Basrah	1/40 (2.5%)	1/40 (2.5%)
Diyala	1/7 (14.29%)	1/7 (14.29%)
Erbil	0/25 (0%)	0/25 (0%)
Kirkuk	0/4 (0%)	0/4 (0%)
Najaf	0/9 (0%)	0/9 (0%)
Sulaymaniyah	1/52 (1.92%)	1/52 (1.92%)
Wasit	0/4 (0%)	0/4 (0%)

When hiring new employees, the firms from different governorates tend to have similar priorities. Table 21 indicates a weighted average of the top 5 most important factors when firms are hiring new employees. Specifically, each firm was asked from a list of 11 factors to rank the top 5 most important when hiring a new employee. To determine the aggregated rankings by governorate, a simple scoring system was used. Whenever a factor was listed as the most important by the employer it is given a score of 5. The second most important factor is given a score of 4 and so forth until the 5th most important is given a score of 1. These scores are tallied for each of the 11 factors and the top 5 based on score (for each governorate) are listed in the table.

Across all governorates, age is considered to be of high priority (no lower than 4th most important) and is most important in 3 of the governorates. This is perhaps due to younger employees coming at lower cost, or due to experience being associated with age. Gender also ranks very high in many governorates (top ranking in 2), which may be due to cultural norms around certain roles. Interview behavior is also consistently important, as is social relations. Overall, this paints a picture of a high emphasis on interpersonal and demographic attributes rather than practical skills and qualifications.

Table 21: Rank of hiring factors

Rank	1st	2nd	3rd	4th	5th
Baghdad	Age	Social relations	Gender	Interview behaviour	Nationality
Basrah	Nationality	Age	Interview behaviour	Gender	Qualifications
Diyala	Age	Interview behaviour	References	Practical experience	Social relations
Erbil	Gender	Interview behaviour	Qualifications	Age	Nationality
Kirkuk	Interview behaviour	Social relations	Gender	Nationality	Organisation trained at
Najaf	Gender	Internal advancement	Practical experience	Age	Interview behaviour
Sulaymaniyah	Age	Interview behaviour	Gender	Qualifications	Practical experience
Wasit	Social relations	Age	Gender	Interview behaviour	Practical experience

Table 22 indicates the proportion of firms across governorates who plan to hire new employees in the next five years. The overall percentage of firms planning to hire is only 27%, which is relatively low. This is consistent across all governorates, although for the warehousing sub-sector in Erbil 93% firms plan to hire, which may indicate a regional need. Given this finding, it is surprising that such a low proportion (21%) of firms in Sulaymaniyah plan to hire in the same subsector. Many of the governorates have almost no firms with plans to hire in the next five years. To better understand the reason for low hiring rates, the five-year outlooks by governorate are displayed in Table 23. These are not as negative as expected based on the hiring results. In general, many firms have 'positive' outlooks, with the remaining being balanced between 'negative' and 'unsure'.

Table 22: Number of firms planning to hire in the next five years by subsector and governorate

Subsector	**Baghdad**	**Basrah**	**Diyala**	**Erbil**	**Kirkuk**	**Najaf**	**Sulaymaniyah**	**Wasit**	**Total**
Land and pipeline transport	0/0 (0%)	1/12 (8.3%)	0/1 (0%)	2/9 (22.2%)	2/4 (50%)	0/8 (0%)	2/6 (33.3%)	0/0 (0%)	7/40 (17.5%)
Postal and courier activities	1/1 (100%)	0/0 (0%)	0/0 (0%)	1/1 (100%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	0/0 (0%)	2/2 (100%)
Warehousing for transport	1/11 (9.1%)	6/28 (21.4%)	2/6 (33.3%)	14/15 (93.3%)	0/0 (0%)	0/1 (0%)	9/46 (19.6%)	0/4 (0%)	32/111 (28.8%)
Total	2/12 (16.7%)	7/40 (17.5%)	2/7 (28.6%)	17/25 (65.4%)	2/4 (50%)	0/9 (0%)	11/52 (21.2%)	0/4 (0%)	41/153 (26.8%)

Table 23: Five-year outlook by governorate

Outlook	Baghdad	Basrah	Diyala	Erbil	Kirkuk	Najaf	Sulaymaniyah	Wasit	Total
Negative	3/12 (25%)	8/40 (20%)	2/7 (28.6%)	2/25 (8%)	0/4 (0%)	5/9 (55.6%)	10/52 (19.2%)	0/4 (0%)	30/153 (19.6%)
Positive	4/12 (33.3%)	20/40 (50%)	4/7 (57.1%)	18/25 (72%)	4/4 (100%)	1/9 (11.1%)	27/52 (51.9%)	0/4 (0%)	78/153 (50.1%)
Unsure	5/12 (41.7%)	12/40 (30%)	1/7 (14.3%)	5/25 (20%)	0/4 (0%)	3/9 (33.3%)	15/52 (28.8%)	4/4 (100%)	35/153 (23%)

The low hiring rates is most likely not due to a lack of satisfaction with applicant skills. Tables 24 and 25 indicate the satisfaction of the firms with applicants' basic and operational skills, and technical skills over the last five years. In both tables, in almost all governorates, firms are mostly either 'completely satisfied' or 'somewhat satisfied'. There are some exceptions where a significant proportion of firms are 'unsure', however very few firms reported being 'not satisfied'.

Table 24: Level of satisfaction with basic and operational skills of applicants over the past five years

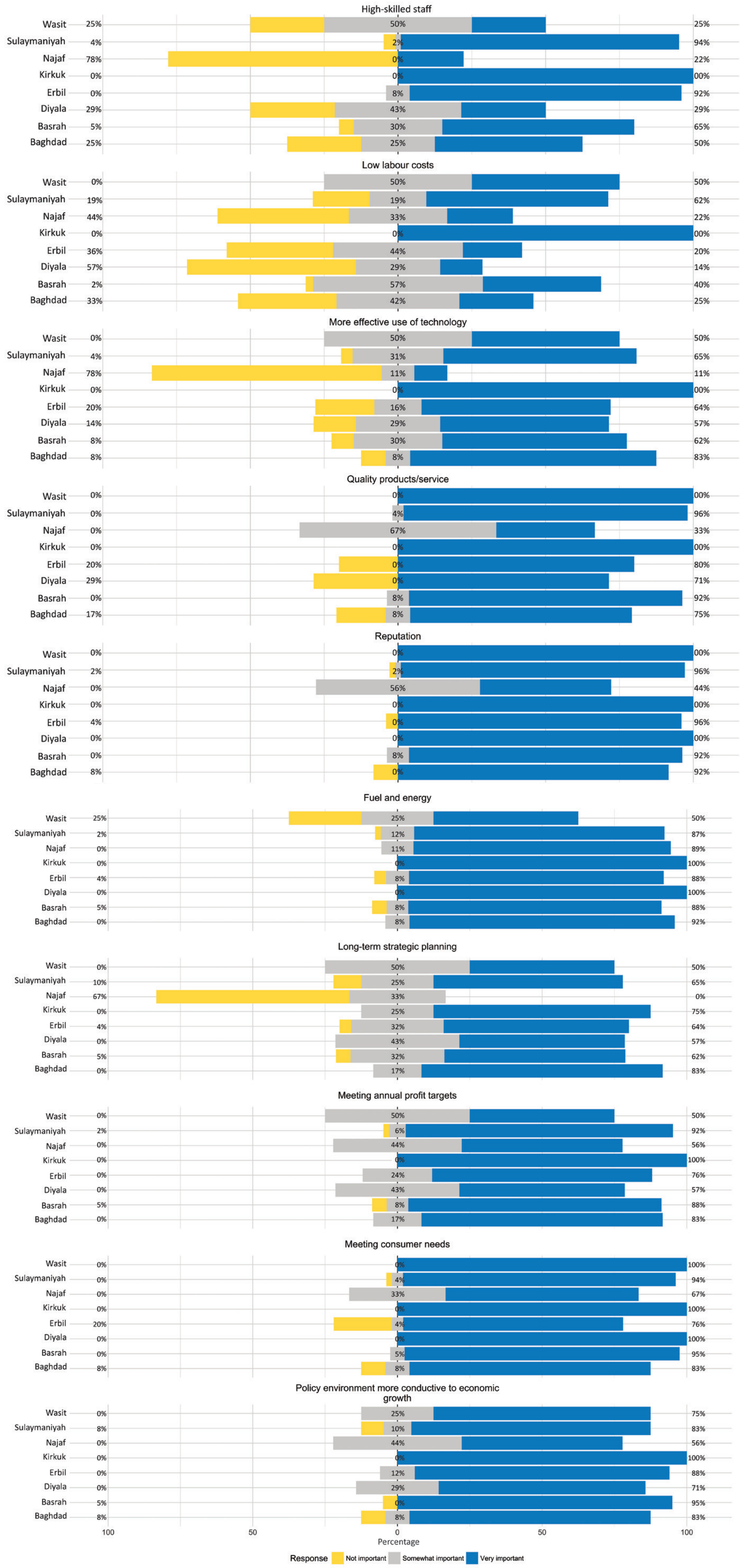
Satisfaction	Baghdad	Basrah	Diyala	Erbil	Kirkuk	Najaf	Sulaymaniyah	Wasit	Total
Completely statsfied	6/12 (50%)	17/40 (42.5%)	1/7 (14.3%)	20/25 (80%)	2/4 (50%)	4/9 (44.4%)	38/52 (73.1%)	1/4 (25%)	89/153 (58%)
Somewhat satisfied	6/12 (50%)	14/40 (35%)	2/7 (28.6%)	4/25 (16%)	0/4 (0%)	4/9 (44.4%)	10/52 (19.3%)	1/4 (25%)	41/153 (27%)
Not satisfied	0/12 (0%)	0/40 (0%)	0/7 (0%)	1/25 (4%)	0/4 (0%)	0/9 (0%)	1/52 (1.9%)	0/4 (0%)	2/153 (1.3%)
Unsure	0/12 (0%)	9/40 (22.5%)	4/7 (57.1%)	0/25 (0%)	2/4 (50%)	1/9 (11.1%)	3/52 (5.8%)	2/4 (50%)	21/153 (14%)

Table 25: Level of satisfaction with technical skills of applicants over the past five years

Satisfaction	Baghdad	Basrah	Diyala	Erbil	Kirkuk	Najaf	Sulaymaniyah	Wasit	Total
Completely statsfied	6/12 (50%)	18/40 (45%)	1/7 (14.3%)	15/25 (60%)	2/4 (50%)	3/9 (33.3%)	34/52 (65.4%)	1/4 (25%)	80/153 (52.3%)
Somewhat satisfied	5/12 (41.7%)	12/40 (30%)	1/7 (14.3%)	10/25 (40%)	0/4 (0%)	3/9 (33.3%)	13/52 (25%)	1/4 (25%)	45/153 (29.4%)
Not satisfied	1/12 (8.3%)	1/40 (2.5%)	1/7 (14.3%)	0/25 (0%)	0/4 (0%)	0/9 (0%)	1/52 (1.9%)	0/4 (0%)	4/153 (2.6%)
Unsure	0/12 (0%)	9/40 (22.5%)	4/7 (57.1%)	0/25 (0%)	2/4 (50%)	3/9 (33.3%)	4/52 (7.7%)	2/4 (50%)	24/153 (15.7%)

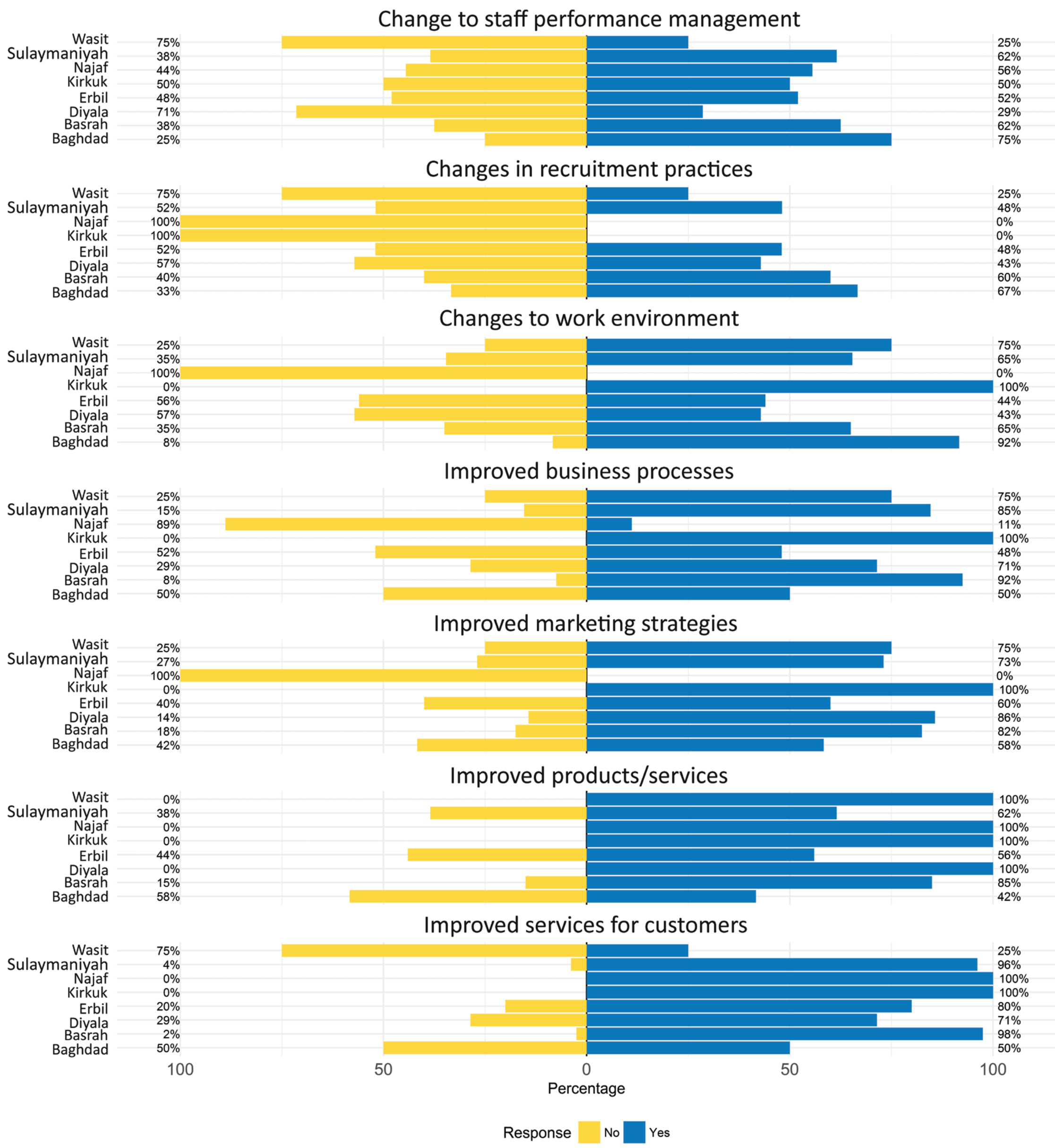
Given the overall outlooks and lack of plans to hire new employees it is important to understand what areas the firms consider to be important for the future growth of their businesses. Figure 38 indicates a variety of factors that the firms indicated as not, somewhat or very important for business success. Across all governorates, there is high importance placed on all areas. This is not unexpected given that these questions ask about core business principles. In particular, reputation, meeting profit targets and consumer need, and the delivery of quality products and services appear paramount in importance in the responses.

Figure 38: Factors impacting future business growth



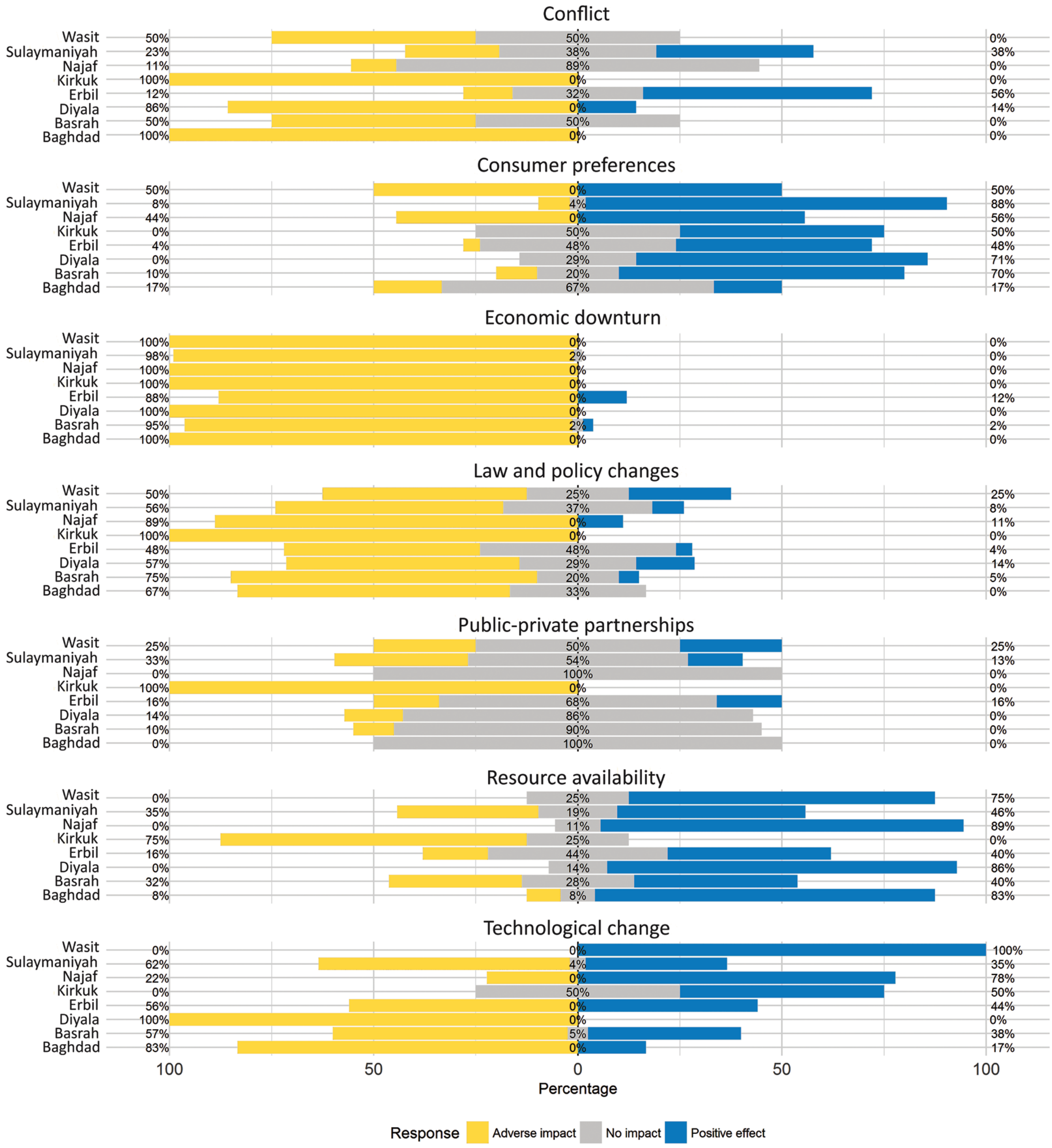
Based on these clear trends in areas that are identified as important to future growth, it is interesting to see the contrast in what has actually been implemented in the past few years (Figure 39). There is a balance between firms which have, or have not, implemented various changes to their business practices in the past few years and answers are quite consistent. The patterns appear quite regional, as some sets of firms within governorates have consistently implemented many of these changes, while in Wasit, and Najaf for example, the implementation is lower.

Figure 39: Changes and innovations firms have implemented in the past few years, by governorate



To further understand the factors that may contribute to business success, the firms were asked what external factors have contributed positively and negatively to their recent performance. Figure 40 indicates these various factors that have had positive and negative influence on the firms over the last few years. Conflict, economic downturn, and law and policy changes stand out as major negative influences on business performance. In KR-I, a relatively large number of firms (38% in Erbil, 32% in Sulaymaniyah) indicate that conflict has been a positive. It seems likely that as trade routes closed, or were compromised, in other parts of the country, transport of goods through KR-I increased. There are strong differences in how technological change is viewed between governorates, as about half say strongly positive, and half quite negative. Part of this may be due to availability of relevant technology in different regions. The only overall positive in all governorates appears to be consumer preference, indicating that this has consistently benefited firms in the transport sector.

Figure 40: External drivers impacting business performance during the past few years, by governorate



5.2.5 Analysis of small-sized firms in the transport and storage sector

The main analysis of the transport and storage sector focuses on firms of at least 10 employees. This is done in order to ensure that questions are related to overall occupations and not to specific employees. That being said, some data was collected on firms of less than 10 employees. In total, 29 of these firms were sampled, 26 of which were in warehousing for transportation. This high proportion of warehousing firms was similar to the predominance of warehousing in the larger firms. What was different in the smaller firms was the very low proportion of land and pipeline transport firms (this was >25% of the medium and large-sized firms, but <10% for smaller firms). Baghdad also provided a higher proportion of firms to the smaller sized sample, while Sulaymaniyah, which was the biggest contributor to the larger firms, provided no smaller firms.

Given that only there were responses for smaller firms from only four of the eight governorates, comparisons (to the larger firms) at the governorate level are impossible. Furthermore, for the comparisons at the occupation level, it is important to remember that the geographical makeup of the firms is significantly different in the small firm sample.

5.2.6 Conclusion and limitations of the results from the Enterprise Survey

The above descriptions give an overview of the firms of at least size 10 in the transport and storage sector. The sector is dominated by male workers and medium-sized firms across all the strata, with mostly full-time workers. Two governorates have higher proportions of women, perhaps indicating changing attitudes in these regions for the sector. There is a clear split between low skilled and high skilled workers based on occupation type.

The overall sector trends generally indicate moderate importance and satisfaction related to occupation skills. This perhaps points to a sector that is not evolving overall in terms of the requirement of its employees. The survey results likely indicate that the firms see the status quo (in terms of skills) remaining steady, at least in the majority of occupations. There were no clear gaps identified in particular skills, although a couple of occupations (managerial roles) seemed to indicate lack of satisfaction. This perhaps indicates that while lower skill jobs are remaining steady, more is being expected from management roles.

The sector as a whole has low hiring plans and a relatively uncertain outlook over the next five years. Clearly improved outlooks, stimulated by stabilisation in the country would benefit the sector, and likely increase the prospect of hiring. The only exception to these low hiring rates was in Erbil where more firms do plan to hire. It would be beneficial to further understand what differentiates this governorate. The only area that firms indicated as consistently (across governorate) positive for their businesses over the last few years was consumer preference and resource availability. All the remaining factors were either split (or neutral) across governorates or overwhelmingly negative (law and policy, economic downturn, conflict). In KR-I, conflict was seen as positive by over 30% of firms, which could be a consequence of disablement or closure of alternative trade routes in other parts of the country.

Firms seemed to have emphasised changes to their interaction with customers and their products more than internal changes in the way they manage their businesses. Perhaps growth and business efficiency could be improved by making changes to internal structures (hiring, performance management, and work environment) as well as continued changes to services and products. In particular, hiring practices should probably be more focused on applicant skills and experience and less on demographic characteristics.

Overall, the survey data provides a relatively clear depiction of the sector's needs and overall outlook. In particular, the firm level data gives a deep look into the factors that firms consider important for their business success. The firm level data illustrates both the challenges the sector faces, as well as the areas which impact growth, thus providing useful information for policy purposes.

Finally, there are a variety of limitations in the above data that are important to note when interpreting results. As identified in the opening paragraphs, the Register from which the data were drawn is from 2009. Given the changes in Iraq during that time, this sample frame is not considered reliable for the current labour market and therefore the data was not weighted as is typically done. Where possible, this has been mitigated by providing data at the governorate and subsector level. Furthermore, some governorates provided far less frames to the sample. This may be due to both underrepresentation and lack of economic activity in these governorates.

Chapter 6: Recommendations for skills development in the transport and storage sector

6.1 General observations

The transport and storage sector was growing steadily prior to 2014, and it can be expected that the growth trend will resume with cessation of hostilities, planned infrastructure development, the recovery of the productive sectors of the economy and expected growth in the visitor industry.

Rapid advances in technology and globalisation trends will affect all sectors of the economy and Iraq needs a workforce which is well prepared to participate in a highly competitive trade environment, and able to facilitate increased movement of people for tourism and business purposes.

Generally, employers who participated in the survey seem relatively satisfied with the skills of their staff, and for some occupations the skills of staff significantly exceed their expectations. Low expectations may indicate that the sector's needs and expectations have stagnated in a period of decline. Although transport and storage employers were generally satisfied with the skills of their staff in a period of decline, their expectations may be raised as the economy recovers and new trade routes and trade relationships are established.

The increasing popularity of international travel and global growth of tourism numbers means that visitors' expectations are influenced by their experiences in other countries. The expectations of future visitors to Iraq and KR-I are likely to have been informed by transport services in other countries where service standards are very high; modern technologies are used; and international languages are spoken. In the 21st century employers place increasing value on communication skills, teamwork, analytical skills, digital skills and foreign languages.

Much of the institution-based education and training available for the transport sector is offered at the tertiary level, whereas most of the occupations in the list of top occupations for the sector are semi-skilled and skilled artisan occupations.

6.2 Skills supply in relation to demand

Analysis of the supply of graduates relevant to the transport sector suggests that large numbers of student in Iraq graduate with high level qualifications in surveying (more than 1,000 per year) and civil engineering (more than 1,000 per year) and very large numbers graduate with qualifications in 'materials management' (more than 3,000 per year).

The list of the top ten occupations in the sector suggests that 'materials management' may be relevant for 'supply, distribution and related managers', which is the top occupation in KR-I and second most frequent occupation in Iraq. Lower level freight handlers and stock clerks also appear in the top ten occupations, although there seems to be no specific training for this.

Almost 1,000 learners per year gain qualification in cooling and refrigeration (mostly from vocational schools and MoLSA), it seems there is currently low demand for these skills in the transport sector, perhaps because there is a shortage of cold storage facilities.

No information is available about the number of people trained for the aviation or marine transport sub-sectors or the postal service. MoLSA-Iraq offers training in oil pipe welding and connecting to small numbers of learners. A handful of learners gain qualifications in truck driving in KR-I, and there appears to be no other training available for truck drivers and heavy plant operators in the top ten occupations. Similarly, there appears to be no institution-based training for transport clerks or conductors.

Since much of the transport sector is in private hands, one might expect that any gaps in skills supply are bridged by 'on the job' training, but this report shows that only 29% of the surveyed firms offered any training in the last five years.

Generally, employer satisfaction with creative thinking, digital skills, and foreign languages is lowest, and teamwork and communication are considered very important, with some gaps (possibly higher expectations) in managerial level occupations.

In order to respond to the findings of this report TVET providers in Iraq should consider providing competency-based training for occupations for which training is not currently available (such as heavy vehicle drivers and heavy plant operators) and training for areas where there is clearly intention to hire, such as warehousing, including training for lower level 'materials management' occupations such as stock clerks and freight handers. For all transport occupations, including taxi drivers, transport conductors and transport clerks, training in digital technologies, such as GPS, and foreign languages would be advantageous. At all levels, increased focus during training on generic employability skills, such as team work, communication, and thinking and problem solving skills will better prepare learners to meet employers' expectations in the world of work. Since interview behaviour is critical factor in hiring decisions, all learners should be trained in how to succeed in interviews.

Appendix

Appendix 1 Population frame

CSO Business Register ('Population Frame')

Type of Economic Activity		No. of Employees								
		1-4	5-9	10-49	50-99	100-499	500-999	1000 +	Not Stated	Total
Agriculture, Forestry and Fishing	01 - Crop and animal production, hunting and related service activities	187,854	4,625	772	48	25	0	0	1,238	194,562
	03 - Fishing and aquaculture	990	30	14	0	1	0	0	9	1,044
	Subtotal	188,844	4,655	786	48	26	0	0	1,247	195,606
Manufacturing	10 - Manufacture of food products	13,375	2,965	593	48	20	3	2	366	17,372
	11 - Manufacture of beverages	182	92	95	11	8	2	0	16	406
	19 - Manufacture of coke and refined petroleum products	135	113	175	14	12	1	0	27	477
	20 - Manufacture of chemicals and chemical products	476	135	102	3	7	0	3	56	782
	21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations	80	4	12	4	3	0	2	4	109
	22 - Manufacture of rubber and plastics products	1,011	185	71	2	2	3	2	37	1,313
	23 - Manufacture of other non-metallic mineral products	4,515	2,719	1,480	124	36	9	9	142	9,034
	24 - Manufacture of basic metals	1,144	111	23	4	1	0	2	37	1,322
	25 - Manufacture of fabricated metal products, except machinery and equipment	29,735	1,227	187	12	4	0	0	226	31,391
	26 - Manufacture of computer, electronic and optical products	346	15	8	2	1	0	0	7	379
	27 - Manufacture of electrical equipment	312	73	34	3	10	4	3	10	449
	28 - Manufacture of machinery and equipment	512	55	39	4	1	0	0	10	621
	32 - Other manufacturing	708	21	5	1	0	0	0	7	742
	Subtotal	52,531	7,715	2,824	232	105	22	23	945	64,397
Construction	41 - Construction of buildings	2,501	434	335	30	18	3	2	97	3,420
	42 - Civil engineering	360	86	155	27	19	5	4	21	677
	43 - Specialized construction activities	4,049	96	77	14	10	0	0	34	4,280
	Subtotal	6,910	616	567	71	47	8	6	152	8,377
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	45 - Wholesale and retail trade and repair of motor vehicles and motorcycles	102,817	2,588	411	24	10	0	5	612	106,467
	Subtotal	102,817	2,588	411	24	10	0	5	612	106,467
Transportation and Storage	49 - Land transport and transport via pipelines	952	168	143	20	16	2	1	60	1,362
	52 - Warehousing and support activities for transportation	59,153	1,414	812	104	68	5	10	6,518	68,084
	53 - Postal and courier activities	76	59	161	16	10	1	0	7	330
	Subtotal	60,181	1,641	1,116	140	94	8	11	6,585	69,776
Accommodation and Food Service Activities	55 - Accommodation	2,487	524	432	40	19	1	0	327	3,830
	56 - Food and beverage service activities	33,504	2,466	735	20	6	1	1	261	36,994
	Subtotal	35,991	2,990	1,167	60	25	2	1	588	40,824
Information and Communication	61 - Telecommunications	3,089	355	371	54	31	2	1	41	3,944
	62 - Computer programming, consultancy and related activities	255	10	4	0	0	0	0	1	270
	63 - Information service activities	268	68	58	7	3	1	0	14	419
	Subtotal	3,612	433	433	61	34	3	1	56	4,633
Total		450,886	20,638	7,304	636	341	43	47	10,185	490,080

Appendix 2 Sample frame

Sample frame: 8 governorates, 27 subsectors, 10+ employee-sized firms

Type of Economic Activity		Governorate								
		Sulaymaniyah	Kirkuk	Erbil	Diyala	Baghdad	Wasit	Najaf	Basrah	Total
Agriculture, Forestry and Fishing	01 - Crop and animal production, hunting and related service activities	132	25	69	32	116	46	32	41	493
	03 - Fishing and aquaculture	1	0	1	0	0	3	0	6	11
	Subtotal	133	25	70	32	116	49	32	47	504
Manufacturing	10 - Manufacture of food products	28	26	31	29	211	15	32	36	408
	11 - Manufacture of beverages	8	9	5	5	33	2	5	4	71
	19 - Manufacture of coke and refined petroleum products	21	12	14	13	16	10	4	18	108
	20 - Manufacture of chemicals and chemical products	3	5	4	0	53	5	4	7	81
	21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations	0	0	1	1	13	0	0	0	15
	22 - Manufacture of rubber and plastics products	9	6	14	0	18	0	3	5	55
	23 - Manufacture of other non-metallic mineral products	101	73	52	94	300	47	97	43	807
	24 - Manufacture of basic metals	1	2	0	0	13	0	1	4	21
	25 - Manufacture of fabricated metal products, except machinery and equipment	23	8	21	3	62	3	11	9	140
	26 - Manufacture of computer, electronic and optical products	0	1	1	0	2	1	1	0	6
	27 - Manufacture of electrical equipment	2	2	0	7	26	0	1	3	41
	28 - Manufacture of machinery and equipment	4	2	5	1	9	2	1	3	27
	32 - Other manufacturing	0	0	1	0	2	0	0	1	4
	Subtotal	200	146	149	153	758	85	160	133	1,784
Construction	41 - Construction of buildings	42	8	32	9	91	18	16	48	264
	42 - Civil engineering	26	12	18	6	28	7	6	18	121
	43 - Specialized construction activities	25	1	6	0	16	3	9	12	72
	Subtotal	93	21	56	15	135	28	31	78	457
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	45 - Wholesale and retail trade and repair of motor vehicles and motorcycles	39	13	50	9	140	11	17	29	308
	Subtotal	39	13	50	9	140	11	17	29	308
Transportation and Storage	49 - Land transport and transport via pipelines	10	13	11	3	50	3	6	22	118
	52 - Warehousing and support activities for transportation	94	29	53	29	290	28	28	88	639
	53 - Postal and courier activities	16	4	17	13	34	6	9	13	112
	Subtotal	120	46	81	45	374	37	43	123	869
Accommodation and Food Service Activities	55 - Accommodation	52	12	85	9	108	13	40	27	346
	56 - Food and beverage service activities	73	26	73	10	196	24	23	41	466
	Subtotal	125	38	158	19	304	37	63	68	812
Information and Communication	61 - Telecommunications	37	21	44	16	120	18	13	32	301
	62 - Computer programming, consultancy and related activities	0	0	0	0	1	0	0	2	3
	63 - Information service activities	12	2	12	6	13	0	2	6	53
	Subtotal	49	23	56	22	134	18	15	40	357
Total		759	312	620	295	1,961	265	361	518	5,091

Appendix 3 Target sample size

Target sample size: 8 governorates, 27 subsectors, 10+ employee-sized firms

Type of Economic Activity		Governorate								
		Sulaymaniyah	Kirkuk	Erbil	Diyala	Baghdad	Wasit	Najaf	Basrah	Total
Agriculture, Forestry and Fishing	01 - Crop and animal production, hunting and related service activities	104	25	62	32	94	44	32	39	432
	03 - Fishing and aquaculture	1	0	1	0	0	3	0	6	11
	Subtotal	105	25	63	32	94	47	32	45	443
Manufacturing	10 - Manufacture of food products	28	26	31	29	144	15	32	35	340
	11 - Manufacture of beverages	8	9	5	5	32	2	5	4	70
	19 - Manufacture of coke and refined petroleum products	21	12	14	13	16	10	4	18	108
	20 - Manufacture of chemicals and chemical products	3	5	4	0	50	5	4	7	78
	21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations	0	0	1	1	13	0	0	0	15
	22 - Manufacture of rubber and plastics products	9	6	14	0	18	0	3	5	55
	23 - Manufacture of other non-metallic mineral products	85	65	49	80	178	45	82	41	625
	24 - Manufacture of basic metals	1	2	0	0	13	0	1	4	21
	25 - Manufacture of fabricated metal products, except machinery and equipment	23	8	21	3	57	3	11	9	135
	26 - Manufacture of computer, electronic and optical products	0	1	1	0	2	1	1	0	6
	27 - Manufacture of electrical equipment	2	2	0	7	26	0	1	3	41
	28 - Manufacture of machinery and equipment	4	2	5	1	9	2	1	3	27
	32 - Other manufacturing	0	0	1	0	2	0	0	1	4
	Subtotal	184	138	146	139	560	83	145	130	1,525
Construction	41 - Construction of buildings	40	8	32	9	78	18	16	45	246
	42 - Civil engineering	26	12	18	6	28	7	6	18	121
	43 - Specialized construction activities	25	1	6	0	16	3	9	12	72
	Subtotal	91	21	56	15	122	28	31	75	439
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	45 - Wholesale and retail trade and repair of motor vehicles and motorcycles	38	13	47	9	109	11	17	29	273
	Subtotal	38	13	47	9	109	11	17	29	273
Transportation and Storage	49 - Land transport and transport via pipelines	10	13	11	3	47	3	6	22	115
	52 - Warehousing and support activities for transportation	80	29	50	29	174	28	28	76	494
	53 - Postal and courier activities	16	4	17	13	33	6	9	13	111
	Subtotal	106	46	78	45	254	37	43	111	720
Accommodation and Food Service Activities	55 - Accommodation	49	12	74	9	89	13	39	27	312
	56 - Food and beverage service activities	65	26	65	10	137	24	23	39	389
	Subtotal	114	38	139	19	226	37	62	66	701
Information and Communication	61 - Telecommunications	36	21	42	16	97	18	13	32	275
	62 - Computer programming, consultancy and related activities	0	0	0	0	1	0	0	2	3
	63 - Information service activities	12	2	12	6	13	0	2	6	53
	Subtotal	48	23	54	22	111	18	15	40	331
Total		686	304	583	281	1,476	261	345	496	4,432

Appendix 4 Actual sample size

Actual sample size: 8 governorates, 25 subsectors, 10+ employee-sized firms

Type of Economic Activity		Governorate								
		Sulaymaniyah	Kirkuk	Erbil	Diyala	Baghdad	Wasit	Najaf	Basrah	Total
Agriculture, Forestry and Fishing	01 - Crop and animal production, hunting and related service activities	66	2	22	22	10	12	22	3	159
	03 - Fishing and aquaculture	0	0	0	0	0	1	0	0	1
	Subtotal	66	2	22	22	10	13	22	3	160
Manufacturing	10 - Manufacture of food products	20	11	23	27	81	8	57	25	252
	11 - Manufacture of beverages	7	11	4	5	12	1	6	5	51
	19 - Manufacture of coke and refined petroleum products	10	2	6	3	0	0	0	9	30
	20 - Manufacture of chemicals and chemical products	4	1	1	0	10	4	5	1	26
	21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations	0	0	1	0	4	0	0	0	5
	22 - Manufacture of rubber and plastics products	9	4	5	0	10	0	7	3	38
	23 - Manufacture of other non-metallic mineral products	70	19	16	74	116	31	46	25	397
	24 - Manufacture of basic metals	1	1	0	0	1	0	2	1	6
	25 - Manufacture of fabricated metal products, except machinery and equipment	20	5	12	0	5	1	5	8	56
	26 - Manufacture of computer, electronic and optical products	0	0	0	0	0	0	1	0	1
	27 - Manufacture of electrical equipment	1	0	0	0	4	0	0	2	7
	28 - Manufacture of machinery and equipment	3	1	1	1	0	1	0	0	7
	32 - Other manufacturing	0	0	0	0	0	0	0	0	0
	Subtotal	145	55	69	110	243	46	129	79	876
Construction	41 - Construction of buildings	30	0	16	2	18	6	8	32	112
	42 - Civil engineering	15	0	6	1	1	0	0	5	28
	43 - Specialized construction activities	11	0	0	0	1	1	0	3	16
	Subtotal	56	0	22	3	20	7	8	40	156
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	45 - Wholesale and retail trade and repair of motor vehicles and motorcycles	32	2	22	6	43	7	14	14	140
	Subtotal	32	2	22	6	43	7	14	14	140
Transportation and Storage	49 - Land transport and transport via pipelines	6	4	9	1	0	0	8	12	40
	52 - Warehousing and support activities for transportation	46	0	15	6	11	4	1	28	111
	53 - Postal and courier activities	0	0	1	0	1	0	0	0	2
	Subtotal	52	4	25	7	12	4	9	40	153
Accommodation and Food Service Activities	55 - Accommodation	26	4	36	0	24	2	42	7	141
	56 - Food and beverage service activities	58	18	51	10	71	17	13	32	270
	Subtotal	84	22	87	10	95	19	55	39	411
Information and Communication	61 - Telecommunications	21	11	26	4	23	1	6	7	99
	62 - Computer programming, consultancy and related activities	0	0	0	0	0	0	0	0	0
	63 - Information service activities	8	0	7	0	0	0	0	0	15
	Subtotal	29	11	33	4	23	1	6	7	114
Total		464	96	280	162	446	97	243	222	2,010

Appendix 5 List and description of the 12 key job skills in the Survey

Skill	Definition
General Knowledge	Basic in the field of work
Advanced Knowledge	Including the understanding of theories in the field of work
Specialised Knowledge	As a basis for research in the field of work
Technical	Technical and professional skills including “specific technical know-how to perform their functions”
Literacy (Readivng & Writing)	Reading refers to the skills necessary to understand and apply information in sentences and paragraphs
	Writing refers to the skills necessary to create handwritten or printed text to communicate information and ideas
Computational	Computational skills indicate the necessary skills to understand, understand and apply mathematical concepts and information
Communication	Oral communication skills indicate the necessary skills to share information and ideas with others by speaking, listening, and using nonverbal signals and hints, such as body language
	At work, people use oral communication skills to talk to customers, discuss products with processors, explain work procedures for assistant employees, participate in virtual sales meetings with customers, or other activities that involve verbal exchanges
Teamwork (working with others)	Working with others means the necessary skills to interact with others (one or more people)
	In the workplace, people work with others in binary, small or large groups to coordinate tasks, share resources, plan, make decisions, negotiate, resolve disputes, or complete other activities that involve group work
Creative Thinking	Creative thinking refers to the necessary skills needed to solve problems, make decisions, think critically, plan, remember details, and find information
	At work, people use thinking skills to accomplish tasks, such as solving electronic equipment problems, assessing workplace safety, identifying people to be employed, planning meetings, memorising and remembering passwords, and finding the information needed to assess project costs
Digital Technology	Digital technology refers to the necessary skills needed to understand and use digital systems, tools and digital applications, and digital information processing
	At work, people use the skills of digital technology to access, analyse, organise, find and communicate information and ideas using computers, software, electronic sales equipment (credit card devices), e-mail, podcasts, internet applications, smartphones, and other digital means
Continuous Learning	Continuous learning refers to the necessary skills necessary to continuously develop and improve a person's skills and knowledge for effective action and adaptation to changes
	In the workplace, people use continuous learning skills to identify and develop the knowledge and skills they need to do a good job, build a career, and adapt to changes in processes, technology, instructions, and employer requirements
Foreign Language	Foreign language skills indicate the ability to communicate (oral and written in English, Arabic, or any language other than the person’s native language)

Appendix 6 List of transport and storage-related occupations

Averages of importance and satisfaction across 12 key skills for transport and storage-related occupations found in all the sectors as part of the Enterprise Survey

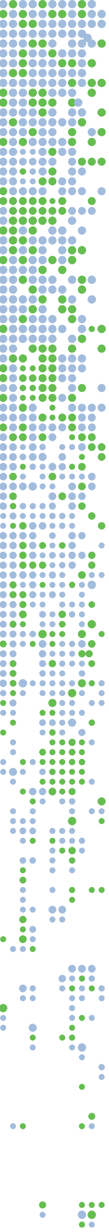
(I=importance, S=satisfaction)

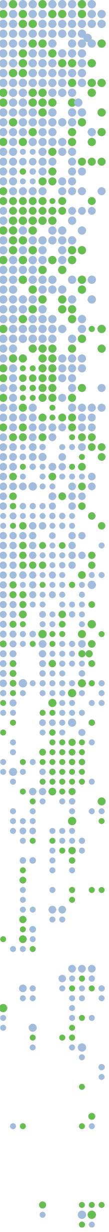
ISCO code	Profession	No. of mployees	Iraqi	Foreign	Advanced Knowledge		Communication		Computational	
					I	S	I	S	I	S
4311	Accounting and bookepeing clerks	17	17	0	3	2.89	2.78	2.89	3	2.89
4311	Accounting and bookeeping clerks (from other sectors)	173	172	1	2.83	2.68	2.79	2.76	2.93	2.82
1219	Business services and administration managers	9	9	0	3	3	3	2.88	2.38	2.38
1219	Business services and administration managers (from other sectors)	71	65	6	2.92	2.96	2.89	2.96	2.79	2.91
8322	Car, taxi and van drivers	496	496	0	1.67	2.3	2.79	2.82	2.33	2.45
8322	Car, taxi and van drivers (from other sectors)	125	125	0	2.22	2.46	2.6	2.57	2.19	2.43
5230	Cashier and ticket clerks	7	7	0	2.83	2.5	3	2.83	3	2.83
5230	Cashier and ticket clerks (from other sectors)	238	226	12	2.77	2.71	2.71	2.73	2.86	2.75
3331	Clearing and forwarding agents	1	1	0	3	3	3	3	3	3
3331	Clearing and forwarding agents (from other sectors)	2	2	0	3	3	3	3	2	2
3322	Commercial sale representatives	27	27	0	2.6	3	3	3	3	3
3322	Commercial sale representatives (from other sectors)	17	17	0	2.75	2.75	3	3	3	3
1211	Corporate service managers	91	87	4	2.93	2.85	2.97	2.93	2.92	2.92
1211	Corporate service managers (from other sectors)	1035	955	80	2.96	2.88	2.94	2.9	2.93	2.87
8343	Crane, hoist and related plant operators	32	31	1	2.43	2.57	2.86	2.86	2.43	2.57
8343	Crane, hoist and related plant operators (from other sectors)	361	359	2	2.12	2.46	2.71	2.63	2.01	2.29
4132	Data entry clerks	3	3	0	2.67	2.67	3	3	3	3
4132	Data entry clerks (from other sectors)	18	18	0	2.83	2.83	2.83	2.83	2.67	2.67
8331	Drivers and plant operators	130	130	0	2.7	2.7	2.9	3	2.3	2.7
8331	Drivers and plant operators (from other sectors)	30	30	0	2.27	2.55	2.09	2.18	2.18	2.18
3113	Electrical engineering technicians	2	2	0	3	2.5	2	2.5	2	2.5
3113	Electrical engineering technicians (from other sectors)	549	535	14	2.78	2.71	2.58	2.51	2.52	2.55
1212	Finance managers	14	14	0	3	3	3	3	2.75	3
1212	Finance managers (from other sectors)	380	367	13	2.94	2.9	2.94	2.9	2.94	2.9
9333	Freight handlers	408	403	5	1.57	2.27	2.61	2.65	2.24	2.37
9333	Freight handlers (from other sectors)	1401	1357	44	1.6	2.26	2.31	2.35	1.84	2.17
9321	Hand packers	40	40	0	1	2	3	2	1	2
9321	Hand packers (from other sectors)	3658	3439	219	1.98	2.49	2.45	2.53	2.03	2.26
8332	Heavy truck and lorry drivers	128	126	2	1.85	2.74	2.85	2.93	2.48	2.67
8332	Heavy truck and lorry drivers (from other sectors)	356	347	9	1.73	2.57	2.79	2.76	2.18	2.52
3115	Mechanical engineering technicians	5	5	0	3	2.67	2.33	2.67	2.33	2.67
3115	Mechanical engineering technicians (from other sectors)	677	631	46	2.89	2.64	2.62	2.61	2.44	2.49
2144	Mechnical engineers	2	2	0	3	3	3	3	3	3
2144	Mechnical engineers (from other sectors)	276	251	25	2.96	2.86	2.79	2.77	2.81	2.76
9621	Messengers, package deliverers and luggage porters	75	75	0	1.4	2.07	2.27	2.33	1.87	2
9621	Messengers, package deliverers and luggage porters (from other sectors)	297	292	5	1.63	2.47	2.35	2.51	2.04	2.41
8321	Motorcycle drivers	20	20	0	1	2	2	2.71	2	2.43

Continuous Learning		Creative Thinking		Digital Technology		Foreign Language		General Knowledge		Reading and Writing		Specialised Knowledge		Teamwork		Technical	
I	S	I	S	I	S	I	S	I	S	I	S	I	S	I	S	I	S
2.78	2.78	2.67	2.44	2.44	2.56	2.33	2.44	3	2.78	3	2.78	3	2.89	2.78	2.78	2.78	2.78
2.59	2.54	2.57	2.49	2.51	2.45	2.02	2.18	2.93	2.79	2.85	2.8	2.74	2.6	2.82	2.79	2.76	2.61
2.88	3	2.88	2.5	2.75	2.62	2.5	2.5	3	3	2.5	2.62	2.88	2.62	3	3	3	2.88
2.89	2.98	2.81	2.92	2.75	2.92	2.74	2.7	2.94	2.98	2.85	2.83	2.87	2.92	2.85	2.92	2.85	2.94
2.06	2.24	1.88	2.3	1.7	2.15	1.91	2.21	2.45	2.58	2.48	2.24	1.58	2.24	2.79	2.67	2	2.39
2.05	2.33	1.92	2.33	1.65	2.22	1.59	2.11	2.86	2.62	2.29	2.44	2.14	2.38	2.75	2.68	2.41	2.37
2.83	2.33	2.67	2.5	2.83	2.67	2.5	2.17	2.83	2.5	2.83	2.83	2.33	2.5	3	2.83	2.83	2.5
2.52	2.67	2.41	2.57	2.49	2.55	2.43	2.44	2.92	2.76	2.82	2.68	2.59	2.61	2.81	2.76	2.75	2.67
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	2	2	2	2	2	3	3	3	3	2	2	3	3	3	3	3	3
2.4	2.6	2.8	2.4	2.8	2.8	2.2	2.2	3	3	3	3	2.4	2.6	3	3	2.8	2.6
2.5	3	3	2.75	3	3	2.75	3	3	2.75	2.75	2.75	3	2.75	2.5	2.5	3	2.5
2.9	2.83	2.83	2.73	2.71	2.69	2.75	2.64	2.95	2.93	2.9	2.9	2.86	2.73	2.97	2.95	2.93	2.83
2.89	2.83	2.87	2.79	2.81	2.75	2.64	2.59	2.98	2.92	2.9	2.87	2.92	2.82	2.93	2.89	2.93	2.88
2.14	2.43	2.14	2.43	2.14	2.57	1.71	2.29	2.86	2.71	2.57	2.57	2.43	2.57	3	2.86	2.71	2.71
1.9	2.13	1.94	2.12	1.7	2.09	1.29	1.98	2.94	2.74	2.16	2.32	1.92	2.36	2.86	2.7	2.72	2.51
2.67	2.67	2.67	2.67	3	2.67	3	2.67	2.67	2.67	3	2.67	2.33	2.67	3	3	2.67	2.67
2.5	2.33	2.67	2.67	2.83	2.67	2.17	2.33	3	3	2.83	2.83	2.83	2.83	2.83	2.83	3	3
2.7	2.7	2.5	2.8	2.2	2.4	2.1	2.5	3	2.9	2.1	2.6	2.6	2.6	2.7	2.9	2.7	2.8
1.82	2.09	1.82	2.09	1.91	2	1.73	2.09	2.82	2.55	2.27	2.45	2.09	2.36	2.27	2	2.45	2.45
3	2.5	3	2.5	2	2.5	2	1.5	3	2.5	3	3	3	2.5	2	2.5	3	2.5
2.76	2.56	2.72	2.53	2.49	2.45	2.22	2.25	2.92	2.76	2.75	2.64	2.8	2.65	2.75	2.61	2.83	2.62
3	3	2.5	2.5	2.5	2.5	2.5	2.5	3	3	2.75	2.75	3	2.75	2.75	3	3	3
2.94	2.85	2.91	2.84	2.9	2.9	2.82	2.78	2.99	2.91	2.82	2.85	2.96	2.88	2.94	2.93	2.93	2.88
2.16	2.27	2	2.24	1.86	2.12	1.73	2.02	2.61	2.49	2.22	2.31	1.49	2.2	2.8	2.73	2.37	2.41
1.72	2.09	1.72	2.09	1.45	2.03	1.29	1.92	2.54	2.44	1.84	2.16	1.54	2.21	2.66	2.46	1.99	2.22
2	2	2	2	1	2	1	2	3	3	2	2	1	2	3	3	2	2
1.83	2.07	1.82	2.09	1.47	2	1.18	1.74	2.82	2.66	2.12	2.25	1.81	2.41	2.7	2.58	2.47	2.44
2.41	2.67	2.26	2.63	2.15	2.44	2.11	2.48	2.89	2.93	2.56	2.67	1.85	2.59	2.96	2.81	2.93	2.81
1.85	2.35	1.83	2.33	1.62	2.29	1.6	2.26	2.9	2.82	2.18	2.51	1.63	2.52	2.84	2.82	2.43	2.6
3	2.67	3	2.67	2.67	2.33	1.67	1.67	3	3	2.67	3	3	2.67	2.33	2.67	3	2.67
2.85	2.61	2.79	2.55	2.42	2.38	2.3	2.22	2.91	2.76	2.61	2.58	2.88	2.6	2.82	2.74	2.89	2.69
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2.91	2.81	2.88	2.74	2.76	2.73	2.58	2.58	3	2.91	2.56	2.72	2.92	2.79	2.83	2.79	2.99	2.85
1.73	2	1.53	2	1.53	2	1.13	1.73	2	2.27	1.8	2	1.4	2.07	2.33	2.27	1.67	2.13
2.12	2.37	2.08	2.33	1.75	2.27	1.9	2.25	2.65	2.71	2.2	2.47	1.57	2.37	2.69	2.61	2.14	2.53
1	2	1	2	1	2	1	2	2	2.29	2	2.14	1	2	1.71	2	1	2

ISCO code	Profession	No. of employees	Iraqi	Foreign	Advanced Knowledge		Communication		Computational	
					I	S	I	S	I	S
8321	Motorcycle drivers (from other sectors)	3	3	0	1	2	3	3	2	2
3131	Power production plant operators	3	3	0	3	3	2.5	2.5	3	2.5
3131	Power production plant operators (from other sectors)	116	116	0	2	2.32	2.6	2.6	1.93	2.22
1420	Retail and wholesale managers	20	18	2	3	2.86	3	2.86	3	2.86
1420	Retail and wholesale managers (from other sectors)	44	40	4	2.88	2.91	2.94	2.91	2.94	2.91
1221	Sales and marketing managers	31	29	2	2.83	2.67	2.92	2.83	3	2.83
1221	Sales and marketing managers (from other sectors)	431	402	29	2.95	2.83	2.97	2.9	2.92	2.84
5242	Sales demonstrators	1	1	0	1	3	3	3	3	3
5242	Sales demonstrators (from other sectors)	14	13	1	2.8	2.6	2.4	2.4	2.6	2.2
5249	Sales workers not elsewhere classified	138	134	4	2.62	2.57	2.9	2.76	2.86	2.81
5249	Sales workers not elsewhere classified (from other sectors)	75	67	8	2	2.14	2.43	2.71	2.29	2.43
5414	Security guards	66	66	0	1.74	2.41	2.65	2.68	1.94	2.38
5414	Security guards (from other sectors)	1309	1288	21	1.77	2.42	2.34	2.43	1.76	2.17
3152	Ship deck officers and pilots	23	23	0	3	3	3	3	3	3
3151	Ship engineers	12	12	0	3	3	3	3	3	3
4321	Stockclerks	22	22	0	1.86	2.21	2.57	2.64	2.64	2.71
4321	Stockclerks (from other sectors)	69	66	3	2.62	2.51	2.59	2.38	2.64	2.38
1324	Supply distribution and related managers	147	138	9	2.95	2.79	2.98	2.89	2.96	2.86
1324	Supply distribution and related managers (from other sectors)	113	102	11	2.9	2.89	2.83	2.87	2.86	2.87
3522	Telecommunication engineering technicians	4	4	0	3	3	3	3	3	3
3522	Telecommunication engineering technicians (from other sectors)	53	53	0	3	2.91	2.91	2.91	2.91	2.91
4323	Transport clerks	101	100	1	2.67	2.79	2.96	2.88	2.83	2.83
4323	Transport clerks (from other sectors)	4	4	0	3	3	2	2	2	3
5112	Transport conductors	14	14	0	2.55	2.73	2.64	3	2.55	2.73
5112	Transport conductors (from other sectors)	2	0	2	3	3	3	3	2	2
9122	Vehicle cleaners	21	20	1	1.82	1.73	2.82	2.82	1.55	2.09
9122	Vehicle cleaners (from other sectors)	278	233	45	1.83	2.56	2.49	2.63	1.95	2.46

Continuous Learning		Creative Thinking		Digital Technology		Foreign Language		General Knowledge		Reading and Writing		Specialised Knowledge		Teamwork		Technical	
I	S	I	S	I	S	I	S	I	S	I	S	I	S	I	S	I	S
2	2.5	1.5	2	1	2	1	2	3	3	2	2	1	2	3	3	3	3
1.5	2	2	2	2.5	3	1.5	2.5	3	2.5	3	3	3	3	2.5	2.5	3	3
1.94	2.21	1.94	2.06	1.78	2.16	1.49	2	2.74	2.51	2.13	2.31	2.01	2.24	2.76	2.57	2.54	2.41
3	2.86	2.86	2.86	2.86	2.86	3	2.86	3	2.86	3	3	2.86	2.86	3	2.86	3	2.86
2.75	2.81	2.91	2.81	2.88	2.84	2.75	2.81	2.91	2.91	2.84	2.94	2.94	2.84	2.97	2.91	2.84	2.81
3	2.75	2.83	2.58	2.83	2.67	2.67	2.58	3	2.75	2.75	2.83	2.83	2.58	3	3	2.83	2.75
2.87	2.84	2.89	2.81	2.75	2.71	2.78	2.68	2.99	2.9	2.83	2.86	2.94	2.8	2.91	2.87	2.92	2.79
2	2	3	3	3	3	2	2	3	3	3	3	1	3	3	3	3	3
2.4	2	2.4	2	1.8	1.6	2.4	1.8	3	2.6	2.6	2.6	2.8	2.4	2.6	2.4	2.8	2.2
2.76	2.57	1.95	2.14	2.05	2.14	2.1	2	3	2.9	2.67	2.71	2	2.38	2.9	2.81	2.76	2.86
2	2	1.57	1.86	1.57	2	2.14	1.86	2.29	2.29	2.57	2.29	2	2.14	3	2.71	2.29	2.14
1.79	2.32	1.71	2.26	1.59	2.18	1.53	2.24	2.41	2.59	2.26	2.35	1.74	2.29	2.76	2.65	1.97	2.41
1.82	2.13	1.82	2.15	1.57	2.08	1.34	1.88	2.69	2.63	2.04	2.23	1.74	2.37	2.54	2.5	2.17	2.38
3	3	3	3	3	3	1.8	3	3	3	3	3	3	3	3	3	3	3
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2	2.29	1.71	2.14	1.86	2.21	1.43	1.93	2.5	2.5	2.43	2.5	1.71	2.14	2.79	2.71	1.93	2.36
2.28	2.15	2.31	2.13	2.21	2.05	1.87	2.08	2.85	2.64	2.67	2.49	2.46	2.38	2.44	2.33	2.46	2.36
2.86	2.68	2.77	2.61	2.85	2.63	2.55	2.34	2.95	2.88	2.89	2.85	2.78	2.61	2.94	2.88	2.96	2.81
2.79	2.84	2.73	2.75	2.48	2.6	2.33	2.48	2.98	2.89	2.59	2.7	2.81	2.86	2.87	2.89	2.83	2.87
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2.27	2.73	2.55	2.73	2.73	2.82	2.64	2.82	3	2.91	3	2.91	3	2.91	2.91	2.91	3	2.91
2.79	2.67	2.54	2.62	2.58	2.75	2.5	2.62	2.96	2.88	2.88	2.79	2.58	2.71	2.96	2.88	2.88	2.75
3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	3	3	3
2.45	2.55	2.09	2.55	1.91	2.27	2.64	2.55	2.82	2.73	2.73	2.82	2.45	2.73	2.73	2.91	2.91	2.82
3	3	3	3	1	2	1	2	3	3	2	2	3	3	3	3	3	3
2.09	2.09	1.36	1.45	1.27	1.73	1.45	1.45	3	2.55	2.55	2.64	1.27	1.36	2.91	2.91	2.64	2.55
2.02	2.41	1.88	2.32	1.71	2.27	1.73	2.1	2.59	2.66	1.98	2.39	1.76	2.54	2.61	2.63	2.29	2.61





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منظمة الأمم المتحدة
للتربية والعلم والثقافة

Reforming Technical and
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