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LABOUR MARKET ASSESSMENT

IDENTIFYING LABOUR MARKET OPPORTUNITIES FOR GREEN AND DIGITAL SKILLS ACROSS TEN SELECTED GOVERNORATES OF IRAQ



TVET Technical and Vocational Education and Training

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Foreword

The contemporary world of work is undergoing a transformation of historic proportions, demographic, technological, environmental and geopolitical, whose effects are reshaping labour markets across virtually every economy. In few countries are the stakes more acutely defined than in Iraq. A young and rapidly expanding population, a private sector poised for diversification beyond hydrocarbon dependence, and a sustained national effort to consolidate the institutions of peace and development together generate an exceptional demand for evidence based and inclusive labour market policy.

It is against this backdrop that the present Labour Market Assessment has been conceived and delivered. The assessment is, by design, a demand side instrument. It foregrounds the perspective of those who generate employment, namely the enterprises that constitute Iraq's private sector, and translates what employers across ten governorates and every major economic sector report about their workforce into a coherent and policy actionable body of evidence. The report does not seek to displace the complementary work of supply side and institutional analyses. It provides, rather, the demand side anchor upon which any credible reform of the skills and employment ecosystem must ultimately rest.

The analytical and normative framework of the report is grounded in two mutually reinforcing international agendas. UNESCO's Strategy for Technical and Vocational Education and Training, together with its flagship vision of Skills for Work and Life, situates relevant, equitable and high quality TVET at the intersection of the right to education and the right to decent work, and elevates the alignment of skills systems with labour market realities to a strategic priority. The Decent Work Agenda of the International Labour Organization, with its four pillars of productive employment, rights at work, social protection and social dialogue, provides the normative compass against which the findings of this report are to be read.

The timing of the assessment is consequential. Federal authorities and the Kurdistan Regional Government are concurrently modernizing employment legislation, recalibrating the architecture of technical and vocational education and training, deepening engagement with the private sector and advancing Iraq's commitments under the 2030 Agenda for Sustainable Development, in particular Sustainable Development Goals 4, 5 and 8. The present report offers an empirically grounded and methodologically transparent contribution to these reform processes. It is intended to inform line ministries, TVET authorities, employers' and workers' organisations and development partners, and above all to serve the women and young people whose aspirations and capabilities will shape the trajectory of Iraq's economic future.

UNESCO records, with appreciation, the contributions of every enterprise that opened its operations to enumeration, of the federal and Kurdistan Region authorities whose stewardship rendered the exercise possible, of the partner institutions and experts whose insight enriched the analysis, of MERIT Vision Pty Ltd, Australia, which designed, developed and maintains the Observatory’s digital platform, and of the donors whose sustained support underwrites the work of the Labour Market Information Observatory. It is the conviction of this Office, and the abiding purpose of the present report, that the evidence assembled here will be taken up, deliberated upon and acted upon, so that skills development in Iraq may be matched to the labour market of today and made equal to the labour market of tomorrow.

Acknowledgements

This Labour Market Assessment was prepared within the framework of the project **"Green and Digital TVET for Enhancing Employability in Iraq,"** implemented by the United Nations Educational, Scientific and Cultural Organization (UNESCO) with the generous financial support of the European Union. The assessment identifies labour market opportunities and demand for green and digital skills across ten selected governorates of Iraq.

UNESCO expresses its sincere appreciation to the Government of Iraq and the Kurdistan Regional Government, particularly the ministries and institutions responsible for education, higher education, labour and social affairs, planning, and official statistics, for their leadership, collaboration and technical support throughout the implementation of this assessment. Special thanks are extended to the Central Statistical Organization (CSO), the Kurdistan Region Statistics Office (KRSO), participating technical universities, vocational education institutions, vocational training centres, employers, and all key informants whose valuable contributions made this assessment possible.

The successful delivery of this assessment was made possible through the leadership of **Alexandros Makarigakis** and the strategic guidance of **Tap Raj Pant**, and the continuous support of **Kar Hung Antony Tam.** The project was managed and coordinated by **Bilal Alhamaydah**, with the dedicated support of **Hayder Alhaboobi** and **Mohammed Al-Zerkani** throughout the planning, implementation, coordination and quality assurance processes.

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Executive Summary

Iraq is among the youngest countries in the Middle East. Its population, above 46 million, carries a median age of around 21 years and a youth bulge that will keep enlarging the working-age population for at least a decade. Yet the labour market that should absorb this generation is narrow. Labour force participation is about 40%, female participation roughly 11%, headline unemployment near 16.5%, and youth unemployment about 36%, with an estimated 37% of young Iraqis not in employment, education or training. The binding constraint is not the production of jobseekers but their absorption into productive and inclusive work. This demand-side Labour Market Assessment, the first comprehensive contribution of the UNESCO-supported Labour Market Information Observatory (LMIO), sets out to hear that absorption problem in the voice of the employers who must solve it, and the picture it returns is one of clear demand interrupted by a set of broken connections that policy can repair.

Headline figures

- 1,969 approved enterprise responses (from 2,066 submitted) across all 10 governorates, equal to 101.9% of the planned target of 1,932
- 78.8% micro-enterprises (1 to 9 staff); 92.3% under 20 staff; 88.2% urban
- 67.0% of firms in at least one digital sector; 37.6% in at least one green sector
- Skills most lacking: digital and ICT 49.3%, soft skills 47.8%, English 42.0%
- Only 15.5% of firms run green initiatives and 27.9% digital initiatives, against far higher demand
- 62.0% of recruitment runs through referrals and social media; formal channels lead for only 3.6%
- Most exposed to unemployment, in employers' view: graduates 59.7% and youth aged 15 to 29 56.1%

The assessment. This report presents the first phase of a demand-side assessment of the Iraqi labour market, built on Tool 1, the Private Sector employer survey, which measures what enterprises need and cannot find. Of 2,066 submissions, 1,969 cleared a two-stage approval workflow built into the Observatory's digital platform, namely a review by the data collector followed by an independent LMIO review, after which each record is locked. These 1,969 approved responses form the analytical base, equal to 101.9% of the planned target of 1,932, with the five largest markets accounting for 84.7% of the sample. The platform that produced these figures is itself the assessment's principal institutional contribution: a single system that hosts the instrument, manages collection and validation, and delivers the analytics in real time.

Who was surveyed. The responding private sector is overwhelmingly small. Micro-enterprises of 1 to 9 staff make up 78.8% of the sample, 92.3% of firms employ fewer than 20 people, and 88.2% are urban. Its orientation toward the new economy is striking: 67.0% operate in at least one digital category and 37.6% in at least one green category, while only 6.6% remain in conventional sectors alone. The leading activities are telecommunications (24.6%), digital marketing (24.1%), e-commerce and fintech (21.8%), software and web development (19.7%) and solar photovoltaic installation (18.1%). The people who completed the survey for their firm were 94.9% men and 5.1% women, an early and direct measure of the under-representation of women in private-sector leadership.

Skills demand and gaps. Asked what they cannot find, employers are consistent. Digital and ICT skills lead the shortages at 49.3%, closely followed by soft skills at 47.8% and English at 42.0%, with technical and green vocational skills (31.6%) and entrepreneurship (26.9%) also widely reported. The co-occurrence of digital and soft-skill gaps is the single clearest finding, and it sits on a foundation more basic than the specialist titles suggest: the most-needed digital skill is not an advanced competency but basic computer literacy, cited by 65.6% of firms. On the green side, demand concentrates almost entirely on energy, with solar installation and

maintenance the most-needed green skill at 25.7%. Even though they did not volunteer soft skills as lacking, 83.8% of employers rate them important or very important.

From skills to occupations and training. This assessment goes beyond skills to the occupations behind them, mapped to the International Standard Classification of Occupations at major-group level, using a simplified, locally grounded scheme suited to Iraqi conditions. Demand spans the entire skills spectrum. The largest single concentration is in ICT professional roles, named as a growth area by 62.6% of enterprises and reaching above the standard vocational ceiling into professional and higher-technical work; green demand, by contrast, is anchored at the trade and technician level and led by solar installation, exactly where vocational training is strongest. The report links each priority occupation to the skills it requires, the gap employers report and its level in the Iraqi Technical and Vocational Qualifications Framework, producing an occupation-to-skills-to-training matrix designed to guide TVET curriculum revision and short-course development directly.

Hiring and the missing bridge to training. If the skills are scarce, the means of matching them to jobs are scarcer still. Recruitment is overwhelmingly informal, with employee referrals (38.3%) and social media (23.7%) together driving 62.0% of all hiring, while formal intermediation through career centers, job fairs and public services is the main route for only 3.6% of firms. A young person without the right contacts has almost no institutional route into the private sector. Confidence in formal training is correspondingly thin: 51.7% of employers consider that technical and vocational education prepares graduates for work fully or somewhat, against 44.8% who say not much or not at all. Among the 288 firms reporting difficulty filling green and digital posts, the leading reasons are a skills mismatch with labour-market needs (35.1%), a shortage of digital skills (31.6%) and too few suitable applicants (30.2%).

Business environment and the central paradox. Demand for green and digital capability is high, yet firm-level adoption is low. Only 15.5% of enterprises run green or renewable initiatives and only 27.9% run digital ones, even though two thirds of the sample are digitally oriented. The barriers are practical: 52.5% of firms cite the high cost of investment and 44.1% a lack of technical expertise, so the shortage of expertise links the adoption gap back to the skills gap. Digital maturity is uneven (33.4% high, 54.7% moderate, 10.2% low), and the outlook is sober, with only 10.2% of employers rating current opportunities good or very good against 33.9% rating them bad or very poor, though 41.4% report opportunities have improved over three years.

A diverse local picture. Iraq is not one labour market but ten, and the contrasts matter for design. Digital orientation peaks in Basra at 86.7%, while green orientation is highest in Salah al-Din at 66.7%, and employer confidence in vocational training ranges from 80.0% in Sulaymaniyah to 20.0% in Al-Qadisiyyah. One finding holds everywhere: the youth and graduate employment challenge is reported at high levels in every governorate. Asked in their own words what is most needed, employers named training and skills development (around 22%) and government support and incentives (around 20%), followed by stronger links between education and the labour market.

What this means. The evidence is coherent from end to end. A young workforce meets a private sector that leans green and digital but cannot fully absorb it, and the connection between the two fails at three points: the skills young people hold, the firms able to employ them, and the channels meant to bring them together. Firms know what they need at the foundation, namely digital and soft skills with an English and entrepreneurship layer above and a renewable-energy specialism where green enterprise is densest. Skills supply, firm capacity and intermediation are failing in concert, and none can be moved in isolation.

Recommendations. The assessment proposes coordinated action across five fronts. On skills, build a combined digital-and-soft-skills foundation for all, establish a renewable-energy specialism in solar and energy efficiency, strengthen English and entrepreneurship, embed work-

based learning in every qualification, and institutionalize a recurring employer-TVET feedback mechanism. On policy, pair skills investment with firm-level support, namely a Digital Readiness Fund and tailored Green Economy Adoption Packages, so firms can absorb the skills produced; modernize and connect public placement services; and align regulation with the green and digital transition. On employment, priorities the school-to-work transition for youth and graduates through structured pathways and employer-education partnerships, and direct job-creation support to the digital and renewable-energy clusters. Across all of these, embed gender inclusion, reach people with disabilities and displaced populations deliberately, and manage the two transitions as one inclusive agenda. Crucially, these national actions are designed to be delivered governorate by governorate, through 10 locally tailored plans rather than a single template.

The way forward. This assessment measures demand; it is the first phase of a larger evidence base, not a conclusion in itself. The next phase is planned around two further instruments, one addressing the skills-supply side through TVET and education providers, the other the experience of job seekers, governed in partnership with the responsible ministries. The platform that delivered this survey is ready to receive both. Only when demand, supply and the experience of job seekers are read together will Iraq hold a labour-market evidence base equal to the scale of its young population and the ambition of its green and digital future.

This assessment reads the labour market from both sides. The demand side is measured directly through the enterprise survey of 1,969 employers. The supply side is established through structured consultations with the six public institutions responsible for technical and vocational education and training across the three federal ministries and the Kurdistan Region. Read together, the two sides converge on one finding: the occupations employers most demand are precisely those the training system reports it cannot yet supply. Software and web development is the strongest digital growth signal (named as growing by 38.9% of firms), yet five of six institutions report it is not covered by current curricula; solar photovoltaic installation is the leading green skill in demand (25.7%), yet it is absent from most programs. The gap is therefore not only quantitative but institutional, and it is set out in full in the supply-and-demand triangulation in Section N.

A. Introduction

A.1 Background and Rationale

Iraq's labour market today is the product of more than two decades of accumulated structural shocks and partial recoveries. Any contemporary assessment of how skills are produced, demanded and rewarded in the country must therefore be read against three successive inflection points: the post 2003 reconfiguration of the state and the economy, the post 2014 conflict and displacement crisis precipitated by the rise of Da'esh, and the cascading shocks of the period from 2020 onwards.

The post 2003 transition narrowed Iraq's productive base. The contraction of state-owned enterprises and of formal industry, combined with the departure of significant numbers of skilled professionals, concentrated employment in a comparatively small and oil financed public sector. Private sector activity, where it expanded, did so largely within informal arrangements, with limited investment in skills and a constrained capacity to absorb successive cohorts of young Iraqis entering the labour market. The TVET system, already weakened by years of sanctions, was left without the institutional partnerships and curricular renewal necessary to reposition itself for a transformed economy.

The crisis of 2014 deepened these legacies. The occupation of substantial parts of Nineveh, Anbar, Salah al Din and Kirkuk by Da'esh, the destruction of industrial, agricultural and service infrastructure, and the displacement of millions of Iraqis generated dislocations whose effects continue to be absorbed. Reconstruction has placed extraordinary demands on construction, engineering, health and public administration skills, while pathways back into productive employment for internally displaced people and returnees remain uneven.

The period since 2020 has added shocks to a different character. The COVID 19 pandemic exposed the fragility of informal employment. The simultaneous collapse in oil prices renewed the urgency of diversification beyond hydrocarbons. The protest movement of October 2019 articulated a clear public demand for decent work and meaningful opportunity for young people. Climate pressures, including drought and the salinization of agricultural land, have begun to redraw the geography of rural employment, while the diffusion of digital technologies is reshaping both the content of work and the skills required to perform it.

It is in this context that a demand side Labour Market Assessment is not merely useful but necessary. Existing labour market intelligence in Iraq has been predominantly supplying side in character. Important as such sources are, they cannot, on their own, identify the occupations that enterprises are seeking to fill, the skills that employers find missing, or the sectoral and geographic patterns of growth and contraction that must inform policy and programming.

The present assessment responds to that gap. It is delivered within the institutional framework of the Labour Market Information Observatory, established under the leadership of UNESCO Iraq as a permanent national mechanism for the collection, analysis and dissemination of labour market intelligence. The Observatory's mandate is to provide federal and Kurdistan Region authorities, TVET institutions, employers' and workers' organisations and development partners with continuously updated evidence base capable of informing policy, programming and investment. The data and recommendations advanced in the chapters that follow constitute its first comprehensive demand side contribution to that mandate. While this report measures labour demand directly, it also draws on the supply-side testimony of the training institutions responsible, so that demand and the system's current capacity to meet it are read together rather than in isolation.

A.2 Purpose and Objectives of the Assessment

The overarching purpose of this Labour Market Assessment is to generate a robust, employer informed and policy actionable evidence base on the demand side of Iraq's labour market, capable of guiding skills development, employment policy and private sector engagement at both federal and Kurdistan Region levels. By placing the voice of Iraqi employers at the center of the analysis, the assessment aims to close a long standing intelligence gap and to provide UNESCO, government counterparts, development partners and the wider stakeholder community with a common reference point for the alignment of skills supply with labour market reality.

In pursuit of this purpose, the assessment is structured around six interrelated objectives.

Objective 1. To map private sector employment across Iraq.

Document the volume, composition and distribution of employment generated by Iraqi enterprises, disaggregated by sector and sub sector, by enterprise size, by formality status and by governorate, and so to produce the first integrated demand side portrait of private sector employment across the ten governorates surveyed.

Objective 2. To identify and characterize skills demand and skills gaps.

Establish, on the basis of direct employer reporting, the occupations currently in demand, the technical and transferable skills required to perform them, the gaps between the skills available and the skills sought, and the occupations that employers find hardest to fill.

Objective 3. To profile sectoral and sub sectoral demand and outlook.

Provide a structured analysis of employment, skills requirements, hiring practices and growth prospects across all major sectors of the Iraqi economy, with deeper analytical treatment of priority sectors identified as strategic for diversification, job creation and the absorption of new entrants to the labour force.

Objective 4. To generate cross cutting evidence on inclusion and transition.

Surface, in a disaggregated and policy useful form, the demand side evidence relevant to gender equality, youth employment, the inclusion of internally displaced persons, returnees, refugees and persons with disabilities, the green transition and the digital transformation of work.

Objective 5. To inform TVET reform, employment policy and the sustained operation of the Labour Market Information Observatory.

Translate the evidence assembled by the assessment into actionable recommendations for the alignment of TVET provision with employer demand, the strengthening of active labour market measures, and the institutional consolidation of the Observatory as a permanent national platform for labour market intelligence.

Objective 6. To assess the absorption capacity of the TVET system.

Determine whether the responsible training institutions have the trainers, infrastructure and equipment, curriculum-update mechanisms and partnerships needed to respond to the demand this assessment identifies, drawing on structured consultations with the responsible TVET institutions and analyzed in full in Section N.

Taken together, these objectives are intended to ensure that the assessment serves both an immediate analytical function and a longer term institutional one: that it informs the decisions that must be taken now, while contributing to the standing capacity of Iraq to generate, interpret and act upon labour market evidence on a continuing basis.

A.3 Scope of the Assessment

The scope of the present assessment is defined along five dimensions, each of which has been deliberately set in order to maximize analytical depth without overreaching the evidentiary base that primary data collection can sustainably produce.

The assessment is, in the first instance, a demand side exercise. It examines the labour market primarily through the lens of those who create employment, and complements this with the supply-side perspective of the responsible training institutions. The primary demand-side data originates with employers; the supply side is captured through six structured key-informant interviews with the responsible TVET institutions. The perspectives of individual jobseekers and workers are recognized throughout as essential counterpoints and are reserved for the next phase.

Within that demand side framing, the assessment focuses on the private sector. Public sector employment, while substantial in Iraq, lies outside the perimeter of the exercise, and is treated only insofar as is necessary to situate the private sector within the wider labour market.

Geographically, the assessment covers ten governorates selected to capture the diversity of Iraq's economic, demographic and institutional landscape, spanning both federal Iraq and the Kurdistan Region. Each surveyed governorate is treated as an analytical unit in its own right, with sample sizes calibrated to permit meaningful disaggregation and to support the dedicated governorate profiles.

Sectoral, the assessment is comprehensive in coverage and selective in depth. Every major sector of the Iraqi economy is included in the sample and in the cross-sector synthesis, while a smaller number of priority sectors, identified as strategically significant for diversification, decent work creation and the absorption of young entrants to the labour force, are the subject of dedicated deep dives.

The scope covers both sides of the market. On the demand side it captures the skills and occupations sought by 1,969 enterprises. On the supply side it captures how the responsible TVET institutions assess their own capacity to deliver those skills. A full quantitative supply measurement at the level of individual jobseekers and graduates is reserved for the next phase (Tools 1.4 and 1.5).

A.4 Intended Users of the Report

The report has been designed to serve a layered readership, with the level of detail, the disaggregation of findings and the structure of recommendations calibrated to the needs of several distinct constituencies.

Its primary audience comprises UNESCO Headquarters and the donor partners whose support underwrites the work of the Labour Market Information Observatory. For this readership, the report seeks to provide a methodologically transparent and substantively rigorous account of the state of demand within Iraq's private sector, capable of informing strategic decisions on programming, partnerships and investment.

The report is, in equal measure, intended for federal and Kurdistan Region authorities, including in particular the ministries responsible for labour and social affairs, education and higher education, planning, and the relevant sectoral ministries. The structure of the recommendations has been organized so as to support the translation of evidence into policy across the institutional architecture of both administrations.

A third readership comprises the technical and vocational education and training system, including governing bodies, training providers and accreditation institutions, for which the assessment offers a structured account of the occupations, skills and competencies that employers are seeking, and of the gaps that current provision does not fully address.

Employers' federations and chambers of commerce, workers' organisations and civil society partners constitute a further constituency. For these stakeholders, the assessment is intended to inform advocacy, dialogue and collective action on the conditions necessary for an inclusive and productive private sector.

Finally, the report is offered to the research and academic community in Iraq and beyond, as a contribution to the longer-term body of empirical knowledge on the country's labour market, and as a foundation upon which subsequent inquiry, including dedicated supply side and institutional studies, can be constructively built.

B. Conceptual and Methodological Framework

The credibility of a labour market assessment rests as much upon the transparency of its method as upon the substance of its findings. The present section therefore sets out, before any evidence is advanced, both the conceptual lens through which Iraq's private sector is read and the procedures by which the underlying data have been collected, cleaned and analysed. The conceptual anchors are drawn from UNESCO's Strategy for Technical and Vocational Education and Training and its vision of Skills for Work and Life, and from the Decent Work Agenda of the International Labour Organization, two frameworks that together define what relevant, equitable and productive employment is understood to mean. The methodological account that follows is offered in the same spirit, namely, to allow UNESCO Headquarters, donor partners and national counterparts to weigh the evidence presented in this report against the rigour of the process by which it was produced.

B.1 The UNESCO LMA Digital Platform

A defining feature of the present assessment, and arguably its most consequential institutional contribution, is the digital platform on which the entire Labour Market Information Observatory operates. Available at unesco.meritvision.com.au, the platform is a purpose-built, multi-role, web-based system that hosts the survey instruments, manages the workflow of data collection and validation, stores the consolidated dataset, and delivers the analytical visualizations consumed by UNESCO, government counterparts, donors and partner institutions. The platform was designed, developed and is maintained by MERIT Vision Pty Ltd, an Australian technology company. The platform is not an auxiliary support to the methodology; it is the methodology, instantiated digitally.

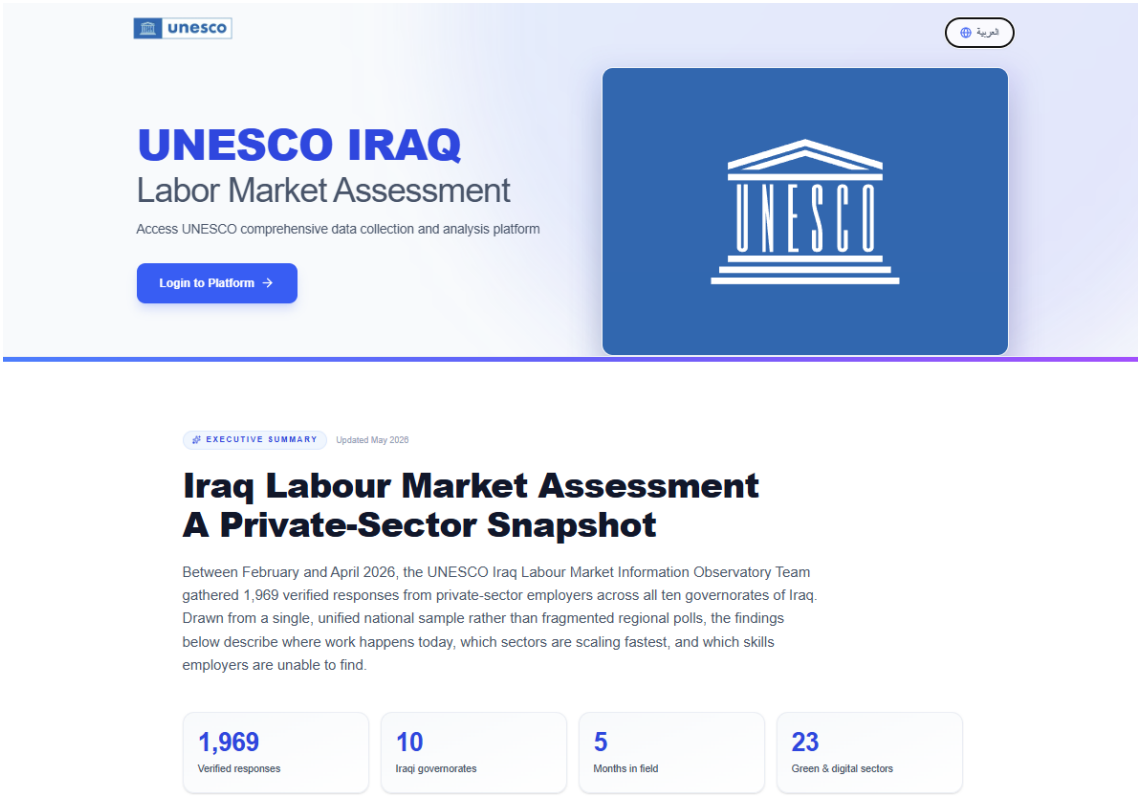


Figure 1 Screenshot of the UNESCO LMA platform landing page at unesco.meritvision.com.au

B.1.1 Purpose, Strategic Rationale and Origin

The platform was conceived as the digital backbone of UNESCO Iraq's Labour Market Information Observatory and, more broadly, as an organisational digitalization initiative intended to replace the dispersed, partially manual workflows on which earlier assessments had relied. Successive labour market exercises in Iraq had depended on a combination of paper instruments, ad hoc spreadsheets and stand-alone survey tools, with limited interoperability and no single source of truth. The present platform was developed by MERIT to consolidate these workflows into one integrated environment, in which the design of the instrument, the collection of responses, the multi-stage approval of records, the cleaning of the dataset, the production of analytics and the publication of results are managed as one continuous process.

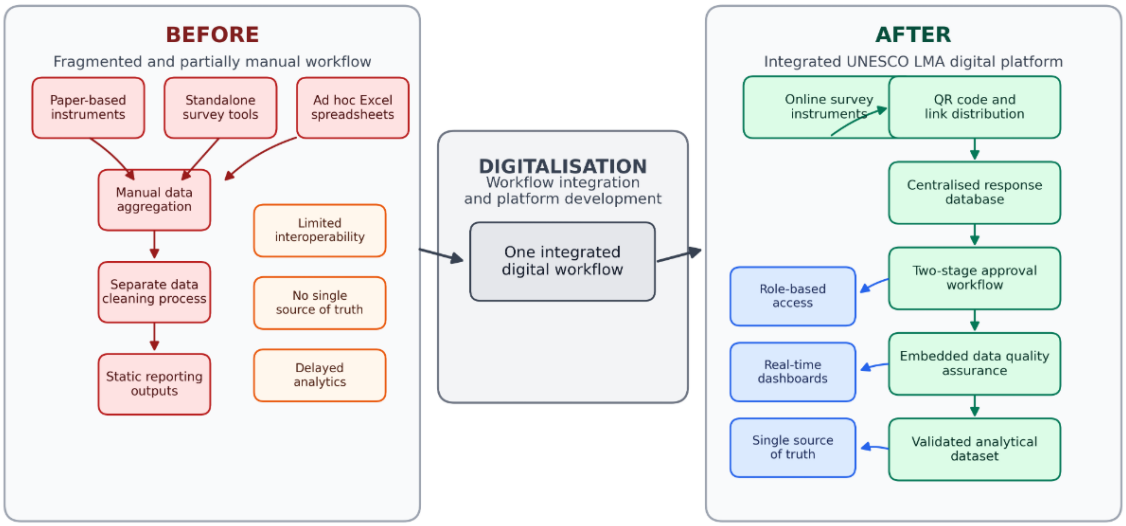


Figure 2 From Fragmented LMA Workflow to Integrated UNESCO LMA Digital Platform

Its strategic objectives are explicit.

- First, support government with a hosted digital infrastructure for labour market intelligence, capable of supporting successive cycles of assessment without being rebuilt from scratch each time.
- Second, to embed data quality assurance into the system itself, rather than leaving it as a post-hoc activity.
- Third, to make evidence accessible to the actors who need it, through role-based dashboards calibrated to the responsibilities of each user group. Fourth, to contribute to the wider digital transformation agenda set out in the National Development Plan 2024-2028 by demonstrating, at the level of one government-adjacent institution, what a modern, evidence-driven labour market information system in Iraq can look like.

B.1.2 Platform Architecture and Quality Assurance Features

The platform is built on a role-based access model. Distinct dashboards have been provisioned for the administrator function, for the Labour Market Information Observatory Team Leader and Team Members, for governorate-level focal points, for donor stakeholders, and for the school and university representatives whose institutions are engaged in subsequent cycles of assessment. Each role sees only the data, controls and analytics relevant to its mandate, with the result that the same underlying dataset is exposed differently to a Ministry counterpart, a UNESCO program officer, a donor reviewer and an enumerator in the field.

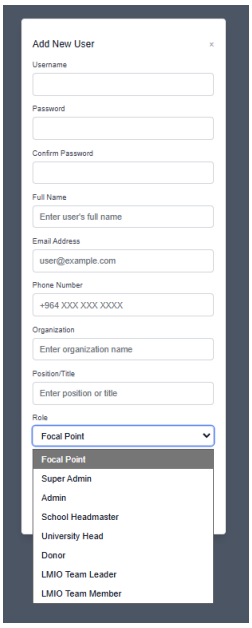


Figure 3 Role-based access architecture

The instrument itself is distributed through a QR code, a direct link and other outreach channels coordinated at governorate level. Respondents complete and submit the questionnaire online through the platform. The submitted record then enters a 2-stage approval workflow that is built directly into the platform: the data collector reviews and approves or rejects the response in the first stage, and an LMIO team member review and approves or rejects it in the second. A record progresses to the analytical dataset only once both approvals have been registered, after which it is locked. At any point during the workflow either reviewer may reject a response, in which case the record does not enter aggregation.

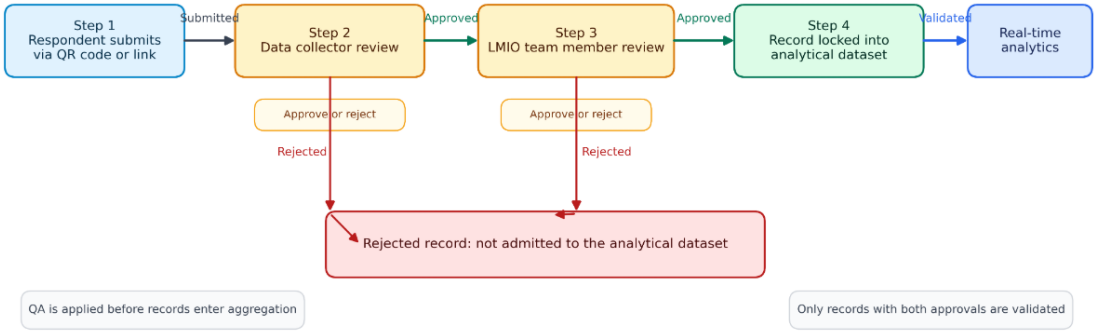


Figure 4 Two-stage approval workflow

Data quality is therefore not an external audit applied to the dataset after the fact; it is a property of the system itself. Every record carries an auditable trail showing who submitted it, who approved or rejected it at each stage, and when each action was taken. This continuous record-level quality signal is used by the Observatory to identify training needs, to flag governorates or collectors requiring closer support, and to manage replacement of records that fail validation.

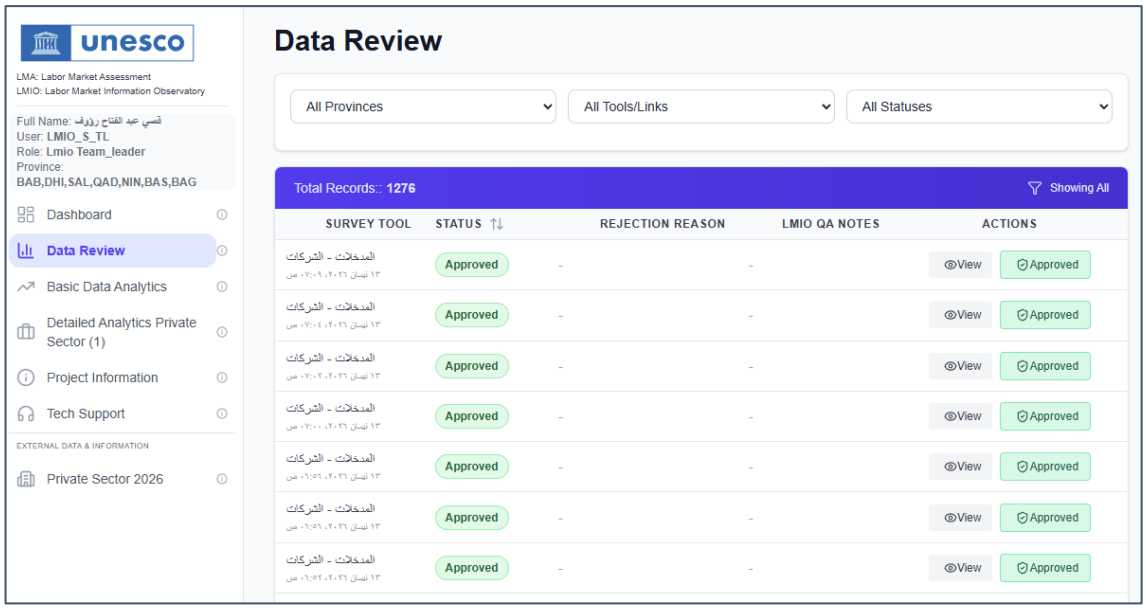


Figure 5 Screenshot of the LMIO record-approval interface, showing a queue of submitted records with status

The analytical layer of the platform converts the validated dataset into interactive visualizations available in real time to authorized users. Province-level dashboards, sectoral analytics, cross-cutting views on gender, youth, vulnerable groups, green jobs and digital transformation, and an administrative data-quality view are made directly accessible, replacing the static reporting cycles characteristic of earlier assessments. The platform is hosted on secure infrastructure, accessible through any standards-compliant web browser, and designed to scale to future cycles of Tool 1 and to the additional survey instruments (Tool 1.4, and Tool 1.5) that the Observatory plans to deploy in subsequent phases.

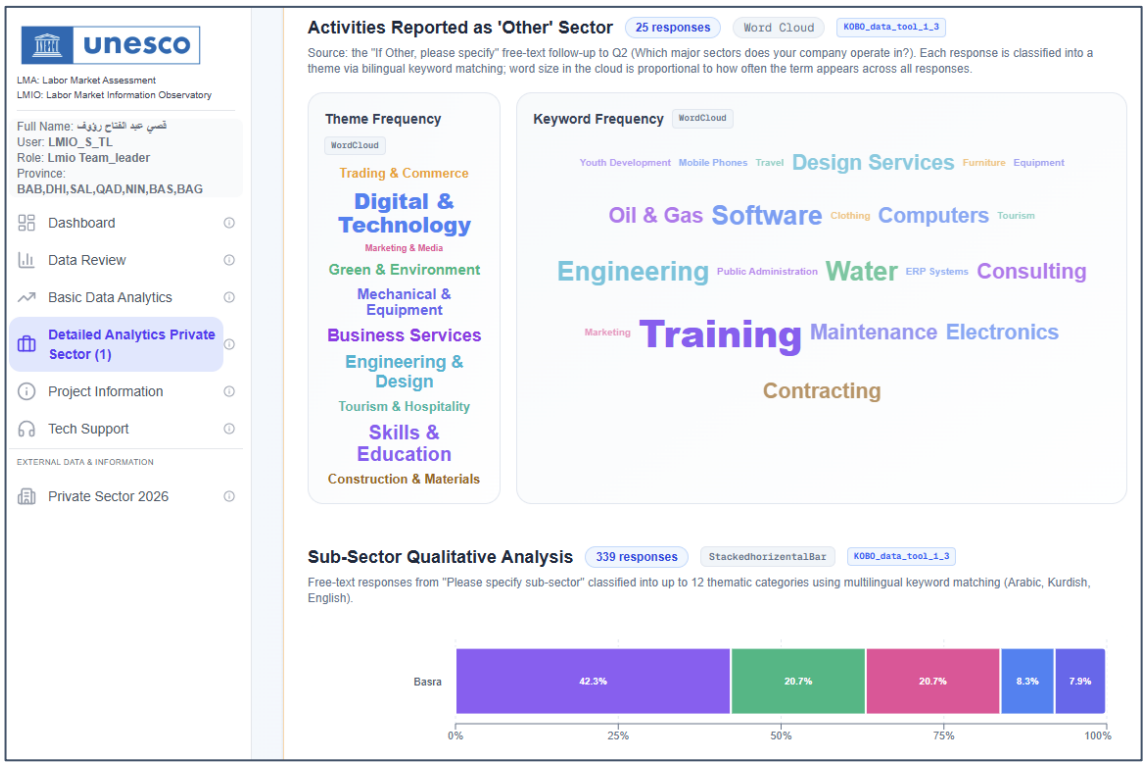


Figure 6 Screenshot of a province-level analytics dashboard, showing the key KPIs for one selected governorate.

B.2 The Design

The research design adopted for the assessment was selected to match the analytical purpose set out in Section A.2. The design is mixed methods, predominantly quantitative, cross sectional in time, and stratified by governorate. Each of these features was a deliberate choice, and each carries implications for how the findings of the report should be read.

The assessment is built on a quantitative core. The principal instrument is a structured survey administered to a moderate sample of private sector enterprises across the ten governorates covered, the design of which is described in below sections. The survey is intended to produce numerical evidence that can be aggregated, disaggregated and compared. It generates the volumes, distributions, rates and shares that underpin the analytical sections of the report and provides the empirical base against which the priority sector deep dives and governorate profiles are written. The quantitative core was selected because the central questions of the assessment, namely how many enterprises hire whom, in what occupations, with what skills, and under what conditions, can only be answered at scale through structured measurement.

The quantitative core is complemented by a qualitative layer that serves two roles. First, it carries the assessment's supply side evidence: structured key informant interviews with the responsible TVET institutions, which provide a first-hand account of the training system's capacity to meet the demand the survey measures, and which are triangulated against the survey findings in Section N. Second, validation exchanges with sectoral and institutional stakeholders and structured interpretation sessions with members of the Labour Market Information Observatory team have been used throughout the analytical phase to test, contextualize and enrich those findings. This qualitative layer is not a substitute for the full quantitative measurement of supply at the level of individual jobseekers and graduates, which is reserved for the next phase. It ensures, rather, that the patterns observed in the data are read against the training system's own account of its capacity and with an informed understanding of the Iraqi context, so that the recommendations advanced below reflect the realities of policy and practice on the ground.

The design is cross sectional in time. The survey captures a single, structured snapshot of demand side conditions over the data reference period defined. This choice reflects both the operational realities of a first comprehensive assessment and the analytical priority of breadth over longitudinal depth. The report is therefore best read as a baseline. It establishes the demand side picture against which future cycles of assessment, conducted under the standing mandate of the Labour Market Information Observatory, can measure change over time.

The design is stratified by governorate. Each of the ten governorates surveyed is treated as an analytical unit in its own right, with sample sizes calculated to support meaningful disaggregation. This stratification ensures that the assessment is not limited to a single national average that would obscure the substantial economic, demographic and institutional differences between Iraq's governorates, and between federal Iraq and the Kurdistan Region. It is the structural condition that makes the dedicated governorate profiles in Section M possible, and it underpins the geographic comparisons developed.

Taken together, these design choices are intended to produce evidence that is broad enough to be representative, granular enough to be actionable, and rigorous enough to be defended before national authorities, UNESCO Headquarters and the wider community of partners that will use the report.

B.3 Data Collection Instrument: Tool #1 (Private Sector Survey)

The principal data collection instrument of the assessment is the Private Sector Survey, known within the Labour Market Information Observatory as Tool 1. The instrument was designed specifically for the demand side mandate of the Observatory and is intended to capture, in a structured and comparable form, the information that Iraqi enterprises hold about their workforce, their skills requirements, their hiring practices and their forward outlook.

The instrument is organized in modules. Each module corresponds to a defined area of inquiry and contributes to one or more of the analytical sections of the report. The first module records the profile of the enterprise, including its sector, sub sector, size, age, ownership structure, formality status and location. The second module captures the structure of current employment, with disaggregation by occupation, contractual arrangement, gender, age band, nationality and group of attention such as internally displaced persons, returnees, refugees and persons with disabilities. The third module addresses skills demand and skills gaps, distinguishing between technical and transferable competencies and recording the occupations that employers find hardest to fill. The fourth module examines hiring practices and the linkages between enterprises and the TVET and higher education systems, including engagement with work-based learning and apprenticeships. The fifth module records the business environment in which enterprises operate, the main constraints they face, and their anticipated hiring intentions over the next one to three years. A final set of cross cutting modules captures employer reporting on gender, youth, the inclusion of vulnerable groups, the green transition and the digital transformation of work.

The questions in each module combine closed format items, scaled judgements and a small number of structured open responses. Closed and scaled items predominate. They allow the data to be aggregated, compared across governorates and sectors. The open responses are used selectively, to capture nuances that the closed items cannot represent, and are coded against a structured framework before analysis.

The instrument was developed in English, translated into Arabic, and back translated to confirm the accuracy and equivalence of meaning across languages. The translations were reviewed by Arabic speaking subject matter experts and were tested with enumerators during the initial workshops and fieldwork training to confirm that they were understood as intended by respondents in different parts of the country.

A typical interview was designed to be completed within a manageable timeframe for a senior representative of the enterprise, most often the owner, the general manager, or the human resources manager. Care was taken in the sequencing of modules to maintain the engagement of respondents and to position the most demanding questions, particularly those concerning future hiring intentions and skills gaps, after respondents had become familiar with the framing of the instrument.

The instrument was pre-tested before full deployment. A pilot was conducted with a small number of enterprises across different sectors, sizes and governorates. The pilot served to verify that the question wording was clear, that the routing performed as intended, that the response options exhausted the realistic range of replies, and that the overall length of the interview was acceptable to respondents. The instrument was then refined on the basis of the pilot findings.

The data collected through the instrument provides the empirical foundation of every analytical section of this report. Its design therefore reflects not only the operational needs of fieldwork, but the analytical and institutional purposes for which the assessment was commissioned.

The demand side instrument (Tool #1, the private sector survey) is complemented by a supply side instrument: a structured key-informant interview applied to the responsible TVET institutions. It pairs open questions with a 23-item schedule, six items rated on a five-point

scale, covering trainer capacity, infrastructure and equipment, curriculum currency, ISCO and TVQF alignment, and financing and partnerships. This design lets the demand and supply evidence be triangulated (Section N).

B.4 Sampling Strategy and Geographic Coverage

The sampling strategy was designed to reconcile two requirements: a sample large enough to support meaningful disaggregation at sector and governorate level, and a fieldwork operation realistic for 10 governorates of varying size and accessibility. The strategy adopted by the Labour Market Information Observatory represents the calibration of those requirements that the assessment judged to be analytically robust and operationally achievable.

Constructing a defensible enterprise frame in the absence of authoritative registers. The sampling frame was one of the more demanding methodological tasks of the assessment. UNESCO was not able to obtain a reliable official source of data on the registration of companies in Iraq. Official project letters addressed to the Company Registrar requesting population level data did not produce a usable response. The Chamber of Commerce was approached as an alternative source, but the list provided for the entire governorate of Erbil contained only 22 entries, an outcome that illustrated in concrete terms the severity of the data accessibility gap. In these circumstances, dynamic estimation based on artificial intelligence assisted online searches and secondary data aggregation became the most defensible methodology available. It is presented not as a preferred approach, but as the response of the Observatory to the absence of authoritative enterprise statistics.

Province level population estimation and the ~15,000 enterprise figure. For each of the 10 governorates, the Observatory generated a specific province estimate of the number of enterprises operating in the segments relevant to the present cycle, including the green and digital economy. Aggregated across the 10 governorates, these province level estimates produced a national figure of approximately 15,000 enterprises. The 15,000 figure is the population denominator against which all sample targets in this assessment were calculated and is the single most consequential statistical input to the design.

Given that the figure originates from an AI assisted estimation rather than from an official register, the Observatory subjected it to two independent validation checks. First, the 15,000 estimate was cross referenced against an internally maintained dataset of approximately 12,000 company records held by the Observatory as a secondary source. Second, field spot checks were conducted against pre-existing company lists, including verification of phone numbers. A notable proportion of entries on static historical lists were found to be no longer valid, with closed businesses, taxi numbers and disconnected lines among the most frequent issues encountered. The spot checks confirmed both the unreliability of archived listings and the value of a dynamic estimation procedure capable of reflecting the present state of the enterprise population.

Governorate	Target sample
Baghdad	355
Erbil	337
Basra	329
Ninewa	306
Sulaymaniyah	306
Duhok	63
Babil	59
Salah al-Din	59
Al-Qadisiyyah	59
Dhi Qar	59
Total	1,932

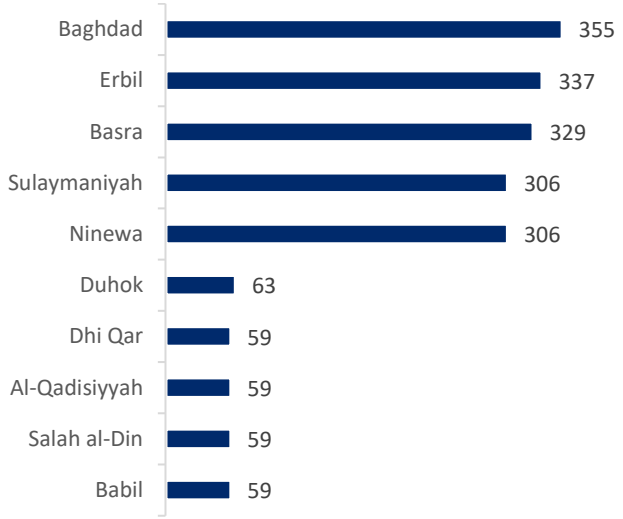


Figure 7 sample targets by governorate, ranked from highest to lowest, with the national total of 1,932 indicated

Stratification, selection and weighting. Within each governorate, the sample was further stratified by economic sector and by enterprise size. Sectors were coded using a scheme aligned with international classifications and adapted to the Iraqi economy. Enterprises were classified as micro, small, medium or large on the basis of employment headcount, following the thresholds in use by national authorities (micro: 1–4; small: 5–29; medium: 30–99; large: 100+ employees, to be confirmed against the final coding manual). Selection within strata was probabilistic.

Statistically, the design holds the 2 inferential parameters constant across all 10 governorates: a margin of error of 5% and a confidence level of 90%. Under these parameters, each province level estimate produced by the survey carries, in expectation, a confidence interval of plus or minus 5 percentage points 9 times out of 10. Because the population denominator differs across governorates, the absolute sample target required to meet those parameters also differs, which is the reason the targets in the table above range from 59 to 355.

Replacement protocols within the same stratum were applied where target enterprises declined to participate or could not be located, so that the structure of the design was preserved. Where the achieved sample diverges from the target distribution in ways that could distort aggregate findings, post stratification weights have been applied, with weights derived from the structure of the sampling frame within each governorate, sector and size category.

B.5 Fieldwork and Data Quality Assurance

Data collection was carried out by enumerators who are government employees nominated by the responsible authorities in each of the 10 governorates. Recruitment through the public administration provided enumerators with a direct working knowledge of their local enterprise landscape and an institutional foothold for engagement with employers. All nominated enumerators completed a structured training program covering the conceptual framework of the assessment, the content and routing of the Tool 1 instrument, ethical conduct and informed consent, and the practical management of interviews with senior representatives of private sector enterprises. Training included supervised practice interviews and a competency check before deployment. Fieldwork was overseen by governorate level supervisors responsible for daily progress monitoring, operational issue resolution and direct quality oversight of their teams.

B.5.1 Multi-stage approval workflow built into the platform

Once a respondent submits a complete questionnaire, the record enters a 2-stage approval workflow built directly into the platform. In the first stage, the data collector reviews the submitted response and approves it, confirming that the entry is complete, coherent and consistent with the profile of the respondent enterprise. In the second stage, a Labour Market Information Observatory team member reviews the same record and approves it. Once both approvals have been registered, the record is locked and admitted to the analytical dataset. At either stage, the reviewer may reject the response, in which case the record does not progress and is excluded from the figures reported in this study.

The benefits of this approach are several. It introduces 2 independent layers of review on every record, before any aggregation takes place. It separates the function of data collection from the function of validation, in line with international good practice on internal control. It generates a continuous, record-level quality signal that the Observatory uses to identify training needs, to flag governorates or collectors requiring closer support, and to manage rejection and replacement of records that fail validation.

Training was provided to data collectors and to Observatory reviewers before deployment, covering the conceptual framework of the assessment, the content and routing of the Tool 1 instrument, the use of the platform, ethical conduct and informed consent, and the criteria to be applied at each approval stage. Centralized data cleaning runs alongside the in-platform approval process, with logical inconsistencies, out of range values and incomplete records flagged, reviewed and corrected or removed in line with a documented cleaning protocol.

B.6 Data Analysis Approach

The analytical approach adopted for the assessment is descriptive in character. Its purpose is to present the demand side conditions of Iraq's private sector in a form that is accurate, comparable and directly usable by policy makers, training authorities and development partners. Inferential techniques have been used selectively, where they add meaningful interpretive value, but the analytical core of the report rests on careful description and disaggregation rather than on statistical modelling.

The disaggregation logic applied throughout the analysis is consistent. Findings are systematically broken down by governorate, by sector and sub sector, and by enterprise size. Where the relevant data permit, they are further disaggregated by gender, by age band, by formality status and by membership of groups of attention, including internally displaced people, returnees, refugees and people with disabilities. This standardized disaggregation logic ensures comparability across the analytical sections of the report and provides the structural basis for the dedicated governorate profiles in Section M and the sectoral deep dives in Section K.

Quantitative findings are triangulated with secondary sources at every stage. Macro-economic indicators from the Central Statistical Organisation, the Kurdistan Region Statistics Office, the International Labour Organization, the World Bank and the relevant United Nations agencies have been used to contextualize the primary data and to test the plausibility of patterns observed in the sample. Policy and institutional documentation, including national plans, strategies and legislation, has been used to situate the findings within Iraq's reform agenda.

Analysis was conducted in established statistical and data management software, with intermediate outputs reviewed by the Observatory team before incorporation into the report.

B.7 Ethical Considerations

The assessment was conducted in accordance with the ethical standards expected of work carried out under UNESCO's auspices. Participation in the survey was voluntary. At the outset of every interview, enumerators read a standardized consent statement explaining the purpose of the assessment, the institutional sponsorship of the Labour Market Information Observatory, the use to which the data would be put, the voluntary nature of participation, the respondent's right to decline any question or to terminate the interview at any point, and the measures in place to protect the confidentiality of responses. Interviews proceeded only once informed consent was given and recorded.

Confidentiality was treated as binding. Responses are reported in aggregated and anonymized form throughout the report. No enterprise and individuals requested to be identified by name, and no combination of attributes is presented at a level of disaggregation that would permit the identification of an individual respondent.

Data were transmitted, stored and processed on secured infrastructure, with role based access controls and defined retention rules.

The do no harm principle informed every stage of fieldwork in conflict affected and displacement settings. Enumerator deployment took account of local security conditions, sensitivities around the employment of internally displaced persons, returnees and refugees were addressed in training, and questions touching on the situation of vulnerable groups were framed and sequenced with care.

B.8 Limitations of the Assessment

The Labour Market Information Observatory considers the honest articulation of methodological limits to be a condition of the credibility of the findings advanced in this report. The principal limitations of the present assessment are set out below.

The assessment is, by design, a demand side exercise. It captures the perspective of employers, and does not, on its own, measure the perspective of jobseekers, workers or training institutions. The findings should therefore be read in conjunction with supply side and institutional evidence, including the future cycles of work envisaged under the Observatory's longer-term mandate.

Non-response bias cannot be entirely ruled out. Although response rates were monitored at the level of each stratum and replacement protocols were applied, enterprises that declined to participate may differ systematically from those that took part, particularly in relation to their formality status, the quality of their employment practices and their willingness to disclose information on hiring and wages.

Coverage of the informal sector is partial. Enterprise frames in Iraq remain stronger for the registered and semi formal segments of the economy than for the wholly informal segment, and the assessment reflects that imbalance. Findings on informality should accordingly be read as indicative rather than exhaustive, and as a baseline for further work targeted specifically at informal activity.

The cross-sectional design means that the assessment captures a single snapshot in time. Patterns of demand may vary with season, with the agricultural and reconstruction cycles, and with macro-economic conditions.

Finally, the assessment relies on the willingness and ability of respondents to report accurately on their own enterprises. Self-reporting carries inherent limits, particularly in relation to forward-looking questions on hiring intentions and growth, and the report is written with that consideration in mind.

C. Country and Labour Market Context

The demand side evidence presented in this report does not stand on its own. It must be read against the macro economic, demographic, institutional and structural realities of Iraq, and against the trajectory that those realities have followed in recent years. The present section establishes that canvas. It draws on secondary sources, including the Central Statistical Organisation, the Kurdistan Region Statistics Office, the IMF, the World Bank, the ILO, UNESCO and the relevant United Nations operational agencies. Its purpose is to situate the findings of the primary survey within a coherent national picture, and to make explicit the structural conditions that any reading of demand side evidence must consider.

C.1 Macro-economic Overview of Iraq

Iraq's economy is, in its essential structure, an oil economy. Recent World Bank and IMF estimates situate the hydrocarbon sector at roughly half of real gross domestic product and at the dominant share of central government revenue and merchandise exports. Within this aggregate, the private sector remains modest in scale and shallow in financial depth. The macro environment in which the surveyed enterprises operate is therefore one in which oil rents continue to absorb the bulk of national income, while the private sector that the country's diversification agenda must ultimately rely upon remains comparatively underdeveloped.

The remainder of this section moves from the national aggregate to a structural snapshot of the surveyed enterprise population as it presents on the LMA/LMIO platform. The figures and tables that follow are drawn directly from the analytics layer of the platform. Of the 2,066 records submitted through Tool 1, 1,969 cleared the platform's 2-stage approval workflow and constitutes the analytical dataset on which the report is built.

Sectoral composition: Consistent with the demand-side scope of the assessment, the surveyed enterprises are concentrated in segments of the Iraqi economy relevant to the green and digital transition. The platform's *Top Business Sectors* view ranks sectors by the proportion of respondent enterprises that report activity in each. Because the underlying question permits up to five sector selections per enterprise, the shares are interpreted as the proportion of respondents reporting activity in a given sector and do not sum to 100%.



Figure 8 business sectors of surveyed enterprises

Rank	Business sector	Enterprises reporting
1	Telecommunications (digital)	484
2	Digital marketing	474
3	E-commerce and fintech	429
4	Software and web development	387
5	Solar photovoltaic installation (green)	356
6	ICT and digital skills services	312
7	Network and systems administration	286
8	Other activities	231
9	IT support	185
10	Green building and efficiency	174

Table 1 Top 10 business sectors among approved surveyed enterprises

Enterprise size profile. The size distribution of the approved sample is heavily skewed toward micro and small enterprises, in li ne with the broader Iraqi pattern in which a small number of medium and large firms account for a disproportionate share of formal employment.

Geographic distribution. Coverage extends to all 10 surveyed governorates. Achieved approved samples meet or exceed the dynamic targets calculated under the methodology described, with the principal economic hubs of Baghdad, Erbil, Basra, Ninewa and Sulaymaniyah accounting for the majority of responses.

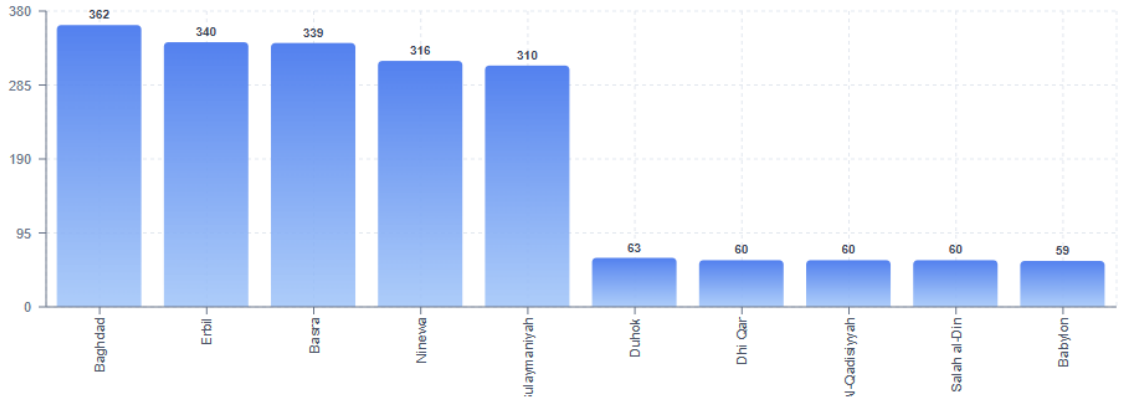


Figure 9 Number of respondents by governorate.

Governorate	Responses
Baghdad	362
Erbil	340
Basra	339
Ninewa	316
Sulaymaniyah	310
Duhok	63
Babil	59
Salah al-Din	60
Al-Qadisiyyah	60
Dhi Qar	60

Table 2 Number of respondents by governorate.

Operating environment. The sample captures enterprises operating across urban, mixed and rural environments, with a marked urban concentration consistent with the geography of green-and-digital economic activity in Iraq.

Together, these four structural variables establish the canvas on which the demand-side findings of this report are read. The dataset is large, geographically complete, formally approved, and for sectors weighted toward the segments of the Iraqi economy in which the green-and-digital transition will be most directly mediated.

C.2 Demographic Profile and Labour Force Composition

Iraq is among the most demographically young countries of the Middle East. Its population, estimated at slightly above 46 million, carries a median age of around 21 years and a substantial youth bulge that will continue to enlarge the working-age population for at least the next decade. International estimates published by the International Labour Organization place overall labour force participation at roughly 40% of the working-age population, with male participation in the range of 68% to 74% and female participation at approximately 11%, among the lowest rates recorded anywhere in the world. The headline unemployment rate stands at approximately 16.5%, rising to roughly 36% for young Iraqis aged 15 to 24, and an estimated 37% of all young people are not in employment, education or training, with the female share at approximately 52%.

Gender of respondent leadership. The platform records the gender of the senior representative who completed the survey on behalf of each enterprise. The distribution is heavily skewed toward men and constitutes the first piece of demand-side evidence on the structural under-representation of women in Iraqi private-sector leadership.

Gender	Respondents
Male	1,868
Female	101
Total	1,969

Table 3 Gender of the senior representative completing the survey, approved enterprises (n = 1,969

Groups perceived by employers as facing the highest labour-market pressure. Employers were asked to identify the groups in their governorate facing the highest level of unemployment or underemployment, selecting up to five. Two groups dominate the responses, namely recent graduates and young people aged 15 to 29, each named by more than half of approved respondents. Persons with disabilities are identified by more than a quarter of respondents, and women by close to a third, indicating that employer perception of structural exclusion extends well beyond the youth dimension.

Employer assessment of current employment opportunities. Employers were asked to rate current employment opportunities in their governorate, with explicit reference to the green and digital vocations on which this assessment is focused. The modal response is "Moderate", but the balance of opinion is markedly negative: one in three approved respondents rate present opportunities as "Bad" or "Very poor", against only one in ten who rate them "Good" or "Very good".

Rating	Respondents	Share (%)
Very good	20	1.0
Good	181	9.2
Moderate	1,005	51.0
Bad	532	27.0
Very poor	136	6.9
Don't know	95	4.8
Total	1,969	100.0

Table 4 Employer rating of current employment opportunities in the governorate (n = 1,969)

Together, the macro statistics and the demand-side evidence point in the same direction. The binding labour-market constraint in Iraq is not the production of jobseekers, but the absorption of those jobseekers into productive and inclusive employment. Iraqi employers themselves identify graduates, young people, persons with disabilities and women as the populations most affected, and rate present opportunities in their own governorate as net negative. The cross-cutting analyses developed later in the report treat each of these dimensions in dedicated terms.

C.3 Education and TVET System

Iraq's education and skills architecture is divided across several ministries and runs in parallel at federal and Kurdistan Region (KRG) level. General education sits with the Ministry of Education, higher education and technical universities with the Ministry of Higher Education and Scientific Research, and vocational training outside the formal school system with the Ministry of Labour and Social Affairs, each with a KRG counterpart.

Technical and vocational education and training is therefore not one system but 3 streams: vocational secondary education in schools under the Ministry of Education; technical and applied education in institutes and technical universities under the Ministry of Higher Education and Scientific Research; and continuing vocational training in centers under the Ministry of Labour and Social Affairs. The Iraqi Technical and Vocational Qualifications Framework, developed by the 3 federal ministries with their KRG counterparts and adopted by the Council of Ministers, provides the common reference for recognizing qualifications across these streams, and a national Coordinating Mechanism links the principal TVET actors.

Reform has been sustained. The UNESCO-led, EU-supported TVET Reform program has worked since 2015 to strengthen policy, governance and delivery: its first phase developed occupational standards and curricula in construction, agriculture and hospitality; its second established Centers of Vocational Excellence in 5 vocational schools (Duhok, Mosul, Baghdad, Karbala and Basra) and engaged 4 technical universities; and a third phase, launched in 2025, focuses on green and digital TVET. In 2024 the Ministry of Education launched an Integrated Vocational Pathway initiative with the Ministry of Labour and Social Affairs and the Ministry of Industry to improve curriculum relevance and expand workplace training.

Significant constraints remain. Vocational and technical enrolment is modest as a share of the total, social perception still favors academic routes, the equipment base of training institutions is uneven, and links between providers and employers stay limited relative to need. The demand-side findings in the sections that follow are intended to inform this recalibration, giving ministries, training authorities and partners a clearer view of the skills Iraqi employers seek now and expect to seek in the years ahead.

Iraq's Technical and Vocational Qualifications Framework (TVQF)

A central reference point for skills and qualifications in Iraq is the national Technical and Vocational Qualifications Framework (TVQF). Developed under the EU-funded, UNESCO-implemented "Reforming TVET in Iraq" project, the framework was first agreed as an eight-level structure in Beirut (August 2017) and expanded to a ten-level structure in Amman (January 2018). Its level descriptors, expressed in terms of knowledge, skills and competence (autonomy and responsibility; process and engagement), were signed by the Inter-Ministerial Working Group, the European Union and UNESCO on 17 July 2018. The completed framework was set out in the "TVQF System for Iraq: Application for Accreditation" and submitted to the Iraqi Council of Ministers in May 2019, and Iraq was registered the same year in the UNESCO–ETF–Cedefop Global Inventory of Regional and National Qualifications Frameworks. The framework was officially approved by the General Secretariat of the Council of Ministers on 2 March 2021.

The TVQF spans ten levels covering the three education pathways (general, higher, and technical and vocational) and the three learning sectors (formal, non-formal and lifelong). It is supported by a Title of Qualifications Policy, a Placement of Qualifications policy, a system for the Recognition of Prior Learning (RPL), and a dedicated Technical and Vocational Qualifications Award and Accreditation Commission (TVQAAC). The framework is aligned with Iraq's wider policy architecture, including the National Employment Policy (2011) and the TVET Strategy (2014–2023). It provides the national reference against which the occupational and qualification-level analysis in this report should be read, and against which the competency-based curricula planned under this project will be developed.

C.4 Policy and Regulatory Framework for Employment and Skills

Employment is governed primarily by Federal Labour Law No. 37 of 2015, in force since 2016, which replaced the 1987 law and modernized the private-sector employment relationship, including non-discrimination, working time, termination and collective rights, aligning it more closely with international labour standards. It is administered by the Ministry of Labour and Social Affairs. Associated social protection runs on a tripartite social security scheme, with contributions of about 5% of basic wage from employees and about 12% from employers, and higher rates in the hydrocarbon sector; a pensions reform is under preparation to extend coverage to informal workers. The Kurdistan Region (KRG) maintains parallel architecture.

The strategic framework is set federally by the National Development Plan 2024 to 2028, built on 4 pillars: economic diversification; improved public services; environmental sustainability and climate adaptation; and digital transformation linked to private-sector growth. Skills development and labour-market intermediation are addressed across all 4, while the longer-term Vision 2050 frames diversification and institutional modernization. The KRG operates complementary plans, alongside sectoral strategies from the ministries of Industry, Agriculture, and Higher Education and Scientific Research.

Coordination relies on mechanisms at the Prime Minister's Advisory Council, inter-ministerial committees on TVET and private-sector development, and the standing Coordinating Mechanism for TVET, with tripartite dialogue between government, employers and workers supported by the International Labour Organization. The consolidation of the Labour Market Information Observatory, under UNESCO Iraq, is intended to give this architecture a permanent, shared evidence base.

C.5 Private Sector Landscape in Iraq

Iraq's private sector is small, heavily informal, and dominated by micro and small enterprises. It contributes below 10% of gross domestic product, and private-sector credit is under 7% of GDP, both low regionally and binding constraints on diversification and formal job creation. Micro and small firms predominate in number, while the few medium and large enterprises hold a disproportionate share of formal employment. Activity concentrates in trade, domestic-oriented services, construction, light manufacturing and agriculture, with a growing but modest ICT sector, and formal establishments cluster in Baghdad, Erbil and Sulaymaniyah.

Informality is a defining feature. The 2021 ILO diagnostic estimated about 55% of total employment as informal, rising towards two thirds once informal arrangements within formal firms are counted, and it is most pronounced in construction, agriculture, light manufacturing and retail. It is closely tied to restricted access to social protection, finance and organized training. Formalization is an explicit priority of the National Development Plan and the labour authorities, supported by the ILO and KfW initiative launched in 2024 to expand access to finance and strengthen SME formalization. The wider business environment has improved in parts, such as the digitization of public services, but still carries friction in access to finance, electricity reliability, the cost of doing business and regulatory predictability.

C.6 Structural Pressures and Recent Shocks

Iraq's labour market is shaped by the legacies of conflict, by large-scale displacement, by intensifying climate and water pressures, by recurrent oil-price volatility, and by the aftershocks of the COVID-19 pandemic. The events of 2003 and the 2014 to 2017 conflict with Da'esh reshaped public administration, industry and formal activity, occupied large parts of Ninewa, Anbar, Salah al-Din and Kirkuk, destroyed infrastructure and displaced millions. Reconstruction, particularly in Ninewa, continues to drive demand for construction, engineering, health and public-administration skills.

Displacement remains both a humanitarian and a labour-market challenge. As of mid-2025, UNHCR and IOM reported more than 1 million Iraqis still in protracted displacement, of whom over 100,000 were living in 20 formal camps in the Kurdistan Region, and reintegration into productive work for returnees, host communities and Syrian refugees remains uneven. Climate and water stress are now a structural pressure of the first order: below-average rainfall, declining Tigris and Euphrates flows, desertification and salinization in the south are reshaping rural livelihoods and agricultural employment. IOM estimated in early 2025 that about 28,700 families, roughly 172,000 individuals, had been displaced by climate stress, with the southern governorates worst affected. This raises demand for skills in agriculture, water management, environmental services and renewable energy, central to the green-transition objectives of the National Development Plan.

Oil-price volatility is a recurrent shock with direct labour-market effects. The collapses of 2014 and 2020, and later weakness, translated quickly into fiscal stress and reduced public spending, with knock-on effects on the private contractors that depend on it, while the COVID-19 aftershocks exposed the fragility of informal employment and accelerated digital adoption. These structural realities are the conditions under which the demand documented in this report is generated, expressed and constrained.

D. Profile of Surveyed Private Sector Enterprises

This section establishes who the assessment actually reached. It describes the 1,969 private sector enterprises whose responses passed both stages of the platform's approval workflow and now constitute the analytical base for the demand-side findings reported in the sections that follow. The profile is built entirely from the variables captured by the Tool 1 instrument and displayed on the live analytics dashboard, namely enterprise size, the sectors in which firms operate, their governorate and the type of locality in which they are based. The Tool 1 instrument was designed as a skills demand survey rather than an establishment census, so attributes such as the legal form of the enterprise, its year of establishment and its registration status were outside its scope; these are noted here as boundaries of the present cycle rather than gaps in the record.

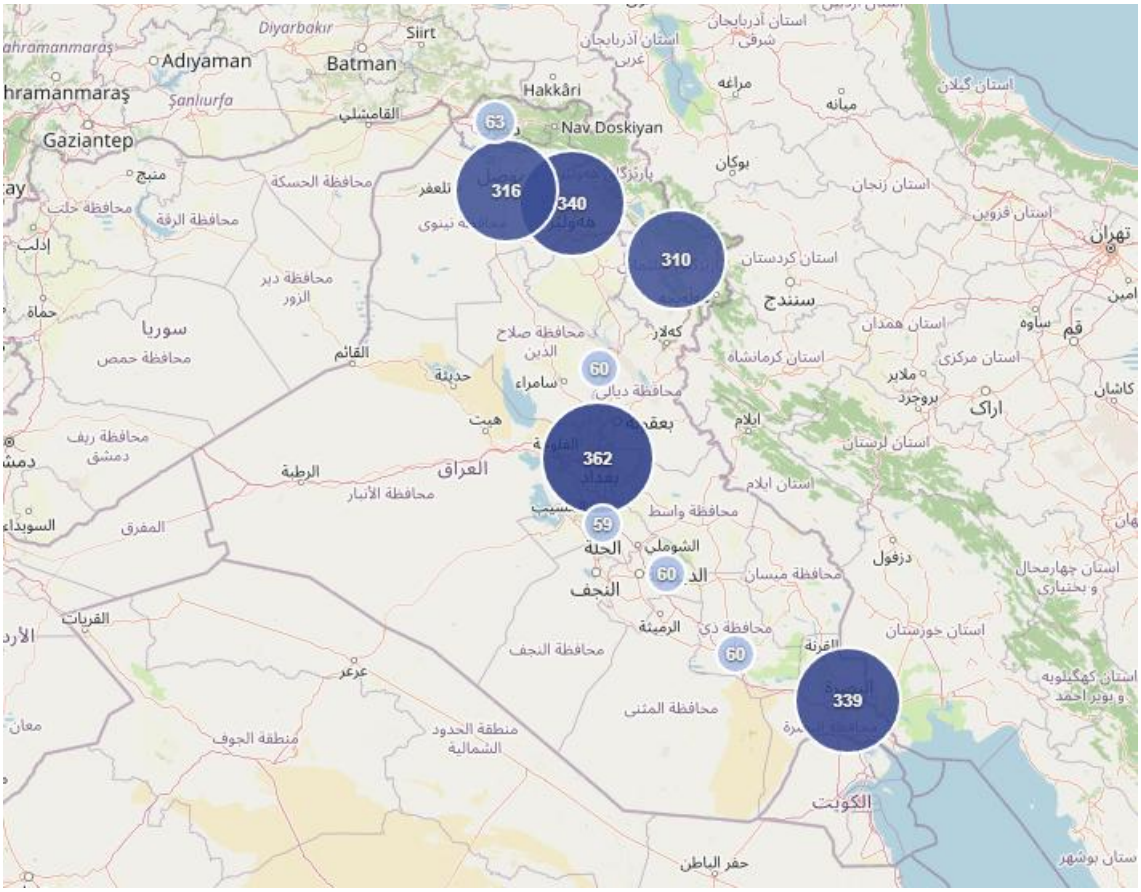


Figure 10 Map of Iraq showing the ten surveyed governorates

D.1 Achieved Sample and Response Rates

The assessment sets out to reach a planned sample of 1,932 enterprises across the ten governorates. At the close of fieldwork, 1,969 responses had been approved through the platform's two-stage quality process, equivalent to 101.9% of the planned total. Each approved record carries a double confirmation: the data collector first reviews and accepts the submission, after which an LMIO team member conducts a second, independent review before the record is locked. Responses that either reviewer judged incomplete or inconsistent were returned or rejected and therefore do not enter the figures presented here. This sequence is what gives the headline count its analytical weight, namely 1,969 validated observations rather than 1,969 raw submissions.

One feature of the respondent pool should be read carefully before the substantive findings. The instrument was completed on behalf of each enterprise by a single respondent, most often

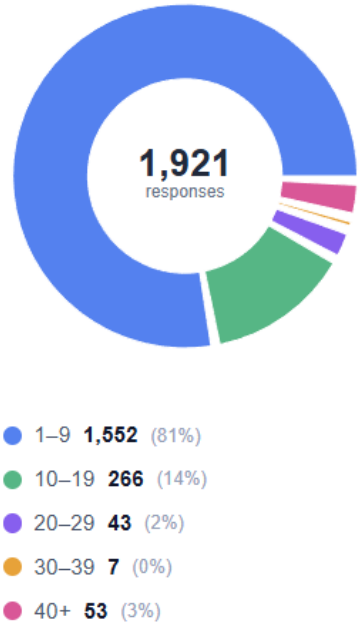
the owner or a senior manager. Of these respondents, 1,868 (94.9%) were men and 101 (5.1%) were women. This is a characteristic of who speaks for the firm in Iraq's private sector and should not be read as the gender composition of the workforce, which the instrument did not measure.

PROVINCE المحافظة	TARGET المطلوب	APPROVED الموافق عليه	PENDING قيد الموافقة	REJECTED المرفوض	MISSING المفقود	PROGRESS التقدم
Baghdad بغداد	355	362	0	0	-7	102.0%
Erbil اربيل	337	340	1	2	-3	100.9%
Basra البصره	329	339	0	0	-10	103.0%
Ninewa نينوى	306	316	2	1	-10	103.3%
Sulaymaniyah السليمانيه	306	311	0	0	-5	101.6%
Duhok دهوك	63	63	0	2	0	100.0%
Babil بابل	59	59	0	0	0	100.0%
Salah al-Din صلاح الدين	59	60	1	0	-1	101.7%
Al-Qadisiyyah القادسيه	59	60	0	0	-1	101.7%
Dhi Qar ذي قار	59	60	0	0	-1	101.7%

Figure 11 Number of respondents by governorate

D.2 Enterprise Size Distribution[1]

The surveyed population is overwhelmingly composed of very small firms. Enterprises employing between one and nine staff account for 78.8% of the sample, and once firms with ten to nineteen staff are added the micro and small segment reaches 92.3% of all respondents. Larger establishments are comparatively rare: only 103 enterprises, or 5.2%, reported twenty or more staff. This distribution is consistent with the structure of Iraq's private sector and means that the skills signals gathered here speak primarily to the needs of small, often owner-managed businesses.



Enterprise size band	Enterprises
1-9 staff	1,552
10–19 staff	266
20–29 staff	43
30–39 staff	7
40 staff or more	53

Table 5 Distribution of surveyed enterprises by size category

[1] *Base: 1,921 enterprises with size recorded*

D.3 Sectoral and Sub-sectoral Distribution

Enterprises could select up to five sectors, so the shares below are calculated above respondents and do not sum to one hundred. The taxonomy sector used in Tool 1 is distinctive: alongside the standard economic classifications it carries explicit green and digital economy categories, reflecting the forward-looking purpose of the assessment. The pattern of responses confirms that this emphasis was well placed. 67.0% of enterprises operate in at least one digital economy category and 37.6% in at least one green economy category, while 11.3% span both. Only 6.6% reported activity exclusively in the conventional, non-tagged sectors.

The leading individual categories are concentrated in digital services. Telecommunications, digital marketing, e-commerce and software or web development each draw around one fifth to one quarter of respondents, with solar photovoltaic installation being the most frequently cited green category. Sub-sector details were captured through an open-text field; responses were recorded in Arabic and cluster around solar energy and electrical work on the green side and software and digital transformation services on the digital side. Because these entries are free text, they are summarized qualitatively here rather than tabulated.

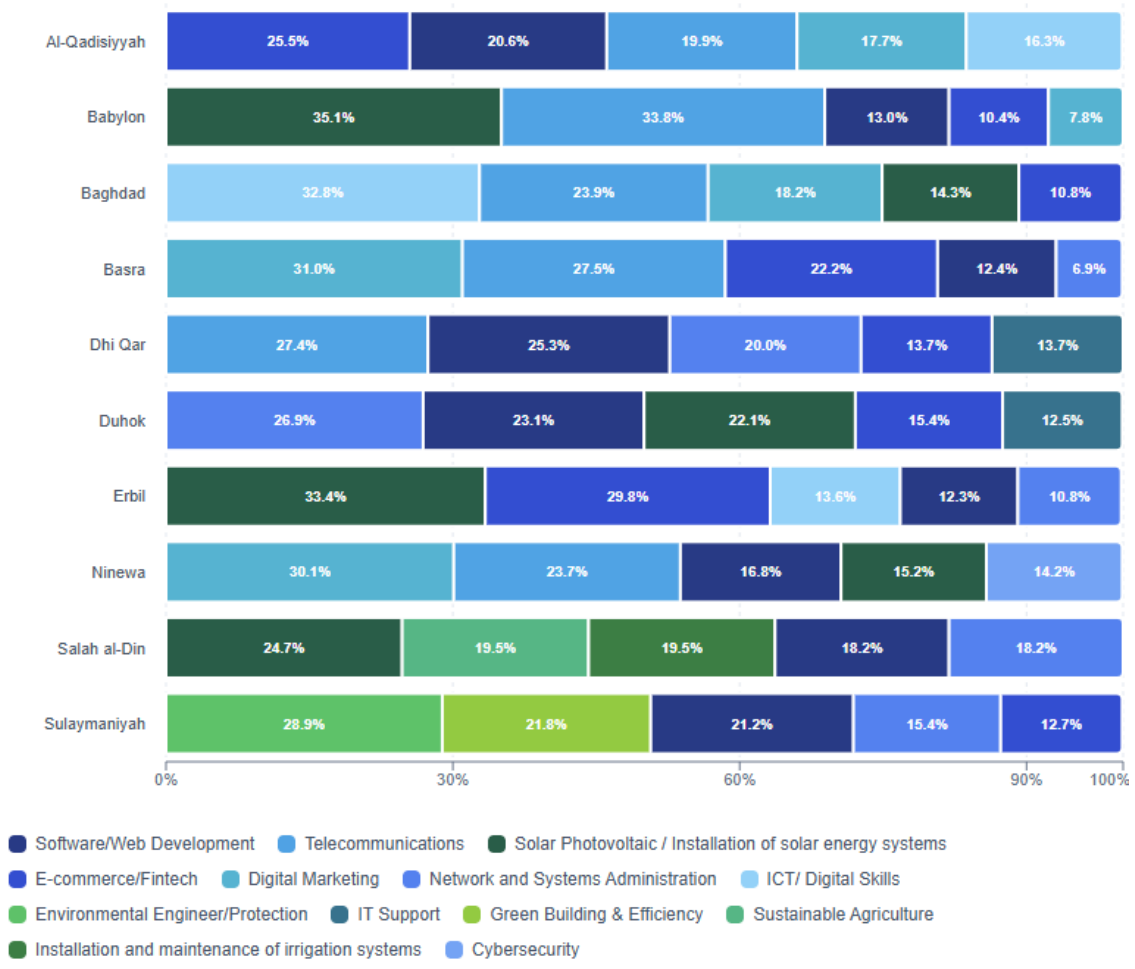


Figure 12 Top business sectors of surveyed enterprises

Sector (as listed in the instrument)	Enterprises
[DIGITAL] Telecommunications	484
[DIGITAL] Digital Marketing	474
[DIGITAL] E-commerce/Fintech	429
[DIGITAL] Software/Web Development	387
[GREEN] Solar Photovoltaic / Installation of solar energy systems	356
[DIGITAL] ICT/ Digital Skills	312
[DIGITAL] Network and Systems Administration	286
[DIGITAL] IT Support	185
[GREEN] Green Building & Efficiency	174

Table 6 frequently reported sectors (multiple response, n = 1,969)

D.4 Operating Environment

Surveyed enterprises are predominantly urban. 88.2% operate in urban settings, a further 10.0% describe their environment as mixed urban and rural, and 1.9% are rural. The strong urban concentration reflects where private, and especially digitally oriented, enterprise activity is located in Iraq, and it frames the reach of any skills response built on these findings.

Taken together, the profile is clear and internally consistent: a large, validated sample of predominantly micro and small enterprises, concentrated in urban centers and in the five major governorates, with a pronounced presence in digital and green economy activities. This is the population whose skills demand, recruitment experience and outlook are analyzed in the sections that follow.



Figure 13 Distribution of surveyed enterprises by operating environment

Operating environment	Enterprises
Urban	1,736
Mixed (Urban–Rural)	196
Rural	37
Total	**1,969**

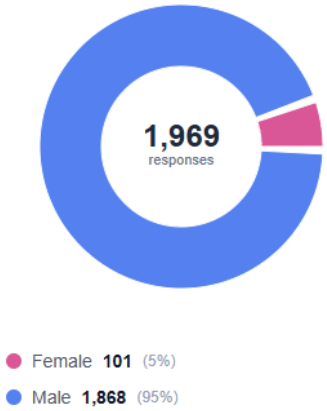
Table 7 Surveyed enterprises by operating environment (n = 1,969)

E. Current Employment and Workforce Structure

This section reads the workforce through the lens of what employers themselves reported. The Tool 1 instrument is a demand-side, establishment-level survey, so it does not record payroll headcounts, the occupational structure of staff along international classifications, contract types or wage levels; those variables sit outside the present cycle and are signaled here so the reader is not left to infer them. What the instrument does illuminate is equally important for employment analysis: who speaks for the enterprise, which population groups employers see as most shut out of work in their governorate, and how the surveyed firms distribute across the labour market. All figures below derive from the 1,969 approved Tool 1 responses.

E.1 Gender Dimension of Enterprise Representation

The person completing the survey on behalf of each enterprise was, in 94.9% of cases, a man, and in 5.1% a woman. Read correctly, this is a measure of who owns or manages private firms and who is authorized to speak for them, not of the gender balance of those firms' employees, which was not surveyed. The strong skew is itself a finding: it points to the limited presence of women in enterprise leadership across the surveyed governorates and provides part of the rationale for the gender-focused analysis presented later in the report.



Respondent gender	Respondents
Male	1,868
Female	101

Table 8 Gender of enterprise respondents (n = 1,969)

E.2 Groups Facing the Highest Unemployment and Underemployment

Employers were asked which groups they consider most affected by unemployment or underemployment in their own governorate, selecting up to five. Their answers converge on two groups above all others. Recent graduates were named by 59.7% of enterprises and young people aged 15 to 29 by 56.1%, placing the school-to-work transition at the center of the employment problem as seen from the demand side.



Figure 14 Groups facing the highest unemployment or underemployment in the governorate, as identified by employers

Women, persons with disabilities and internally displaced persons follow, each identified by a substantial minority of employers. The prominence of graduates is striking and points less to a shortage of education than to a mismatch between what graduates bring and what enterprises need, a theme taken up directly in the skills section.

Rank	Group	Employers identifying the group
1	Graduates	1,175
2	Youth (15–29)	1,105
3	Men	666
4	Women	569
5	People with disabilities	533
6	Internally displaced persons	245
7	Other	19

Table 9 Employer-identified groups facing the highest unemployment or underemployment in the governorate (n = 1,969).

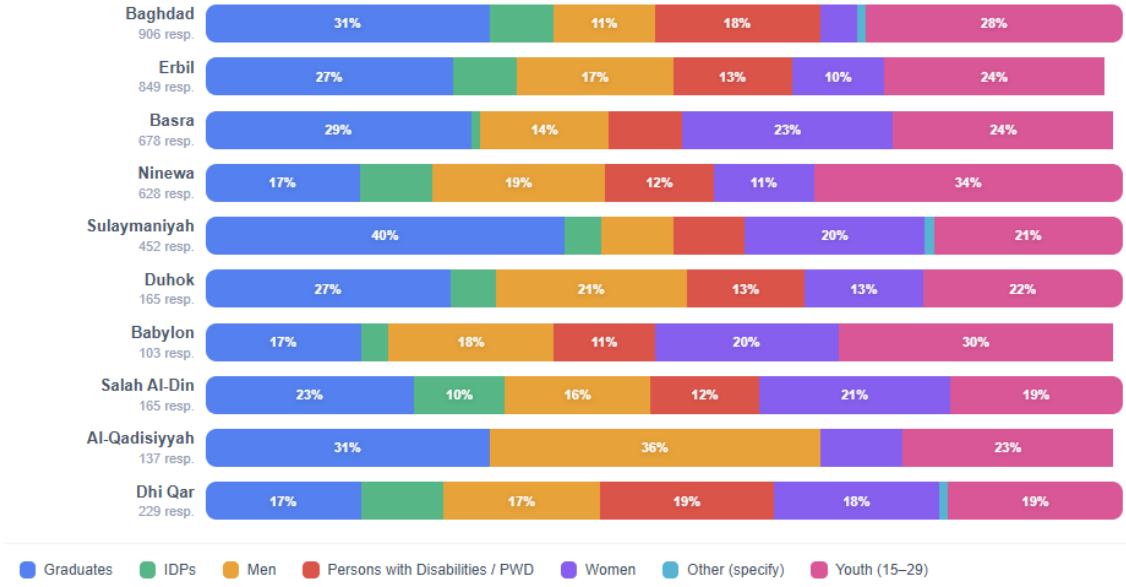


Figure 15 Employer-identified groups facing the highest unemployment or underemployment by governorate

E.3 Youth in the Labour Market

Youth unemployment is the clearest geographic constant in the data. Young people aged 15 to 29 were cited as a most-affected group by 56.1% of employers nationally, and the concern is reported at high levels in every governorate rather than being confined to a few. The table below shows the share of enterprises in each governorate that named youth among the groups most exposed to unemployment and underemployment, underlining that the youth employment challenge is system wide.

Governorate	Enterprises citing	Share
Dhi Qar	44	73.3%
Baghdad	256	70.7%
Ninewa	213	67.4%
Erbil	205	60.3%
Duhok	36	57.1%
Al-Qadisiyyah	32	53.3%
Salah al-Din	32	53.3%
Babil	31	52.5%
Basra	162	47.8%
Sulaymaniyah	94	30.3%

Table 10 Share of enterprises citing youth (15 to 29) as a most-affected group, by governorate

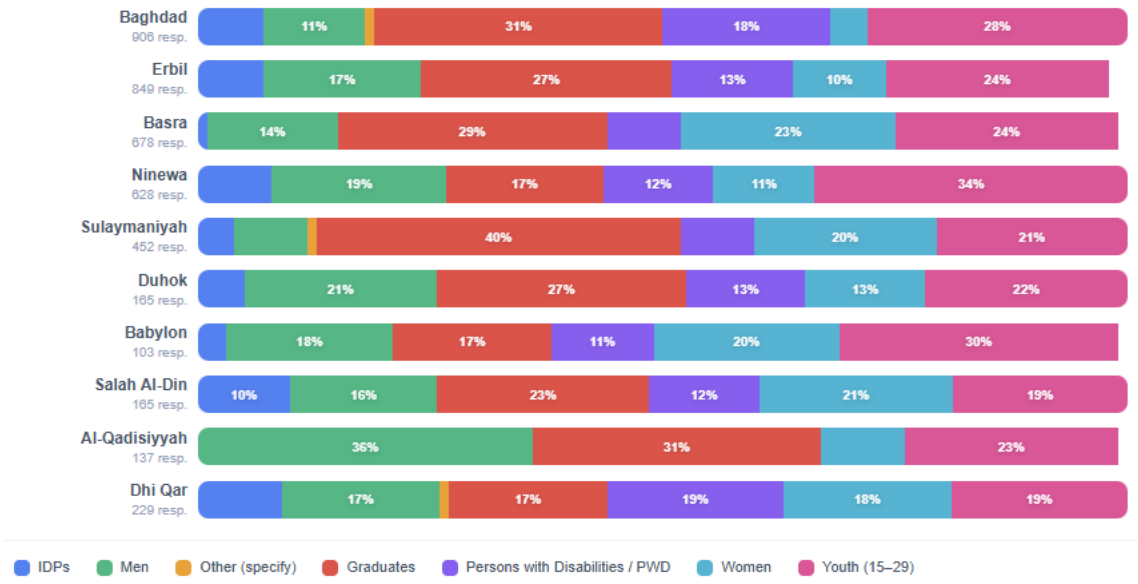


Figure 16 Share of enterprises citing youth (15 to 29) as a most-affected group, by governorate

E.4 Women, Persons with Disabilities and Displaced Populations

Beyond youth and graduates, employers point to groups whose exclusion from work has a strong equity dimension. Women were named by 28.9% of enterprises, persons with disabilities by 27.1% and internally displaced persons by 12.4%. These perceptions matter for the design of any inclusive skills and employment response, and they reinforce the cross-cutting analysis on gender, disability and displacement presented later in the report. The table reports the governorates where each group is most frequently identified.

Population group	National share	Highest-citing governorate
Women	28.9%	Dhi Qar (68.3%)
People with disabilities	27.1%	Dhi Qar (71.7%)
Internally displaced persons	12.4%	Dhi Qar (33.3%)
Recent graduates	59.7%	Baghdad (77.1%)

Table 11 Share of enterprises citing social groups as most-affected groups, leading governorates

Read together, these findings sketch an employment structure under strain at its entry points. The people employers see as least able to find decent work are precisely those the education and training system is producing in greatest numbers, namely graduates and young people, with women, persons with disabilities and displaced populations facing additional barriers. This sets up the central question of the next section: what skills employers actually demand, and where the gaps lie.

F. Skills Demand and Skills Gaps

Skills demand is the heart of this assessment, and it is the area the Tool 1 instrument measures most fully. This section sets out what employers say they need, where they cannot find it, and how they judge the system that is meant to supply it. The findings are drawn from the surveyed enterprises' own responses on growing areas of work, the technical green and digital skills they require, the value they place on core and transferable skills, the gaps they encounter among job seekers, the reasons vacancies go unfilled, and their assessment of technical and vocational education. Where a question allowed multiple answers, this is stated, and shares are calculated over those who responded.

F.1 Growing Areas of Work and Demanded Occupations

Asked to name the areas they expect to grow and to generate jobs in their governorate, employers point decisively towards the digital economy, with green activities close behind. Software and web development leads, named by 38.9% of respondents, followed by digital marketing, telecommunications and solar photovoltaic installation. The same categories that dominate current activity also dominate expected growth, which suggests a labour market deepening along an established green and digital trajectory rather than pivoting to entirely new fields.

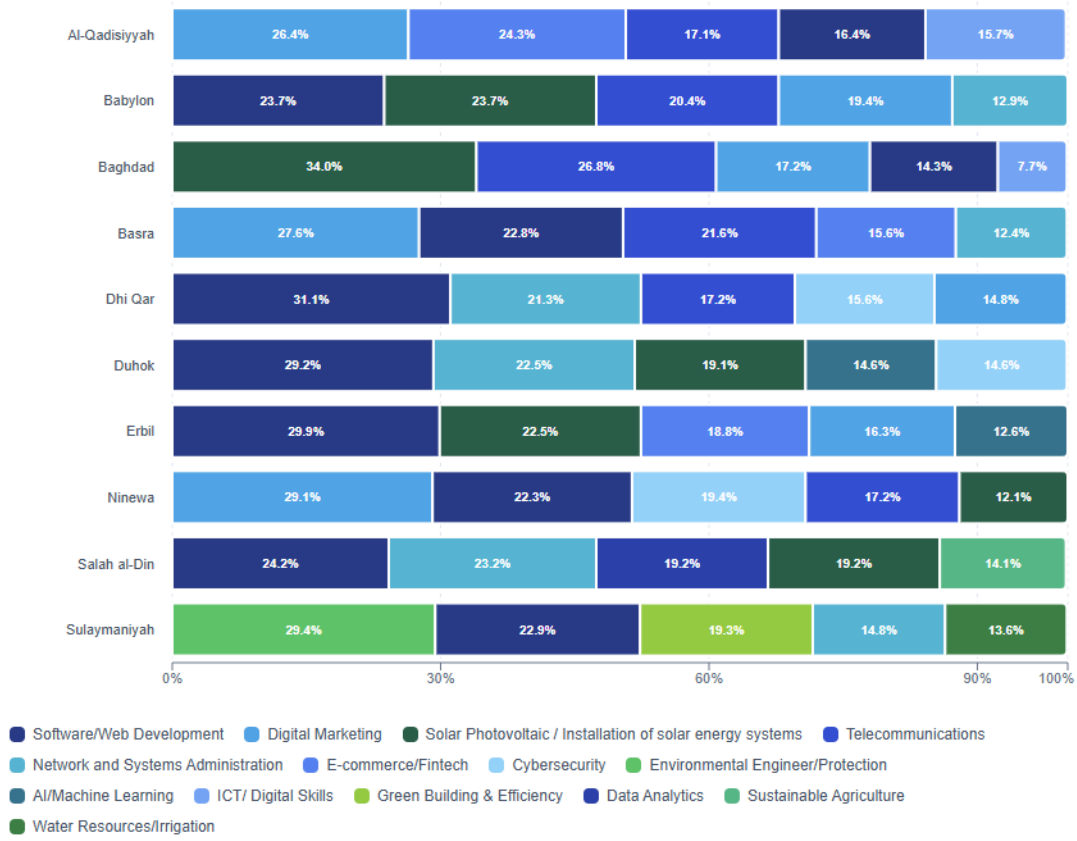


Figure 17 Area's employers expect employees to grow and to generate jobs

Growing area (as listed in the instrument)	Enterprises
[DIGITAL] Software/Web Development	765
[DIGITAL] Digital Marketing	697
[DIGITAL] Telecommunications	579
[GREEN] Solar Photovoltaic / Installation of solar energy systems	553
[DIGITAL] E-commerce/Fintech	452
[DIGITAL] Network and Systems Administration	395
[DIGITAL] Cybersecurity	297
[DIGITAL] AI/Machine Learning	294
[DIGITAL] ICT/ Digital Skills	235
[DIGITAL] Data Analytics	221

Table 12 Top ten growing areas for green and digital jobs (multiple response, n = 1,969)

F.2 Technical Skills in Demand: The Digital Economy

When employers specify the digital skills they need, the strongest signal is foundational rather than advanced. Basic computer literacy, covering office software, email and internet use, was selected by 65.6% of enterprises, far ahead of any other category, followed by spreadsheet and data-organisation skills. More specialized competencies such as software development, coding, cloud computing and artificial intelligence are each demanded by a meaningful minority. The shape of this demand carries a clear message for the training system: the immediate priority is to lift the broad digital baseline of the workforce, while building specialist pipelines for the firms operating at the technological frontier.

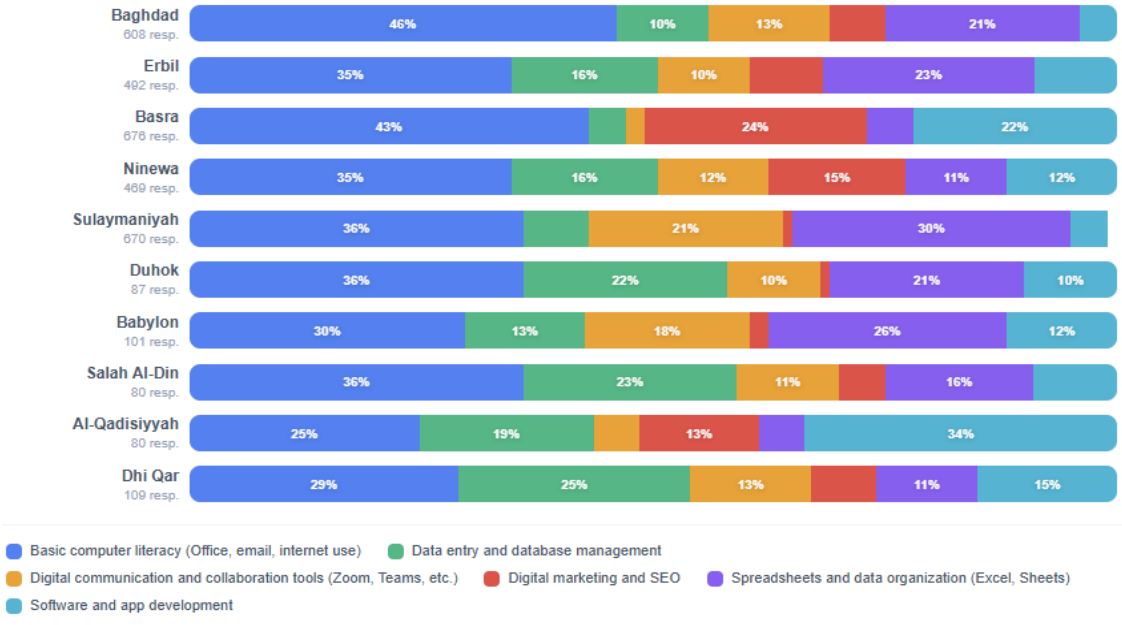


Figure 18 most-needed Digital Economy skills by Governorates

Digital skill	Enterprises
Basic computer literacy (Office, email, internet use)	1,292
Spreadsheets and data organization (Excel, Sheets)	603
Digital communication and collaboration tools (Zoom, Teams, etc.)	391
Data entry and database management	374
Software and app development	367
Digital marketing and SEO	345
Coding and programming (Python, Java, HTML, etc.)	326
Social media management	302
E-commerce and digital payment systems	255
UI/UX and web design	177

Table 13 Ten most-needed digital economy skills (multiple response, n = 1,969)

F.3 Technical Skills in Demand: The Green Economy

On the green side, demand is concentrated around energy. Solar system installation and maintenance is the most-needed green skill by a wide margin, cited by 25.7% of enterprises, with energy auditing and efficiency the second priority. Skills in efficient building systems, green construction, water-saving irrigation and environmental awareness follow. This pattern mirrors the prominence of solar enterprises in the sample and identifies a specific, actionable curriculum priority for technical and vocational provision, namely renewable energy installation and energy efficiency.

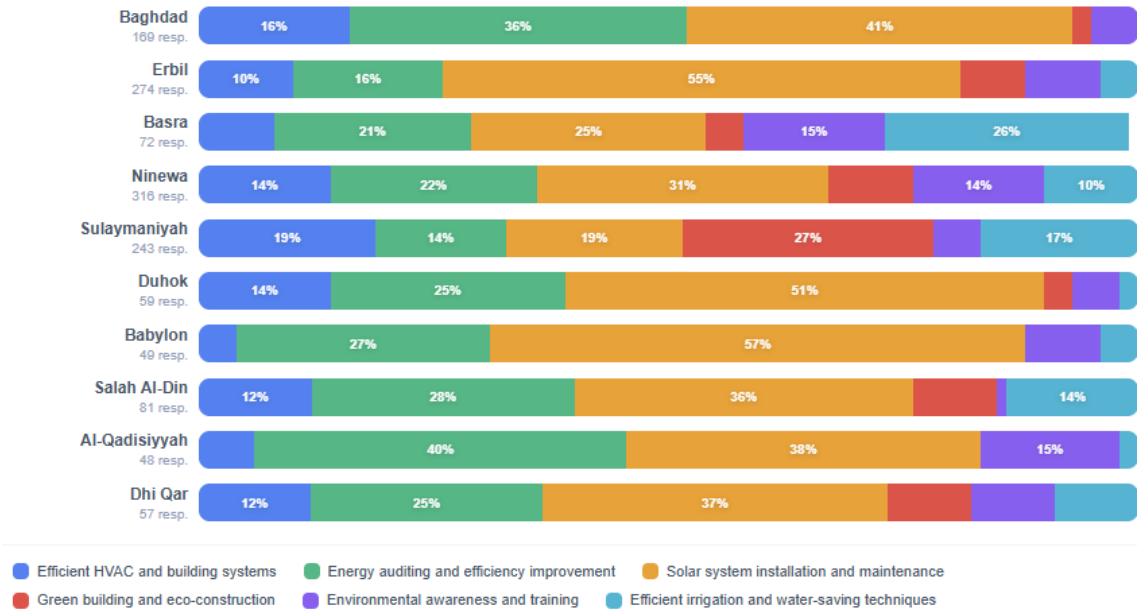


Figure 19 most-needed Green Economy skills by Governorates

Green skill	Enterprises
Solar system installation and maintenance	507
Energy auditing and efficiency improvement	306
Efficient HVAC and building systems	180
Green building and eco-construction	132
Efficient irrigation and water-saving techniques	124
Environmental awareness and training	119
Reforestation and landscape management	88
Sustainable and organic farming practices	87
Environmental Health & Safety (EHS) compliance	87
Waste sorting and recycling operations	85

Table 14 Ten most-needed green economy skills (multiple response, n = 1,969)

F.4 Core, Transferable and Soft Skills

Technical ability is not what employers prize most. Asked how important soft skills are for employment, 58.8% rated them very important and a further 25.0% important, so that 83.8% of enterprises place soft skills in the upper half of the scale. Only 1.3% considered them unimportant. Communication, teamwork and the other transferable skills captured here are therefore not a soft addition to technical training but a primary hiring criterion in their own right, a point reinforced by the gap analysis that follows.

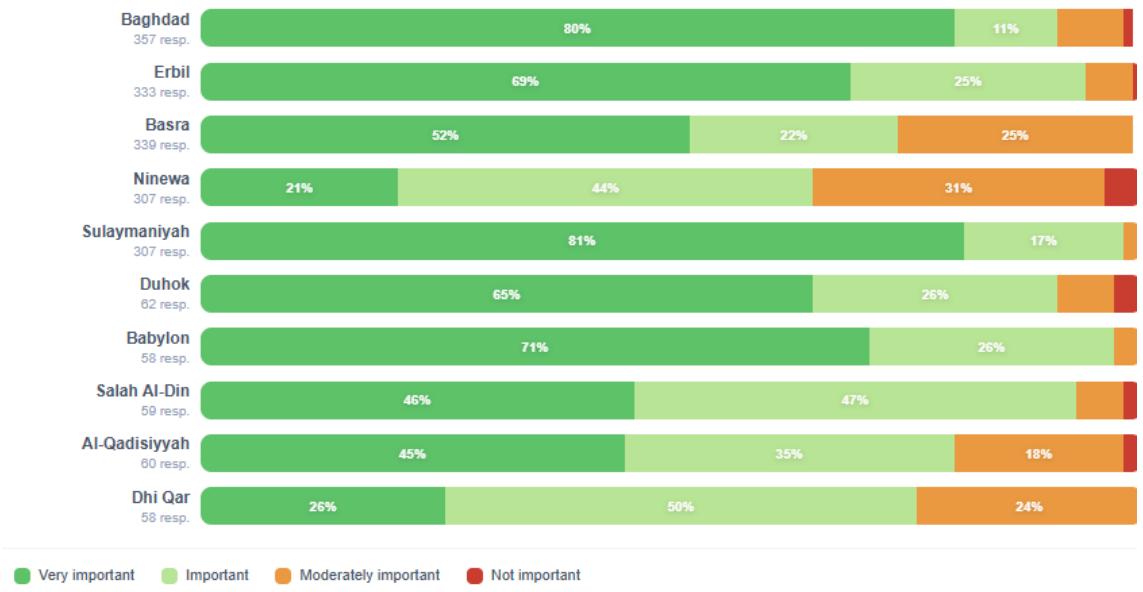


Figure 20 Employer-rated importance of soft skills by Governorate

Rated importance	Enterprises	Share
Very important	1,158	58.8%
Important	493	25.0%
Moderately important	264	13.4%
Not important	25	1.3%
Don't know	29	1.5%
Total	**1,969**	**100.0%**

Table 15 Importance employers attach to soft skills (n = 1,969).

F.5 Skills Gaps Identified by Employers

Brought together, the gap picture is unambiguous. The skills employers most often find lacking among job seekers are digital and ICT skills (49.3%), soft skills (47.8%) and English language proficiency (42.0%), with technical and green vocational skills and entrepreneurship skills also widely reported. The co-occurrence of digital and soft-skill gaps at the top of the list is the single most important finding of this section: closing the gap requires programs that build technical and behavioral competencies together rather than treating them as separate tracks.

Skill area	Enterprises
Digital and ICT skills	971
Soft skills (communication, teamwork)	941
Language proficiency (English)	827
Technical / Green vocational skills	623
Entrepreneurship / business skills (Identification and enterprise development)	529

Table 16 Skills most lacking among job seekers (multiple response, n = 1,969)

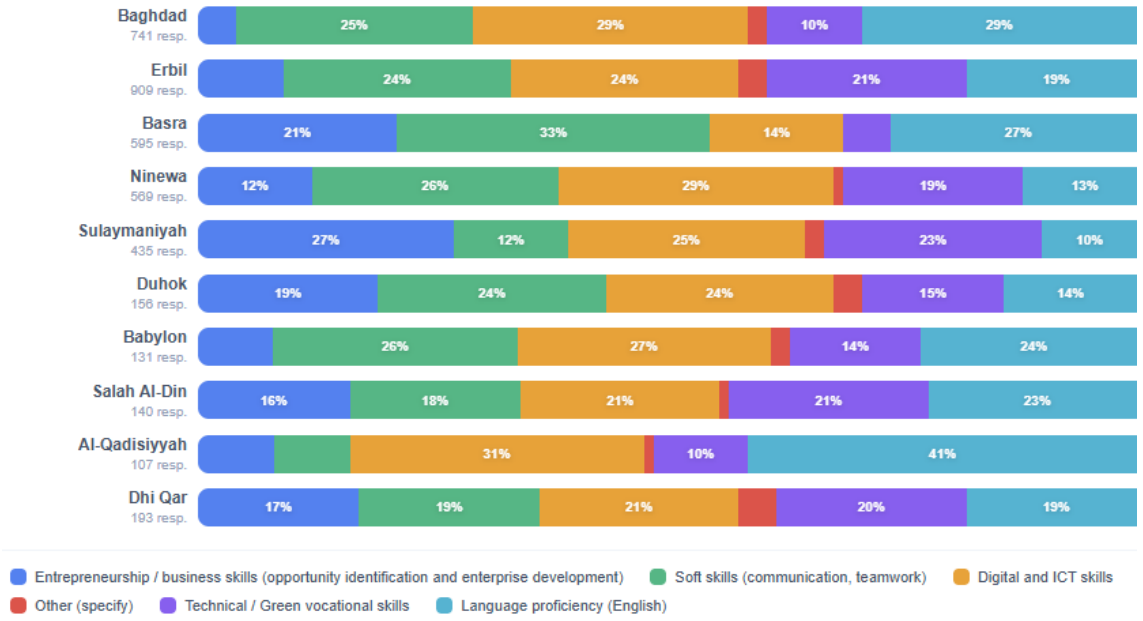


Figure 21 Skills most lacking among job seekers by Governorate

F.6 Hard-to-Fill Vacancies

Among the 288 enterprises that reported difficulty filling green and digital vacancies and answered this question, the reasons given reinforce the gap analysis. The most cited reason is a mismatch between applicants' skills and labour-market needs (35.1%), followed closely by a shortage of digital skills and too few suitable applicants. A notable share also points to weak coordination between companies and technical and vocational institutions, an institutional rather than purely educational obstacle. These responses should be read against their smaller base of 288 enterprises and treated as indicative of the firms experiencing recruitment difficulty.



Figure 22 Main reasons vacancies are difficult to fill by governorate

Reason	Enterprises
Skills mismatch with labor-market needs	101
Shortage of digital skills	91
Too few suitable applicants	87
Lack of required specializations among graduates	75
Limited practical training (internships/on-the-job training)	46
Weak coordination between companies and Technical and Vocational Education and Training (TVET) providers	41
Unattractive wages / unhelpful incentive structure	27
Foreign-currency factors / exchange-rate volatility	20

Table 17 Main reasons vacancies are difficult to fill (multiple response, n = 288 enterprises reporting difficulty)

F.7 Employer Perceptions of TVET and Higher-Education Graduates

Employers' verdict on whether the technical and vocational education and training system prepares graduates for work is divided and, on balance, cautious. 12.5% answered that it does so fully and 39.2% somewhat, giving a positive share of 51.7%, only just above the 44.8% who said the system prepares graduates not much or not at all. A system that barely half of employers regard as adequate, and that almost as many regard as inadequate, is one with a clear mandate for reform. This judgement, set beside the skills gaps reported above, frames the recommendations on curriculum and employer engagement made later in the report.

Employer assessment	Enterprises
Yes, fully	246
Yes, somewhat	772
No, not much	609
No, not at all	273
Don't know	69
Total	**1,969**

Table 18 Does TVET prepare graduates for work, employer assessment (n = 1,969)

F.8 Barriers to Adopting Green and Digital Practices

Skills are demanded inside firms that are themselves only partly equipped to use them. Just over half of enterprises, 54.7%, describe their level of digital technology adoption as moderate, with 33.4% high and 10.2% low.

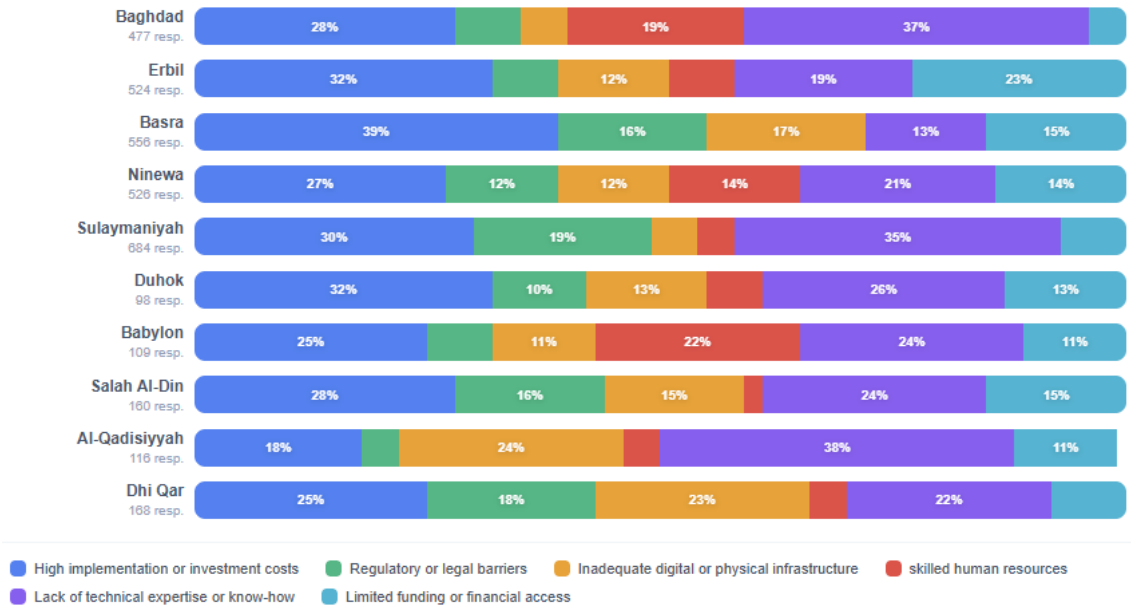


Figure 23 Main barriers to adopting green and digital practices by governorate

When asked what prevents them from adopting green or digital practices, employers point first to cost and capability: high implementation or investment costs (52.5%) and a lack of technical expertise or know-how (44.1%) lead the list, followed by regulatory barriers, limited finance and inadequate infrastructure. This creates a structural tension the skills response must reckon with: training can supply capable graduates, but firms also need the means and the operating conditions to absorb them productively.

Barrier	Enterprises
High implementation or investment costs	1,033
Lack of technical expertise or know-how	869
Regulatory or legal barriers	431
Limited funding or financial access	419
Inadequate digital or physical infrastructure	389
Shortage of skilled human resources	257
Limited awareness or understanding of benefits	220
Resistance to change or low institutional support	160

Table 19 Main barriers to adopting green and digital practices (multiple response, n = 1,969)

The skills story told by the surveyed enterprises is therefore coherent from end to end. Demand is concentrated in digital and green activities; the most acute shortages are in foundational digital skills, soft skills and English; vacancies go unfilled mainly because applicants do not match what employers need; and only about half of employers trust the current training system to close the gap. These findings provide the evidence base for the sectoral, cross-cutting and recommendation sections that follow.

G. Occupational Demand and ISCO Mapping

G.1 ISCO Mapping

At the design stage of the assessment, the team responsible for the questionnaire and the methodology set out to apply the International Standard Classification of Occupations (ISCO) in full, coding occupations to the detailed unit level in the manner that international labour market studies conventionally follow. Through a series of meetings with UNESCO, and after careful review of how such a classification would perform in the Iraqi setting, that initial intention was revisited. The conclusion reached jointly was that a strict, fully coded ISCO treatment would not hold up against the realities of the local labour market, and that a more grounded and usable approach was required.

Iraq does not yet possess a well-established occupational classification infrastructure, nor the clear and consistently defined establishment-level job structures on which precise ISCO coding depends, so occupations recorded against formal codes would have carried more apparent precision than the underlying data could support. The team therefore adopted a simplified classification built around occupations that are already established, visible and readily recognized in the country, informed by the stakeholder mapping carried out during the first round of consultations. The instrument, and the occupational analysis presented in this section, follow that simplified scheme, which stays close to how employers and training providers describe roles while remaining aligned with ISCO at the major-group level for the purpose of international comparison.

G.1.1 Digital Marketing Specialist

ISCO-08: Major Group 2: Professionals · Sub-Major 24: Business and Administration Professionals · Minor 243: Sales, Marketing and Public Relations Professionals · Unit 2431: Advertising and Marketing Professionals.

Definition: develops and implements digital communication, advertising, branding and customer-engagement strategies through online platforms.

LMA findings: present in 24.1% of enterprises and named as a growth area by 35.4%, the second-highest digital growth signal. Employers cite shortages in SEO, analytics, content creation and social-media management. Indicative TVQF level 4–5.

G.1.2 Software and Web Developer

ISCO-08: Major Group 2: Professionals · Sub-Major 25: ICT Professionals · Minor 251: Software and Applications Developers and Analysts · Units 2512 Software Developers / 2513 Web and Multimedia Developers.

Definition: designs, builds, tests and maintains software applications and websites.

LMA findings: the single strongest digital growth signal, active in 19.7% of enterprises, named as growing by 38.9%. Reaches into the professional tier (indicative TVQF level 5–6), requiring articulation to higher education.

G.1.3 Solar PV Technician and Installer

ISCO-08: Major Group 7: Craft and Related Trades Workers · Sub-Major 74: Electrical and Electronic Trades Workers · Minor 741: Electrical Equipment Installers and Repairers · Unit 7411: Building and Related Electricians.

Definition: installs, connects, tests and maintains solar photovoltaic systems and related electrical equipment.

LMA findings: the defining green occupation, active in 18.1% of enterprises, named as growing by 28.1% (roughly three times the next green role); solar installation is the most-needed green

skill (25.7%). Sits at the entry/skilled level (indicative TVQF level 2–3) where CBT provision is strongest.

G.2 In-Demand Occupations: Digital Economy

Digital occupations dominate the demand picture. 67.0% of enterprises surveyed operate in at least one digital category, and when employers were asked which areas they expect to grow and create jobs, digital roles took the leading positions. For most of these occupations the share of employers expecting growth exceeds the share currently active in them, which points to an expanding rather than a static demand. The occupations below are expressed in the simplified, locally recognized terms that employers themselves use, aligned to ISCO at the major-group level.

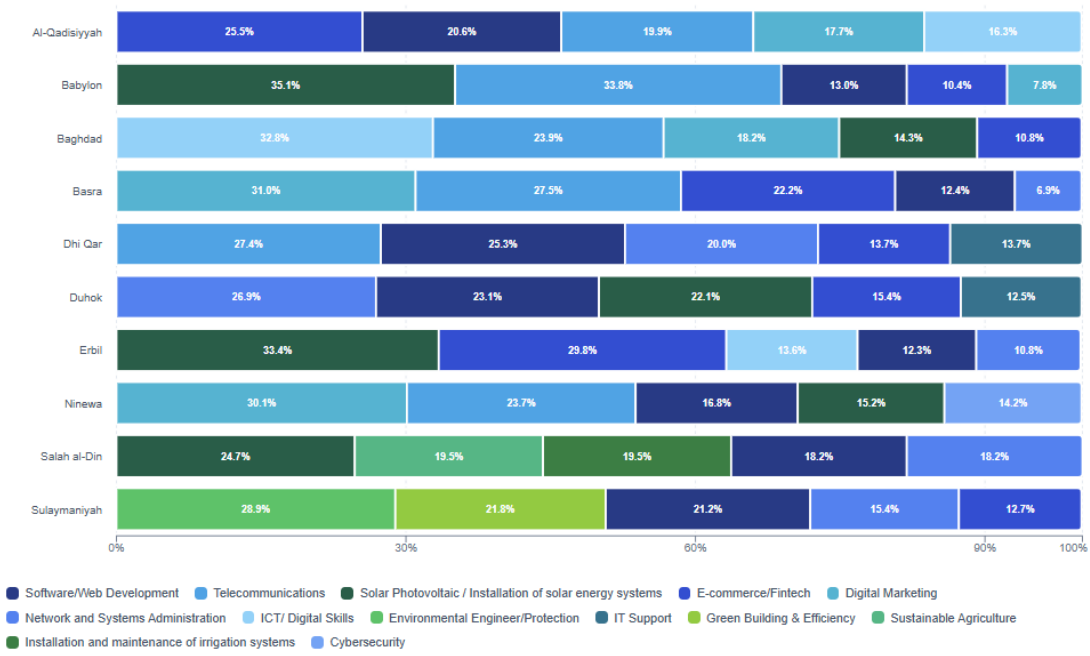


Figure 24 Top Sectors by Province

The clearest demand is concentrated in a small group of established roles. Software and web developers are named as a growth area by 38.9% of enterprises, ahead of digital marketing specialists at 35.4%, telecommunications technicians at 29.4%, and e-commerce and fintech specialists at 23.0%. These are high-volume occupations already present across the sample, and they represent the mainstream of digital labour demand.

A second, sharper signal comes from the frontier. Cybersecurity specialists and artificial-intelligence and machine-learning specialists are currently among the least common roles, present in only 5.4% and 3.6% of enterprises, yet they are named as growth areas by 15.1% and 14.9% respectively.

Occupation (locally recognized)	ISCO alignment (major group)	Currently active	Named as growing
Software and web developer	ICT Professionals	19.7%	38.9%
Digital marketing specialist	Marketing Professionals	24.1%	35.4%
Telecommunications technician	ICT Technicians	24.6%	29.4%
E-commerce and fintech specialist	ICT / Business Professionals	21.8%	23.0%
Network and systems administrator	ICT Professionals	14.5%	20.1%
Cybersecurity specialist	ICT Professionals	5.4%	15.1%
AI and machine-learning specialist	ICT Professionals	3.6%	14.9%
ICT and digital-skills roles	ICT (cross-cutting)	15.8%	11.9%
Data analyst	ICT Professionals	7.2%	11.2%

IT support technician	ICT Technicians	9.4%	9.0%

Table 20 In-demand digital-economy occupations: current activity and expected growth (n = 1,969)

The table sets each occupation's current presence against the share of employers who expect it to grow, and the comparison is revealing. For nearly every digital role the growth figure is higher than the current one, which signals a labour market in expansion rather than at rest. The four clearest priorities are software and web developers, named as a growth area by 38.9% of enterprises against 19.7% currently active, digital marketing specialists at 35.4%, telecommunications technicians at 29.4%, and e-commerce and fintech specialists at 23.0%.

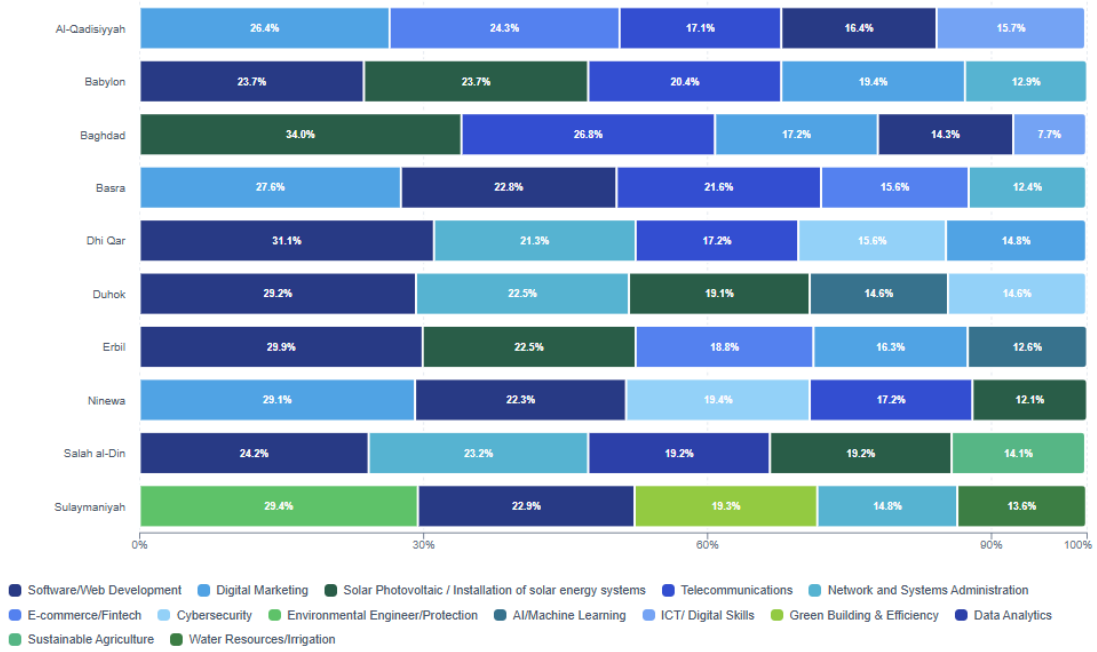


Figure 25 Growing Sectors by Province

A second tier sits lower in the table but tells the more dynamic story. Cybersecurity specialists and artificial-intelligence and machine-learning specialists are present in only 5.4 and 3.6% of enterprises today, yet 15.1 and 14.9% name them as growth areas, increases of roughly threefold and fourfold. These are the emerging frontier occupations, small now but expanding fastest. At the other end, two roles run counter to the pattern: ICT and digital-skills roles and IT support technicians show expected growth at or slightly below their current presence, marking them as the mature, foundational layer of the digital workforce rather than a source of new demand.

The ISCO alignment column points to where in the skills structure this demand falls. Half of the listed occupations, including software development, network administration, cybersecurity, artificial intelligence and data analysis, align to ICT Professionals at major group 25, with a technician layer in telecommunications and IT support at major group 35 and a marketing professional role at major group 24. Digital occupational demand is therefore weighted toward the professional level rather than entry-level work, which carries a direct implication for training: provision cannot stop at basic digital literacy but must extend into higher-technical and professional pathways if it is to meet the roles employers expect to grow.

G.3 In-Demand Occupations: Green Economy

The green economy presents a narrower and far more concentrated picture than the digital. 37.6% of enterprises operate in at least one green category, and within that, demand is anchored heavily on energy. As with the digital occupations, the roles below are expressed in locally recognized terms and aligned to ISCO at the major-group level, with current activity drawn from the sectors enterprises operate in and expected growth from the areas they expect to generate jobs.



Figure 26 In-demand green-economy occupations, current activity and expected growth

Solar photovoltaic installation is the defining green occupation by a wide margin. Solar technicians and installers are active in 18.1% of enterprises and named as a growth area by 28.1%, roughly three times the share of the next green role. This dominance is confirmed on the skills side: solar system installation and maintenance is the single most-needed green skill, reported by 25.7% of all enterprises, ahead of energy auditing and efficiency improvement at 15.5%. The green labour market that employers describe is, first and foremost, a solar-energy labour market.

Beyond solar, demand thins quickly but remains real. Green building and energy-efficiency specialists are named as growing by 9.4% of enterprises and environmental engineering and protection roles by 8.6%, followed by a cluster of water and irrigation, sustainable agriculture and environmental health and safety occupations in the lower single digits. Among these, environmental health and safety stands out for its trajectory, rising from 2.4% currently active to 4.1% expected to grow, the sharpest relative increase in the green group.

The green table is shaped by a single occupation. Solar PV technicians and installers are expected to grow by 28.1% of enterprises, against 18.1% currently active, and that growth figure is roughly three times the share of the next green role. No other green occupation comes close. Where the digital economy spreads its demand across several substantial roles, the green economy concentrates it almost entirely on one, and the comparison between the two columns confirms a market that is still expanding from an already dominant base.

Occupation	ISCO alignment	Currently active	Named as growing
Solar PV technician and installer	Electrical Trades	18.1%	28.1%
Green building and energy-efficiency specialist	Engineering Technicians	8.8%	9.4%
Environmental engineer and protection officer	Science and Engineering Professionals	8.5%	8.6%
Water resources and irrigation technician	Engineering Technicians	5.0%	4.9%
Sustainable agriculture specialist	Agriculture and Forestry	4.1%	4.5%
Environmental health and safety officer	Health and Safety	2.4%	4.1%
Reforestation and afforestation worker	Agriculture and Forestry	2.9%	3.0%
Waste management and recycling operator	Elementary Occupations	2.2%	2.5%

Table 21 In-demand green-economy occupations: current activity and expected growth (n = 1,969)

Below solar, demand is real but shallow and widely spread. A second tier of green building and energy-efficiency specialists at 9.4% and environmental engineering and protection officers at 8.6% gives way to a long tail of water and irrigation, sustainable agriculture, reforestation and waste roles, all in the low single digits. Two movements within this tail are worth noting. Environmental health and safety officers show the sharpest relative rise in the group, from 2.4 to 4.1%, while water resources and irrigation technicians are the one role where expected growth, at 4.9%, sits marginally below current activity, marking it as steady rather than expanding.



Figure 27 In-demand green-economy occupations

The ISCO alignment column draws the clearest contrast with the digital economy. Green demand is anchored at the trade and technician level rather than the professional one: solar installation aligns to Electrical Trades at major group 74, green building and water roles to Engineering Technicians at major group 31, with professional-level environmental roles at major group 21 the exception rather than the rule. This is significant for training, because trade and technician occupations of this kind sit squarely within the conventional remit of technical and vocational education. A focused, competency-based specialism in solar installation, maintenance and energy efficiency would therefore meet the bulk of green occupational demand through exactly the kind of provision the TVET system is built to deliver.

G.4 Occupational Demand by ISCO Major Group

The two preceding tables can be read together through the ISCO major groups to which the occupations align. This shows not only what employers want but at what level of the skills structure that demand sits, which is the question that matters most for planning training. The shares below count the proportion of enterprises naming at least one occupation within each major group. They therefore avoid double-counting roles inside a group, while still reflecting the multiple-response nature of the survey, so the figures across groups do not sum to 100%.

ISCO major group	Representative occupations	Currently active	Named as growing
Information and Communications Technology Professionals (25)	Software/web developer, network and systems administrator, cybersecurity, AI/ML, data analyst	41.0%	62.6%
Business and Marketing Professionals (24)	Digital marketing specialist, e-commerce and fintech specialist	37.2%	46.9%
Information and Communications Technicians (35)	Telecommunications technician, IT support technician	30.2%	34.9%

Electrical and Building Trades (74)	Solar PV technician and installer	18.1%	28.1%
Science and Engineering Associate Professionals (31)	Green building and energy-efficiency specialist, water and irrigation technician	12.7%	13.3%
Science and Engineering Professionals (21)	Environmental engineer and protection officer	8.5%	8.6%
Skilled Agricultural, Forestry and Fishery Workers (6)	Sustainable agriculture specialist, reforestation worker	5.3%	5.9%
Health and Safety Associate Professionals (32)	Environmental health and safety officer	2.4%	4.1%
Elementary Occupations (9)	Waste management and recycling operator	2.2%	2.5%

Table 22 Occupational demand by ISCO major group: current activity and expected growth (n = 1,969)

The top of the demand structure is digital and, more precisely, professional. ICT Professionals at major group 25 is the single largest concentration of demand, named as a growth area by 62.6% of enterprises, ahead of Business and Marketing Professionals at 46.9% and ICT Technicians at 34.9%. The three leading groups are all digital, and two of the three sit at the professional rather than the technician level, which signals that a substantial part of the demand reaches above entry-level work.

Green demand enters the table through a different door. Its leading group, Electrical and Building Trades at major group 74, is driven entirely by solar installation and sits at the trade level, with 28.1% of enterprises expecting growth. Below it, green demand spreads thinly across engineering technicians, environmental professionals, agriculture, health and safety and elementary occupations. Where digital demand is weighted toward the professional tier, green demand is anchored in trades and technician work.

Read as a whole, the table shows occupational demand spanning the entire skills spectrum, from professional ICT roles through technician and trade occupations to elementary work. No single qualification level can absorb it. The section that follows translates this into specific level-by-level implications, linking each occupational cluster to its corresponding competency level and the training response it requires.

H. Occupation, Skills and Training Linkage (TVQF)

The previous section identified the occupations Iraqi employers demand and aligned them to the ISCO framework. This section turns that demand into a basis for action. It links each priority occupation to the skills it requires, the gaps employers report, the competency level at which it sits in the Iraqi Technical and Vocational Qualifications Framework (TVQF), and the training response that follows. It is written to be read directly by curriculum developers, training authorities and the line ministries responsible for technical and vocational provision.

H.1 Occupation-to-Skills-to-Training Matrix

The matrix below is the central planning tool of the report. Each row takes a priority occupation from the occupational analysis and sets four things against it: the core skills the role requires, the specific gap reported by employers, the TVQF level at which the occupation sits, and the recommended training action. The skills and gap columns are grounded in the Tool 1 evidence, in particular the most-needed digital and green skills and the skills employers most often find lacking. The TVQF level and the training action are analytical recommendations, indicative and to be confirmed against the national framework.

Occupation (ISCO)	Required skills	Current gap (survey)	TVQF level	Recommended TVET action
Software and web developer (25)	Coding and programming, app and web development, databases	Digital/ICT skills (49.3% lacking); specialist shortage	5-6 (Specialist)	Establish higher-TVET pathway and intensive coding programs
Digital marketing specialist (24)	SEO, web analytics, content creation, social media	Digital/ICT skills (49.3%); marketing-specific digital skills	4-5	Develop modular short courses and certificates
Telecommunications technician (35)	Network installation, maintenance, fault diagnosis	Practical technical skills shortage	3-4 (Technician)	Revise CBT curriculum; modernize training labs
E-commerce and fintech specialist (24)	Digital payment systems, e-commerce platforms, basic finance	Digital and entrepreneurship/business skills (26.9%)	4-5	Short courses with embedded enterprise-skills modules
Network and systems administrator (25)	Networking, systems administration, security basics	Digital/ICT skills (49.3%); low ICT competency	4-5	Certified CBT modules; modernize labs
Cybersecurity specialist (25)	Network and data security, threat detection, compliance	Acute specialist shortage; emerging demand	5-6 (Specialist)	Create dedicated specialized certification pathway
AI and machine-learning specialist (25)	Programming, data engineering, machine learning	Acute specialist shortage; emerging demand	6 (Professional)	Advanced/higher-education TVET pathway
Data analyst (25)	Data analysis, spreadsheets, data visualization	Digital/ICT skills (49.3%); analytics shortage	4-5	Applied data short courses
Solar PV technician and installer (74)	Solar installation, electrical wiring, safety, maintenance	Technical/green vocational skills (31.6%); practical solar skills (top green need, 25.7%)	2-3 (Entry/Skilled)	Revise and scale CBT curriculum; equip workshops; apprenticeships
Green building and energy-efficiency specialist (31)	Energy auditing, efficient HVAC and building systems	Technical/green skills (31.6%); energy auditing (15.5%)	4-5	Develop new modules and short courses
Environmental engineer and protection officer (21)	Environmental monitoring, impact assessment, compliance	Technical/green skills; professional-level shortage	5-6 (Professional)	Higher-TVET or university pathway
Water resources and irrigation technician (31)	Efficient irrigation, water-saving techniques	Technical/green skills; water-saving skills (6.3%)	3-4 (Technician)	Targeted CBT modules in

				priority governorates
Environmental health and safety officer (32)	EHS compliance, safety and risk management	Technical/green skills; EHS competency	4-5	Certified short course
All priority occupations (common core)	Basic computer literacy, soft skills (communication, teamwork), English	Top reported gaps: digital/ICT 49.3%, soft skills 47.8%, English 42.0% (soft skills rated important by 83.9%)	1-3 (Foundation)	Embed as a common foundation across every program

Table 23 Occupation-to-skills-to-training matrix for priority green and digital occupations (n = 1,969)

H.2 TVQF-Level Mapping (Entry, Technician, Supervisor)

The Iraqi Technical and Vocational Qualifications Framework provides the common reference against which occupations can be placed by competency level. Mapping the priority occupations onto that framework answers a practical question for training authorities: at which levels does demand actually sit, and therefore where should provision be concentrated. The occupations group into three bands the framework recognizes, namely entry or skilled-worker, technician, and supervisor or higher-technician, with a further professional tier that sits at the boundary between technical and higher education. The level assignments below are indicative and to be confirmed against the national framework.

TVQF band	Indicative level [2]	Priority occupations	Competency focus	Training response
Entry / Skilled worker	1-3	Solar PV technician and installer; IT support technician; waste and recycling operator	Practical, task-based skills; safety; basic digital literacy	Revise and scale CBT curricula; apprenticeships and work-based learning; foundation modules
Technician	4-5	Telecommunications technician; network and systems administrator; water and irrigation technician; data analyst	Applied technical competence; equipment operation; fault diagnosis and problem-solving	Modernize training labs; updated CBT modules; targeted short courses
Supervisor / Higher technician	4-5	Digital marketing specialist; e-commerce and fintech specialist; green building and energy-efficiency specialist; environmental health and safety officer	Specialized technical skill with coordination and oversight	Modular certificates; specialized and supervisory short courses
Professional (boundary with higher education)	5-6	Software and web developer; cybersecurity specialist; AI and machine-learning specialist; environmental engineer and protection officer	Advanced and professional expertise	Higher-TVET and university pathways; recognized industry certification

Table 24 Priority occupations mapped to TVQF competency bands

The distribution carries a clear message. The largest single source of green demand, solar installation, sits at the entry and skilled-worker level, exactly where competency-based vocational training is strongest, and much of the rest of the green economy follows it into the entry and technician bands. Digital demand behaves differently. Telecommunications, network administration and support roles sit comfortably at technician level, but the largest digital concentration, the ICT professional roles named as growing by 62.6% of enterprises, reaches into the professional tier above the standard TVET ceiling.

[2] *The qualification levels indicated here are mapped against the officially approved Iraqi Technical and Vocational Qualifications Framework (TVQF), a ten-level national framework approved by the General Secretariat of the Council of Ministers on 2 March 2021. See Annex "The Ten Levels of the Iraqi TVQF."*

The practical implication is a division of responsibility. The TVET system can meet the bulk of green demand and the technician layer of digital demand directly, through revised competency-based curricula, modernized workshops and short courses, while the higher digital roles call for articulation with higher and advanced education rather than standalone vocational provision. Beneath all three bands sits the common foundation of basic digital literacy, soft skills and English, which the survey identifies as the most widespread gap, and which belongs in every program regardless of level.

H.3 Implications for CBT Curriculum Revision

The occupational and skills analysis converts directly into a curriculum agenda. With 51.7% of employers satisfied that technical and vocational education prepares graduates for work, against 44.8% who are not, the case for revising competency-based training (CBT) curricula is plain. The value of the demand evidence is that it makes the revision targeted rather than wholesale. The gaps are concentrated in a small number of competencies, and a focused set of curriculum actions would address the largest part of demand.

A common foundation in every curriculum. Basic digital literacy, soft skills and English should be embedded as a mandatory core across all CBT programs. These are the most widespread gaps employers report, at 49.3% for digital and ICT skills, 47.8% for soft skills and 42.0% for English, and they cut across every occupation and every level rather than belonging to any single trade.

A flagship solar and energy-efficiency qualification. The electrical-trades CBT should be revised and scaled into a dedicated curriculum for solar installation, maintenance and energy auditing. This is the single highest-return green priority, since solar is the most-needed green skill at 25.7% and the largest green occupation, and it sits at the entry and technician levels where vocational training is strongest.

Modernized ICT technician curricula. The telecommunications, networking and systems-administration curricula should be updated and the associated training labs re-equipped, to meet the steady technician-level digital demand that the survey records across these roles.

Modular short courses for the supervisor band. Stackable modules in digital marketing, e-commerce and environmental health and safety should be developed, capable of delivery as short upskilling courses and of accumulation toward full qualifications, matching the specialized supervisor-level demand.

An embedded entrepreneurship layer. Enterprise and business skills should be added to the relevant curricula, addressing the 26.9% entrepreneurship gap and reflecting a private sector dominated by micro-enterprises in which many workers operate as owner-managers.

Three design principles should govern the revision. First, practical and work-based learning must be strengthened, since employers point to limited practical training and weak coordination with industry as reasons vacancies go unfilled, so each curriculum should carry a substantial workplace or apprenticeship component. Second, curricula should be modular and stackable, allowing the same competencies to serve both short courses and full qualifications. Third, the occupation-to-skills matrix should serve as the competency standard against which curricula are written, keeping provision aligned to documented demand and providing a clear articulation route to higher education for the professional-level digital roles that lie beyond the standard TVET ceiling.

H.4 Short-Course and Modular Training Priorities

Curriculum revision takes time, but much of the demand can be met sooner through short, modular courses. These are the fastest route to closing the most acute gaps, and they are the

form of training employers themselves prioritize: training and skills development was the most common request in the open responses, at around 22%, and the same priorities reappeared when employers were asked specifically about quick-win interventions. The short courses below are ordered by reach and speed of deployment.

Short course / module	Gap or occupation addressed	Scale of need (survey)	Delivery note
Foundational digital literacy	Basic computer skills across all roles	Top digital need (65.6%); digital/ICT the top gap (49.3%)	High-volume, short, deployable now; the foundation for all other training
Soft skills and communication	Cross-cutting employability	Soft-skills gap (47.8%); rated important by 83.9%	Short modules, embedded in or alongside technical courses
Workplace English	Cross-cutting	English gap (42.0%)	Modular, level-based short courses
Solar installation and maintenance	Solar PV technician (green)	Top green skill (25.7%); largest green occupation	Practical certificate; fast route while the full curriculum is built
Digital marketing and e-commerce	Digital marketing and e-commerce specialist	Growth roles (35.4% and 23.0%)	Stackable modules; well suited to upskilling existing staff
Energy auditing and efficiency	Green building and energy-efficiency specialist	Second green skill (15.5%)	Short technician course
Enterprise and business skills	Owner-managers across sectors	Entrepreneurship gap (26.9%)	Short course; pair with micro-enterprise support
Cybersecurity and data foundations	Emerging digital roles	Cybersecurity (15.1%) and AI/ML (14.9%) growth	Bridging short courses ahead of full pathways

Table 25 Priority short courses and modular training

Two points govern sequencing. The foundational digital-literacy, soft-skills and English courses should come first, because they address the widest gaps, require the least specialized infrastructure, and underpin every subsequent technical course. The solar installation certificate should follow immediately, as the fastest way to begin meeting the largest single area of green demand while the fuller qualification is developed. All of these should be designed as stackable modules that carry credit toward the full qualifications, and delivered in partnership with employers, both to secure the practical, work-based component that the survey shows is missing and to reach the existing workforce in firms whose digital adoption remains, for the most part, only moderate.

H.5 Alignment with the National Curriculum Development Plan

The occupational demand identified in this assessment feeds directly into the next phase of the project, under which 36 competency-based curricula will be developed and updated in line with the national qualification's framework. These are structured as two priority sectors (digital and green) × three occupations each × six qualification levels (TVQF Levels 2–7): 18 curricula in the entry-to-technician band (Levels 2–4) and 18 in the technician-to-professional band (Levels 5–7). The assessment's demand evidence provides the basis for prioritizing these occupations, and the occupation pathways below translate each into a level-by-level progression ladder.

Occupation ladder	L2 (Cert 2)	L3 (Cert 3)	L4 (Cert 4)	L5 (Diploma)	L6 (Adv. Dip)	L7 (Bachelor)
Software & web development ISCO 2512/2513 · 19.7% / 38.9%	Digital & IT assistant	Junior coding assistant	Web development technician	Software / web developer	Senior / full-stack developer	Software engineer
Digital marketing & e-commerce ISCO 2431 ·24.1% / 35.4%	Social-media assistant	Digital content assistant	Digital marketing technician	Digital marketing / e-commerce specialist	Senior digital marketing specialist	Digital marketing & e-commerce manager
Networks & telecommunications ISCO 3522/2522 · 24.6% / 29.4%	ICT support assistant	Telecom cabling installer	Telecommunications / network technician	Network & systems administrator	Senior network engineer	Network / systems engineer

Table 26 Digital sector: candidate occupation pathways (demand: currently active / named as growing)

Occupation ladder	L2 (Cert 2)	L3 (Cert 3)	L4 (Cert 4)	L5 (Diploma)	L6 (Adv. Dip)	L7 (Bachelor)
Solar PV installation & maintenance ISCO 7411 · 18.1% / 28.1%	Solar installation assistant	Solar PV installer	Solar PV technician	Renewable-energy (solar) technician	Solar energy supervisor	Solar energy engineer
Green building & energy efficiency ISCO 3112 · 8.8% / 9.4%	Building-services assistant	Energy-efficiency installer	Energy-audit technician	Green-building / energy-efficiency specialist	Senior energy auditor	Green-building engineer
Water, irrigation & environment ISCO 3132/2143 · 5.0% / 4.9%	Irrigation field assistant	Irrigation installer	Water & irrigation technician	Water-resources specialist	Environmental officer	Environmental engineer

Table 27 Green sector: candidate occupation pathways

I. Hiring Practices and Labour Market Frictions

How enterprises find and select staff, and where that process breaks down, tells us a great deal about the efficiency of the labour market that connects skills supply to demand. This section draws on what surveyed employers reported about their recruitment methods, the obstacles they face in filling posts, their working relationship with the technical and vocational system, and their own explanations for why certain groups remain shut out of work. The figures rest on the 1,969 approved Tool 1 responses.

I.1 Recruitment Channels

Hiring in Iraq's private sector runs overwhelmingly on informal networks. Employee referrals and recommendations are the single most common method, used by 38.3% of enterprises, and once recruitment through social media is added the informal channels account for 62.0% of all hiring. Formal intermediation is, by contrast, almost absent: university and college career centers, job fairs and government employment services together are the main method for only 3.6% of enterprises. This pattern is itself a labour market friction. It rewards those with personal connections, disadvantages outsiders and new graduates, and leaves the public and educational placement infrastructure largely unused.

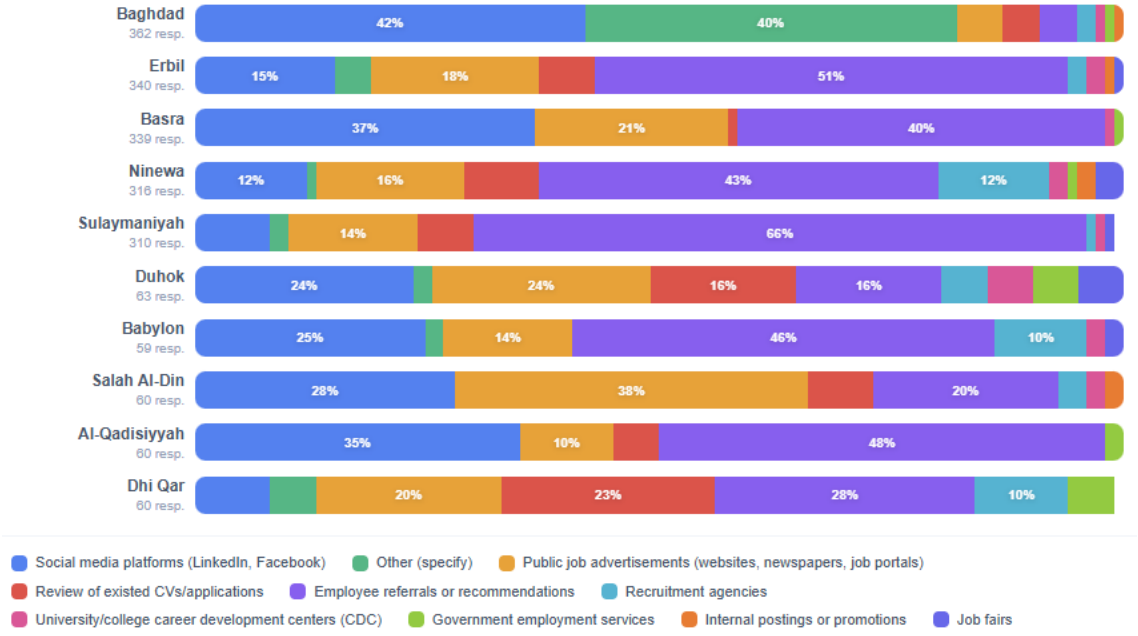


Figure 28 Most common recruitment method by governorate

Recruitment method	Enterprises
Employee referrals or recommendations	754
Social media platforms (LinkedIn, Facebook)	467
Public job advertisements (websites, newspapers, job portals)	308
Other (specify)	174
Review of existed CVs/applications	112
Recruitment agencies	73
University/college career development centers (CDC)	27
Job fairs	24
Government employment services	19
Internal postings or promotions	11

Table 28 Most common recruitment method used by enterprises

I.2 Barriers to Hiring

Among the 288 enterprises that reported difficulty filling green and digital posts and answered this question, the obstacles are concentrated on the supply of suitable people. The most common are a mismatch between applicants' skills and labour-market needs (35%), a shortage of digital skills, and simply too few suitable applicants. A further obstacle is institutional rather than educational, namely weak coordination between companies and technical and vocational institutions.

Barrier to hiring	Enterprises citing
Skills mismatch with labor-market needs	101
Shortage of digital skills	91
Too few suitable applicants	87
Lack of required specializations among graduates	75
Limited practical training (internships/on-the-job training)	46
Weak coordination between companies and Technical and Vocational Education and Training (TVET) providers	41
Unattractive wages / unhelpful incentive structure	27

Table 29 Main barriers to filling vacancies (multiple response, n = 288 enterprises reporting difficulty)

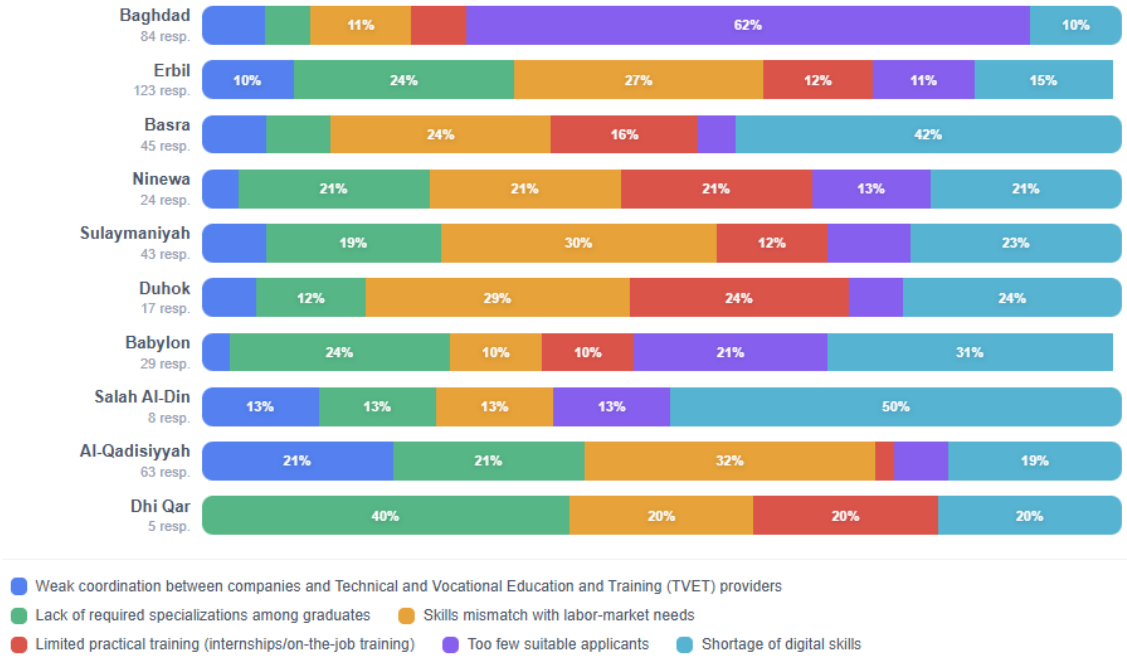


Figure 29 Main barriers to filling vacancies

I.3 Engagement with Technical and Vocational Education

The relationship between employers and the training system is thin at both ends. On one side, only 1.4% of enterprises name university or college career centers as their main route to hire, so the institutions that should channel graduates into firms are barely used. On the other, employers' confidence in the system is only lukewarm: 51.7% say technical and vocational education prepares graduates for work fully or somewhat, against 44.8% who say not much or not at all. Where firms struggle to recruit, weak company-to-institution coordination is cited directly as a cause.

Employer assessment	Enterprises
Yes, fully	246
Yes, somewhat	772
No, not much	609
No, not at all	273

Table 30 Employer assessment of whether TVET prepares graduates for work (n = 1,969)

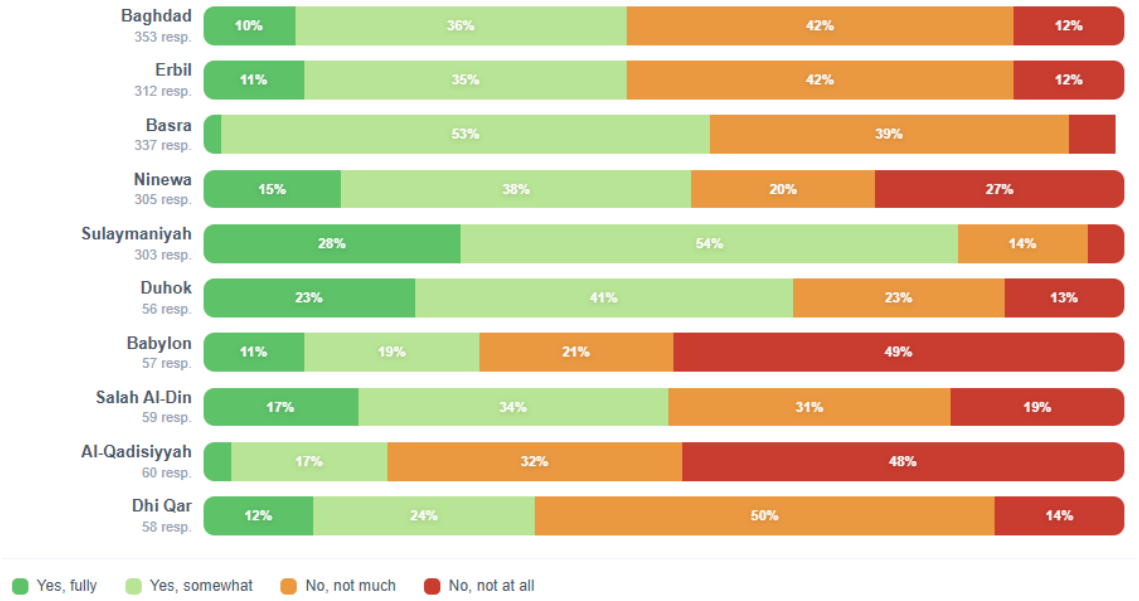


Figure 30 Employer assessment of whether TVET prepares graduates for work by governorate

I.4 Why Certain Groups Remain Excluded

Asked in their own words why some groups face the highest unemployment, the 968 employers who responded returned to two explanations above all. The most frequent is a simple scarcity of job opportunities, raised in around 17.4% of answers, closely followed by a shortage of skills and weak qualifications among job seekers. Smaller numbers point to the quality and relevance of education, to economic conditions and pay, and to social norms and discrimination. The responses were brief and have been read thematically through keyword analysis rather than verbatim; the themes overlap, so the shares do not sum to one hundred. The balance of opinion is nonetheless clear: exclusion is driven both by too few openings and by a skills gap, and a credible response must act on both at once.

Theme (keyword-based)	Responses citing
Limited job opportunities	168
Skills shortage and weak qualifications	129
Lack of training and support	42
Education quality and mismatch	26
Social norms and discrimination	23
Economic conditions and pay	13

Table 31 Recurring themes in employer explanations of group exclusion (open-text, n = 968 responses)

J. Business Environment, Challenges and Future Outlook

This section turns from how enterprises hire to the conditions in which they operate and how they read the road ahead. It reports on the challenges employers say constrain their business, how they rate current employment opportunities in their governorate, how those opportunities have moved over the past three years, the extent to which firms have begun their own green and digital initiatives, and the actions they believe would most improve the labour market. All figures derive from the 1,969 approved Tool 1 responses.

J.1 Key Business Challenges Reported by Employers

When enterprises identify what holds back the adoption of green and digital practices, the obstacles are first financial and technical. Just over half point to high implementation or investment costs (52.5%), and close behind comes a lack of technical expertise or know-how (44.1%). Regulatory barriers, limited access to finance and inadequate infrastructure follow. The shape of these constraints matters for policy: the binding limits are as much about capital and capability inside the firm as about the external environment.

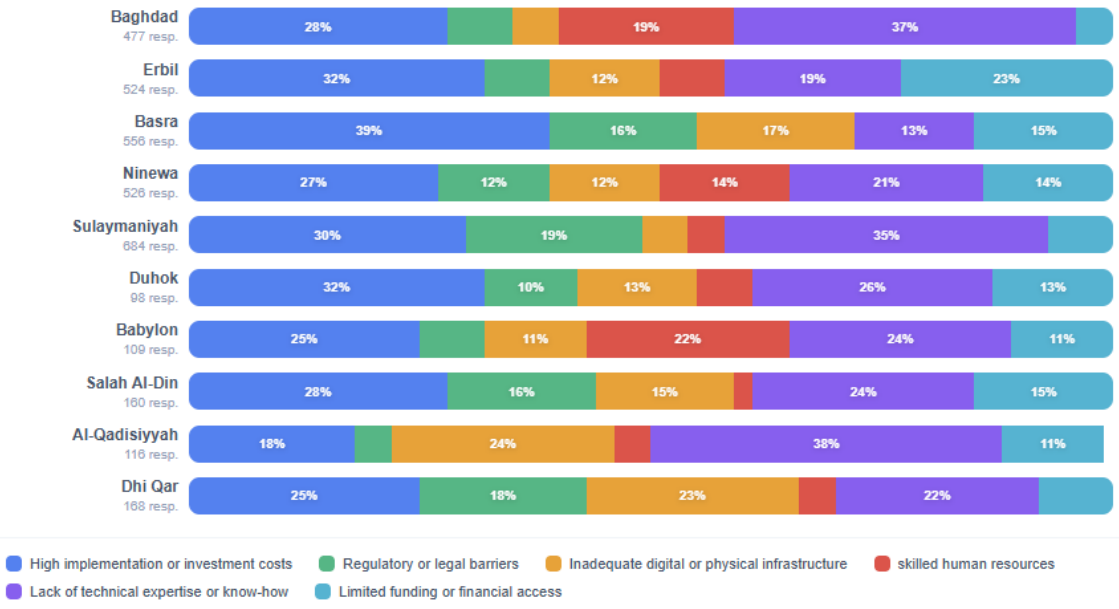


Figure 31 Main business challenges reported by employers ***by governorate***

Challenge	Enterprises citing
High implementation or investment costs	1,033
Lack of technical expertise or know-how	869
Regulatory or legal barriers	431
Limited funding or financial access	419
Inadequate digital or physical infrastructure	389
Shortage of skilled human resources	257
Limited awareness or understanding of benefits	220

Table 32 Main business challenges reported by employers (multiple response, n = 1,969)

J.2 Employment Opportunities

Employers' assessment of current employment opportunities in the green and digital vocations is subdued. A majority, 51.0%, rate them moderately, but the rest lean clearly to the negative: 33.9% describe opportunities as bad or very poor, against only 10.2% who see them as good or very good. A labour market that barely one in ten employers regards as offering good opportunities is one with substantial slack, and it underlines that the skills demand documented earlier is not yet being matched by abundant openings on the ground.

Rating	Enterprises
Very good	20
Good	181
Moderate	1,005
Bad	532
Very poor	136
Don't know	95
Total	**1,969**

Table 33 Rating of current employment opportunities, green and digital vocations (n = 1,969)

J.3 Recent Trend and Future Outlook

Looking back over three years, the direction of travel is modestly positive but far from buoyant. 41.4% of employers report that green and digital job opportunities have increased, whether slightly or significantly, against 25.2% who say they have decreased and 27.5% who report no change at all. The weight of opinion therefore points to gradual growth rather than transformation, consistent with the moderate adoption levels and the financial constraints reported elsewhere in this section.

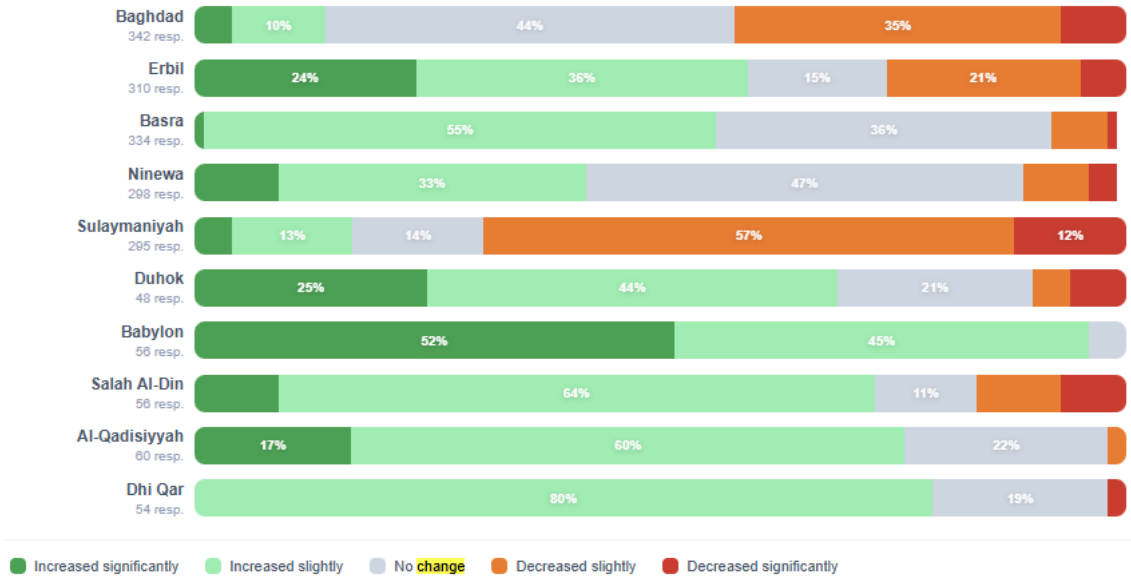


Figure 32 in green and digital job opportunities over the past three years by governorate

Reported change	Enterprises
Increased significantly	190
Increased slightly	626
No change	541
Decreased slightly	401
Decreased significantly	95
Don't know	116
Total	**1,969**

Table 34 Change in green and digital job opportunities over the past three years (n = 1,969)

J.4 Uptake of Green and Digital Initiatives

There is a striking gap between the prominence of green and digital activity in the sample and the degree to which firms have launched initiatives of their own. Only 15.5% of enterprises report active green energy or renewable initiatives, while 63.9% have none and 20.6% are unsure. Digital transformation is somewhat more advanced but still limited: 27.9% report digital or ICT initiatives.

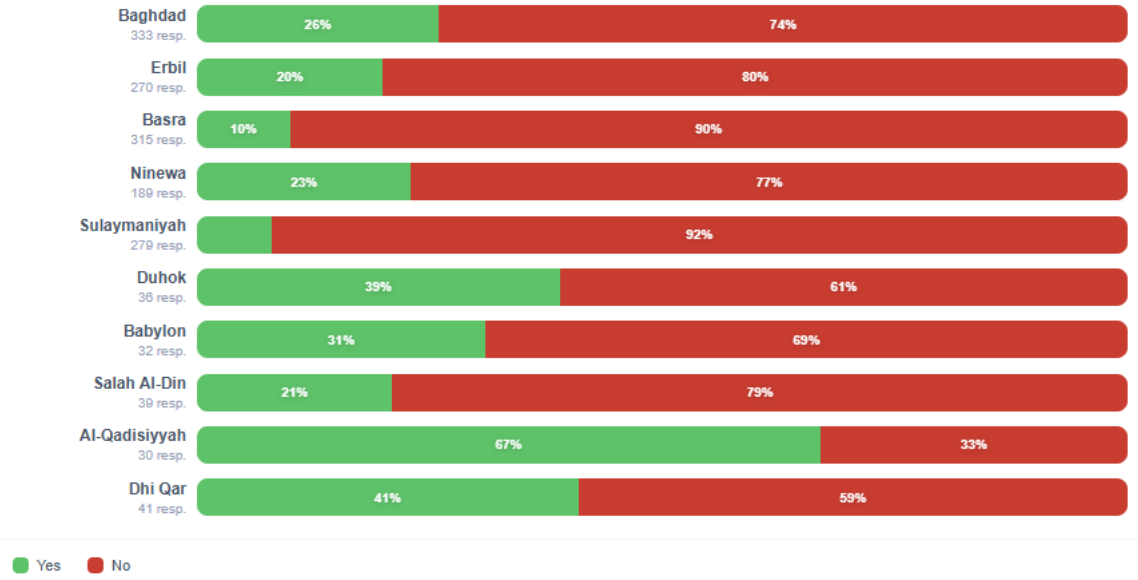


Figure 33 Share of enterprises with green and with digital initiatives by governorate

Response	Green energy initiatives	Digital / ICT initiatives
Yes	306 (15.5%)	549 (27.9%)
No	1,258 (63.9%)	966 (49.1%)
Don't know / Not sure	405 (20.6%)	454 (23.1%)

Table 35 Presence of green and digital initiatives in surveyed enterprises (n = 1,969)

J.5 Employer Priorities for Improving the Labour Market

Asked what actions would most improve how the labour market functions, the 1,966 employers who answered converge on a small set of priorities. Training and skills development is the most common call, raised in around 22.1% of responses, followed closely by government support and incentives and by stronger links between education and the labour market. When the same employers were asked for quick-win interventions, the ranking barely changes, with training and government support again at the top. The consistency of these open-text answers, read here through keyword analysis rather than verbatim, gives a clear mandate: invest in skills, pair that investment with financial and policy support, and tie training more firmly to employer demand.

Priority theme (keyword-based)	Long-term actions	Quick-win interventions
Training and skills development	434 (22.1%)	438 (22.3%)
Government support and incentives	396 (20.1%)	381 (19.4%)
Education and labour-market linkage	260 (13.2%)	140 (7.1%)
Private-sector engagement	189 (9.6%)	175 (8.9%)
Awareness and culture change	53 (2.7%)	37 (1.9%)
Renewable and green energy focus	30 (1.5%)	20 (1.0%)

Table 36 Recurring themes in employer priorities for labour-market improvement (open-text, n = 1,966 responses)

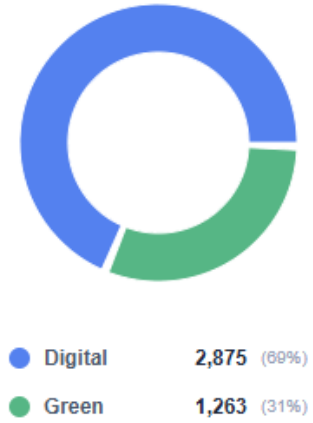
The outlook that emerges is one of cautious, constrained optimism. Employers see moderate and slowly improving opportunities, recognize the green and digital direction of travel, but have largely not yet acted on it within their own firms, and they look to skills investment and public support to unlock the next stage. These priorities feed directly into the recommendations.

K. Sectoral Analysis

The preceding sections treated the sample as a whole. This section reads it by sector, since skills demand, growth prospects and constraints differ markedly between the parts of the economy the assessment reached. The Tool 1 sector taxonomy distinguishes conventional economic activities from explicitly tagged green and digital categories, and that distinction organizes the analysis below. Enterprises could report up to five sectors, so the segments overlap; all figures rest on the 1,969 approved responses.

K.1 Cross-sector Snapshot

The surveyed economy is, first and foremost, a digital one. 67.0% of enterprises operate in at least one digital category and 37.6% in at least one green category, with 11.3% active in both and only 6.6% confined to conventional, non-tagged sectors. Within the digital segment, telecommunications, digital marketing, e-commerce and software development are the largest activities; within the green segment, solar photovoltaic installation dominates, followed at a distance by green building and environmental engineering. The weight of digital activity, and the concentration of green activity around solar energy, frame everything that follows.



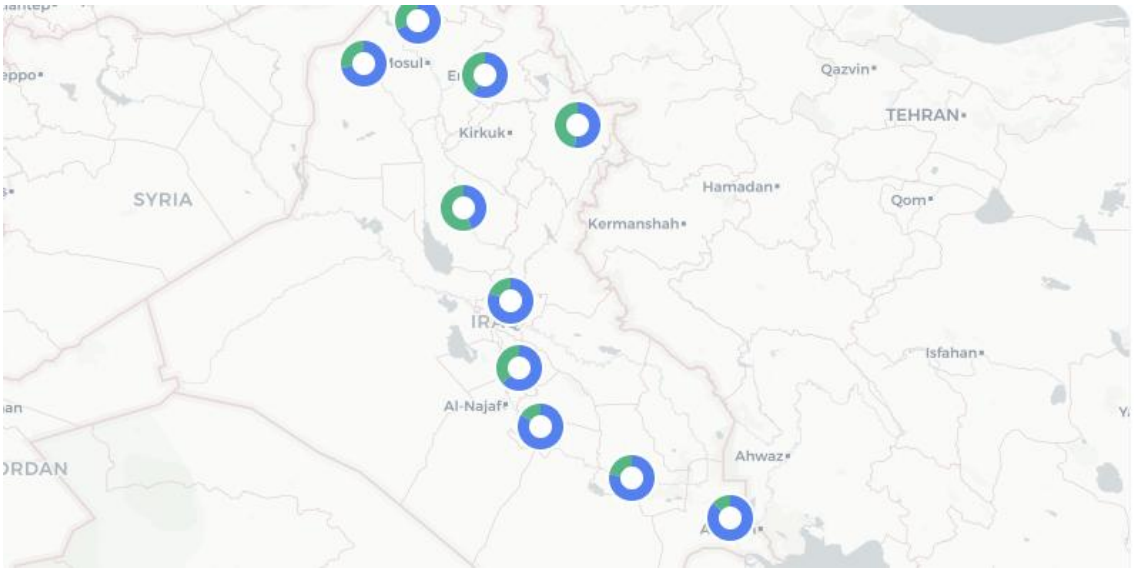


Figure 34 Composition of the sample by green by governorate

Sector segment	Enterprises	Share
Digital economy (any digital category)	1,320	67.0%
Green economy (any green category)	741	37.6%
Both green and digital	222	11.3%
Conventional sectors only	130	6.6%

Table 37 Enterprise presence by sector segment (multiple response, n = 1,969)

K.2 Sectoral Concentration Across Governorates

The green and digital balance is far from uniform across the country. Digital activity is most concentrated in Basra and Al-Qadisiyyah, where it is reported by more than eight in ten enterprises, and is also dominant in Ninewa and Baghdad. Green activity, by contrast, is strongest in Salah al-Din, Sulaymaniyah, Babil and Duhok, where it reaches or exceeds half of enterprises. These differences should guide where particular skills programs are sited: a renewable-energy training offer makes most sense where green enterprise is densest, and a digital offer where digital firms cluster.

Governorate	Digital share	Green share	Enterprises
Baghdad	72.9%	26.8%	362
Erbil	55.9%	45.9%	340
Basra	86.7%	13.0%	339
Ninewa	77.2%	39.9%	316
Sulaymaniyah	43.5%	57.4%	310
Duhok	60.3%	52.4%	63
Dhi Qar	70.0%	31.7%	60
Al-Qadisiyyah	83.3%	25.0%	60
Salah al-Din	46.7%	66.7%	60
Babil	59.3%	55.9%	59

Table 38 Share of enterprises in green and digital segments, by governorate.

K.3 Sectoral Profile by Enterprise Size

Segment and size interact in an informative way. The very smallest firms, those with one to nine staff, lean digital, with 69.8% in a digital category against 33.4% green. As firms grow, green activity becomes relatively more common, so that among enterprises with forty or more staff the green share is the higher of the two. This is consistent with the more capital-intensive nature of green energy and construction work, which suits larger establishments, while digital services are accessible to micro-enterprises and sole operators.

Size band	Digital share	Green share	Enterprises
1-9 staff	69.8%	33.4%	1,552
10–19 staff	58.3%	56.8%	266
40 staff or more	49.1%	58.5%	53
Don't know / Not sure	62.5%	39.6%	48
20–29 staff	48.8%	41.9%	43
30–39 staff	71.4%	42.9%	7

Table 39 Share of enterprises in green and digital segments, by size band.

K.4 Priority Deep-Dive: The Digital Cluster

The digital cluster is the engine of the surveyed economy. Its leading activities are telecommunications, digital marketing, e-commerce and software development, and the skills it most demands are foundational: basic computer literacy heads the list, ahead of spreadsheets, collaboration tools and software development. Digital firms are also the more technologically mature, with 39.4% reporting high digital adoption and 51.0% moderate. The priority for this cluster is therefore twofold: widen the foundational digital skills base that almost every firm needs, while building specialist pipelines in development, data and cybersecurity for the firms operating further up the value chain.

Digital sector	Enterprises	Share
Telecommunications	484	24.6%
Digital Marketing	474	24.1%
E-commerce/Fintech	429	21.8%
Software/Web Development	387	19.7%
ICT/ Digital Skills	312	15.8%
Network and Systems Administration	286	14.5%

IT Support	185	9.4%
Data Analytics	141	7.2%

Table 40 leading digital-economy sectors reported by enterprises (multiple response, n = 1,969)

K.5 Priority Deep-Dive: The Green Cluster

The green cluster is narrower and built around energy. Solar photovoltaic installation is by far the largest green activity, and the green skill in greatest demand is, correspondingly, solar system installation and maintenance, followed by energy auditing and efficiency. Green enterprises tend to be somewhat larger than the sample average and are concentrated in specific governorates. The clear implication is a focused curriculum priority, namely renewable-energy installation and energy efficiency, delivered where green enterprise is densest. Other green fields such as water management, waste and sustainable agriculture register real but smaller demand and warrant targeted rather than wholesale provision.

Green sector	Enterprises	Share
Solar Photovoltaic / Installation of solar energy systems	356	18.1%
Green Building & Efficiency	174	8.8%
Environmental Engineer/Protection	167	8.5%
Installation and maintenance of electronic equipment	124	6.3%
Water Resources/Irrigation	99	5.0%
Sustainable Agriculture	80	4.1%
Reforestation/Afforestation	57	2.9%
Environmental Health & Safety (EHS)	47	2.4%

Table 41 Leading green-economy sectors reported by enterprises (multiple response, n = 1,969)

The conventional, non-tagged sectors account for the remaining 6.6% of enterprises that report no green or digital activity. They are a small minority in this sample and are best served by the cross-cutting foundational and soft-skills priorities identified in the skills section rather than by sector-specific provision. Read as a whole, the sectoral picture argues for a skills response built on two pillars, a broad digital foundation and a focused renewable-energy specialism, each placed where the data show it is most needed.

L. Cross-cutting Analysis

Several themes run across every part of this assessment and are best examined in their own right. This section draws the threads together on gender, youth, and vulnerable groups, and on the two transitions that define the surveyed economy, the green and the digital. It synthesizes evidence already presented section by section and adds the firm-level data on green and digital initiatives that has not appeared before, so that the cross-cutting picture is complete. All figures rest on the 1,969 approved responses.

L.1 Gender and Women's Economic Participation

Women are markedly under-represented at the head of the surveyed enterprises: 5.1% of respondents speaking for their firm were women, against 94.9% men. They are also among the groups employers most often identify as facing high unemployment, named by 28.9% of enterprises. The two findings reinforce one another and point to a participation gap that runs from the shop floor to enterprise ownership. Any inclusive skills and employment strategy will need to address both the demand side, through employer incentives and outreach, and the supply side, through training designed to reach women.

Indicator	Value
Female share of enterprise respondents	5.1%
Male share of enterprise respondents	94.9%
Enterprises citing women as a most-affected group	28.9%

Table 42 Gender indicators from the assessment (n = 1,969).

L.2 Youth Employment

Youth unemployment is the most widely shared concern in the data. Young people aged 15 to 29 are named as a most-affected group by 56.1% of employers, and recent graduates by 59.7%, the single highest figure for any group. Read with the skills evidence, this is not a story of too little education but of a transition that fails at the point of entry, where young people and graduates carry skills that employers do not find to match their needs. The challenge is reported across every governorate rather than in a few, which makes it a national priority rather than a local one.

Governorate	Enterprises citing	Share
Dhi Qar	44	73.3%
Baghdad	256	70.7%
Ninewa	213	67.4%
Erbil	205	60.3%
Duhok	36	57.1%
Al-Qadisiyyah	32	53.3%

Table 43 Share of enterprises citing youth (15 to 29) as a most-affected group, leading governorates

L.3 Vulnerable and Marginalised Groups

Beyond youth and women, employers point to persons with disabilities (27.1%) and internally displaced persons (12.4%) as groups carrying a heavy burden of unemployment and underemployment. Asked to explain why these groups are most affected, the employers who responded returned chiefly to a shortage of opportunities and a shortage of skills, with smaller mentions of education quality, economic conditions and social barriers. The explanation matters for design: programs for these groups must combine genuine job creation or placement with targeted skills support, since neither alone addresses the cause employers describe.

Theme (keyword-based)	Responses citing	Share
Limited job opportunities	168	17.4%
Skills shortage and weak qualifications	129	13.3%
Lack of training and support	42	4.3%

Education quality and mismatch	26	2.7%
Social norms and discrimination	23	2.4%
Economic conditions and pay	13	1.3%

Table 44 Recurring themes in why certain groups are most affected (open-text, n = 968 responses).

L.4 Green Jobs and the Green Transition

Green activity has a real but uneven presence. 37.6% of enterprises operate in a green category, overwhelmingly in solar energy, and the green skill most in demand is solar installation and maintenance, followed by energy auditing. Yet the transition is still shallow inside firms: only 15.5% report active green or renewable initiatives, while 63.9% have none. The gap between green skills demand and green firm-level action is wide, and the barriers employers cite, namely cost and a shortage of technical expertise, explain much of it. A green skills response that is not matched by support for firms to invest will produce trained workers without the jobs to absorb them.

Indicator	Value
Enterprises in a green sector category	37.6%
Top green skill in demand	Solar installation and maintenance (25.7%)
Enterprises with active green initiatives	15.5%
Enterprises with no green initiatives	63.9%

Table 45 Green economy indicators (n = 1,969).

L.5 Digital Transformation

The digital transition is deeper than the green one but still constrained. 67.0% of enterprises operate in a digital category, the most demanded digital skill is basic computer literacy, and 33.4% of firms report high digital adoption with a further 54.7% moderate. Firm-level action is more advanced than on the green side, with 27.9% reporting digital or ICT initiatives, but a near-majority still report none. The pattern is consistent throughout: strong demand and a capable base at the foundational level, thinning quickly towards specialist skills and firm-level investment. Lifting the broad digital baseline, while supporting firms to deepen adoption, is the way to convert this potential into employment.

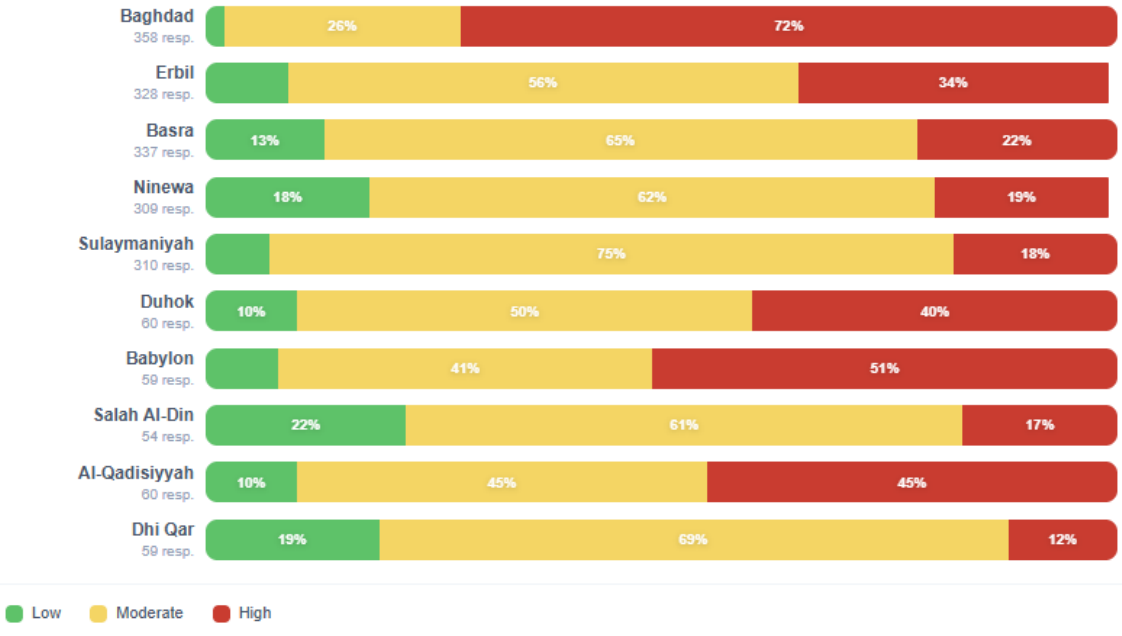


Figure 35 Digital technology adoption among surveyed enterprises by governorate

Indicator	Value
Enterprises in a digital sector category	67.0%
Top digital skill in demand	Basic computer literacy (65.6%)
Enterprises reporting high digital adoption	33.4%
Enterprises with active digital initiatives	27.9%

Table 46 Digital economy indicators (n = 1,969)

Across all five themes the same message recurs. The surveyed economy has the demand and the foundational capacity for an inclusive green and digital transition, but it is held back by uneven participation, a school-to-work transition that misfires, and firms that cannot yet invest. The recommendations that follow are built to act on these constraints together.

M. Governorate Profiles

The ten governorate profiles below condense the assessment to the local level. Each draws on the same approved Tool 1 responses used throughout the report and reports a consistent set of indicators, namely the size and character of the local sample, the green and digital orientation of its enterprises, the skills employers find lacking, their confidence in technical and vocational education, the groups they see as most excluded, and their reading of current and future opportunities. The profiles are intended to be read alongside one another, since their value lies as much in the contrasts between governorates as in the figures for any single one. Smaller governorate samples, in particular those below one hundred responses, should be read as indicative.

Baghdad

Baghdad contributes 362 approved responses, 18.4% of the national sample. Its surveyed private sector is 84.8% micro-enterprises and 87.6% urban, and it leans digital in orientation, with 72.9% of firms reporting a digital activity and 26.8% a green one; ICT/ Digital Skills is the most frequently reported sector. Employers most often find digital and ICT skills lacking among job seekers, and 44.5% consider that technical and vocational education prepares graduates for work. Graduates are seen as the group most exposed to unemployment, named by 77.1% of local employers. On the outlook, 40.9% rate current opportunities as bad or worse while 13.3% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 24.0% of enterprises and digital initiatives in 36.2%.

Indicator	Value
Share of national sample	18.4%
Micro-enterprises (1 to 9 staff)	84.8%
Urban	87.6%
In the digital sector / in a green sector	72.9% / 26.8%
Most reported sector	ICT/ Digital Skills (41.7%)
Most-cited skill gap	Digital and ICT skills (60.2%)
TVET prepares graduates (positive)	44.5%
Group most exposed to unemployment	Graduates (77.1%)
Opportunities rated bad or worse	40.9%
Green / digital initiatives active	24.0% / 36.2%

Table 47 Baghdad, key indicators (n = 362).

Erbil

Erbil contributes 340 approved responses, 17.3% of the national sample. Its surveyed private sector is 76.5% micro-enterprises and 84.7% urban, and it leans digital in orientation, with 55.9% of firms reporting digital activity and 45.9% a green one; Solar Photovoltaic / Installation of solar energy systems is the most frequently reported sector. Employers most often find digital and ICT skills lacking among job seekers, and 42.4% consider that technical and vocational education prepares graduates for work. Graduates are seen as the group most exposed to unemployment, named by 67.4% of local employers. On the outlook, 29.4% rate current opportunities as bad or worse while 54.4% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 16.2% of enterprises and digital initiatives in 18.5%.

Indicator	Value
Share of national sample	17.3%
Micro-enterprises (1 to 9 staff)	76.5%
Urban	84.7%
In a digital sector / in a green sector	55.9% / 45.9%
Most reported sector	Solar Photovoltaic / Installation of solar energy systems (32.6%)
Most-cited skill gap	Digital and ICT skills (65.0%)

TVET prepares graduates (positive)	42.4%
Group most exposed to unemployment	Graduates (67.4%)
Opportunities rated bad or worse	29.4%
Green / digital initiatives active	16.2% / 18.5%

Table 48 Erbil, key indicators (n = 340)

Basra

Basra contributes 339 approved responses, 17.2% of the national sample. Its surveyed private sector is 81.7% micro-enterprises and 97.3% urban, and it leans digital in orientation, with 86.7% of firms reporting digital activity and 13.0% a green one; Digital Marketing is the most frequently reported sector. Employers most often find soft skills (communication, teamwork) lacking among job seekers, and 55.2% consider that technical and vocational education prepares graduates for work. Graduates are seen as the group most exposed to unemployment, named by 59.0% of local employers. On the outlook, 34.2% rate current opportunities as bad or worse while 55.8% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 8.8% of enterprises and digital initiatives in 61.1%. It is the most digitally oriented governorate in the sample, with 86.7% of firms in a digital category.

Indicator	Value
Share of national sample	17.2%
Micro-enterprises (1 to 9 staff)	81.7%
Urban	97.3%
In a digital sector / in a green sector	86.7% / 13.0%
Most reported sector	Digital Marketing (41.3%)
Most-cited skill gap	Soft skills (communication, teamwork) (57.2%)
TVET prepares graduates (positive)	55.2%
Group most exposed to unemployment	Graduates (59.0%)
Opportunities rated bad or worse	34.2%
Green / digital initiatives active	8.8% / 61.1%

Table 49 Basra, key indicators (n = 339)

Ninewa

Ninewa contributes 316 approved responses, 16.0% of the national sample. Its private sector surveyed is 67.1% micro-enterprises and 90.5% urban, and it leans digital in orientation, with 77.2% of firms reporting digital activity and 39.9% a green one; Digital Marketing is the most frequently reported sector. Employers most often find digital and ICT skills lacking among job seekers, and 51.3% consider that technical and vocational education prepares graduates for work. Youth (15–29) are seen as the group most exposed to unemployment, named by 67.4% of local employers. On the outlook, 32.0% rate current opportunities as bad or worse while 39.9% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 13.6% of enterprises and digital initiatives in 17.1%.

Indicator	Value
Share of national sample	16.0%
Micro-enterprises (1 to 9 staff)	67.1%
Urban	90.5%
In a digital sector / in a green sector	77.2% / 39.9%
Most reported sector	Digital Marketing (40.2%)
Most-cited skill gap	Digital and ICT skills (51.6%)
TVET prepares graduates (positive)	51.3%
Group most exposed to unemployment	Youth (15–29) (67.4%)
Opportunities rated bad or worse	32.0%
Green / digital initiatives active	13.6% / 17.1%

Table 50 Ninewa, key indicators (n = 316)

Sulaymaniyah

Sulaymaniyah contributes 310 approved responses, 15.7% of the national sample. The private sector surveyed is 89.4% micro-enterprises and 89.7% urban, and it leans green in orientation, with 43.5% of firms reporting digital activity and 57.4% a green one; Environmental Engineer/Protection is the most frequently reported sector. Employers most often find entrepreneurship / business skills (opportunity identification and enterprise development) lacking among job seekers, and 80.0% consider that technical and vocational education prepares graduates for work. Graduates are seen as the group most exposed to unemployment, named by 58.4% of local employers. On the outlook, 16.8% rate current opportunities as bad or worse while 16.5% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 7.1% of enterprises and digital initiatives in 8.4%. It records the highest employer confidence in technical and vocational education in the sample, at 80.0%.

Indicator	Value
Share of national sample	15.7%
Micro-enterprises (1 to 9 staff)	89.4%
Urban	89.7%
In a digital sector / in a green sector	43.5% / 57.4%
Most reported sector	Environmental Engineer/Protection (35.2%)
Most-cited skill gap	Entrepreneurship / business skills (opportunity identification and enterprise development) (38.1%)
TVET prepares graduates (positive)	80.0%
Group most exposed to unemployment	Graduates (58.4%)
Opportunities rated bad or worse	16.8%
Green / digital initiatives active	7.1% / 8.4%

Table 51 Sulaymaniyah, key indicators (n = 310)

Duhok

Duhok contributes 63 approved responses, 3.2% of the national sample. Its surveyed private sector is 49.2% micro-enterprises and 79.4% urban, and it leans digital in orientation, with 60.3% of firms reporting digital activity and 52.4% a green one; Network and Systems Administration is the most frequently reported sector. Employers most often find digital and ICT skills lacking among job seekers, and 57.1% consider that technical and vocational education prepares graduates for work. Graduates are seen as the group most exposed to unemployment, named by 69.8% of local employers. On the outlook, 46.0% rate current opportunities as bad or worse while 52.4% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 22.2% of enterprises and digital initiatives in 30.2%.

Indicator	Value
Share of national sample	3.2%
Micro-enterprises (1 to 9 staff)	49.2%
Urban	79.4%
In a digital sector / in a green sector	60.3% / 52.4%
Most reported sector	Network and Systems Administration (44.4%)
Most-cited skill gap	Digital and ICT skills (60.3%)
TVET prepares graduates (positive)	57.1%
Group most exposed to unemployment	Graduates (69.8%)
Opportunities rated bad or worse	46.0%
Green / digital initiatives active	22.2% / 30.2%

Table 52 Duhok, key indicators (n = 63)

Dhi Qar

Dhi Qar contributes 60 approved responses, 3.0% of the national sample. Its surveyed private sector is 60.0% micro-enterprises and 91.7% urban, and it leans digital in orientation, with 70.0% of firms reporting a digital activity and 31.7% a green one; Telecommunications is the most frequently reported sector. Employers most often find digital and ICT skills lacking among job seekers, and 35.0% consider that technical and vocational education prepares graduates for work. Youth (15–29) are seen as the group most exposed to unemployment, named by 73.3% of local employers. On the outlook, 55.0% rate current opportunities as bad or worse while 71.7% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 28.3% of enterprises and digital initiatives in 33.3%.

Indicator	Value
Share of national sample	3.0%
Micro-enterprises (1 to 9 staff)	60.0%
Urban	91.7%
In a digital sector / in a green sector	70.0% / 31.7%
Most reported sector	Telecommunications (43.3%)
Most-cited skill gap	Digital and ICT skills (66.7%)
TVET prepares graduates (positive)	35.0%
Group most exposed to unemployment	Youth (15–29) (73.3%)
Opportunities rated bad or worse	55.0%
Green / digital initiatives active	28.3% / 33.3%

Table 53 Dhi Qar, key indicators (n = 60)

Al-Qadisiyyah

Al-Qadisiyyah contributes 60 approved responses, 3.0% of the national sample. The private sector surveyed is 85.0% micro-enterprises and 98.3% urban, and it leans digital in orientation, with 83.3% of firms reporting digital activity and 25.0% a green one; E-commerce/Fintech is the most frequently reported sector. Employers most often find language proficiency (English) lacking among job seekers, and 20.0% consider that technical and vocational education prepares graduates for work. Men are seen as the group most exposed to unemployment, named by 83.3% of local employers. On the outlook, 85.0% rate current opportunities as bad or worse while 76.7% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 33.3% of enterprises and digital initiatives in 20.0%. Employer confidence in technical and vocational education is the lowest in the sample here, at 20.0%.

Indicator	Value
Share of national sample	3.0%
Micro-enterprises (1 to 9 staff)	85.0%
Urban	98.3%
In a digital sector / in a green sector	83.3% / 25.0%
Most reported sector	E-commerce/Fintech (60.0%)
Most-cited skill gap	Language proficiency (English) (73.3%)
TVET prepares graduates (positive)	20.0%
Group most exposed to unemployment	Men (83.3%)
Opportunities rated bad or worse	85.0%
Green / digital initiatives active	33.3% / 20.0%

Table 54 Al-Qadisiyyah, key indicators (n = 60)

Salah al-Din

Salah al-Din contributes 60 approved responses, 3.0% of the national sample. Its surveyed private sector is 86.7% micro-enterprises and 70.0% urban, and it leans green in orientation, with 46.7% of firms reporting a digital activity and 66.7% a green one; Solar Photovoltaic / Installation of solar energy systems is the most frequently reported sector. Employers most often find language proficiency (English) lacking among job seekers, and 50.0% consider that technical and vocational education prepares graduates for work. Graduates are seen as the group most exposed to unemployment, named by 63.3% of local employers. On the outlook, 25.0% rate current opportunities as bad or worse while 68.3% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 13.3% of enterprises and digital initiatives in 11.7%.

Indicator	Value
Share of national sample	3.0%
Micro-enterprises (1 to 9 staff)	86.7%
Urban	70.0%
In a digital sector / in a green sector	46.7% / 66.7%
Most reported sector	Solar Photovoltaic / Installation of solar energy systems (31.7%)
Most-cited skill gap	Language proficiency (English) (53.3%)
TVET prepares graduates (positive)	50.0%
Group most exposed to unemployment	Graduates (63.3%)
Opportunities rated bad or worse	25.0%
Green / digital initiatives active	13.3% / 11.7%

Table 55 Salah al-Din, key indicators (n = 60)

Babil

Babil contributes 59 approved responses, 3.0% of the national sample. Its surveyed private sector is 83.1% micro-enterprises and 52.5% urban, and it leans digital in orientation, with 59.3% of firms reporting a digital activity and 55.9% a green one; Solar Photovoltaic / Installation of solar energy systems is the most frequently reported sector. Employers most often find digital and ICT skills lacking among job seekers, and 28.8% consider that technical and vocational education prepares graduates for work. Youth (15–29) are seen as the group most exposed to unemployment, named by 52.5% of local employers. On the outlook, 39.0% rate current opportunities as bad or worse while 91.5% report improvement over the past three years, and firm-level uptake remains limited, with green initiatives active in 16.9% of enterprises and digital initiatives in 16.9%.

Indicator	Value
Share of national sample	3.0%
Micro-enterprises (1 to 9 staff)	83.1%
Urban	52.5%
In the digital sector / in a green sector	59.3% / 55.9%
Most reported sector	Solar Photovoltaic / Installation of solar energy systems (45.8%)
Most-cited skill gap	Digital and ICT skills (59.3%)
TVET prepares graduates (positive)	28.8%
Group most exposed to unemployment	Youth (15–29) (52.5%)
Opportunities rated bad or worse	39.0%
Green / digital initiatives active	16.9% / 16.9%

Table 56 Babil, key indicators (n = 59)

Read together, the profiles show one labour market with many local faces. Digital orientation peaks in the southern and central commercial centers while green activity concentrates in the north and the agricultural governorates; employer confidence in training ranges from the highest to the lowest values in the sample across neighboring provinces; and the outlook varies just as widely. These contrasts are the strongest argument in the report for skills responses that are designed governorate by governorate rather than nationally and uniformly.

N. Stakeholder Consultations and Validation

N.1 Consultation Approach and Participating Institutions

The validation of the Labour Market Assessment (LMA) findings was carried out through a structured program of stakeholder consultation under the UNESCO TVET III project, Green and Digital TVET for Enhancing Employability in Iraq. The consultation combined two complementary instruments: (i) a set of six semi-structured Key Informant Interviews (KIIs) with the members of the LMIO Advisory Body for Federal Iraq and the Kurdistan Region (KRI); and (ii) a series of institutional coordination engagements convened during the LMIO Expert's Baghdad mission of 22–26 June 2026, including the TVET III Third Steering Committee Meeting and bilateral meetings with the federal and Kurdistan planning, labour and higher-education authorities.

The KII instrument was designed to place the LMA's demand-side findings before the institutions responsible for translating them into training provision. It was administered through the UNESCO digital LMA platform and structured around twenty-three questions spanning four validation domains: curriculum coverage and alignment to the identified occupations and to ISCO/TVQF classifications; trainer and teacher capacity; training infrastructure and equipment; and institutional readiness, partnerships and recommendations. Six questions used a common five-point rating scale; the remainder were open-ended.

N.1.1 Participating institutions

The six informants were deliberately drawn to mirror the LMIO's federal–regional governance structure: one senior official from each of the three mandated authorities: the Ministry of Education (vocational education), the Ministry of Higher Education and Scientific Research, and the Ministry of Labour and Social Affairs at both the **Federal** and the **Kurdistan Region** level. All six are members of the LMIO Advisory Body. The panel therefore spans the full institutional reach of the skills system across the two administrations, from vocational schools and training centers (MoE; MoLSA/DOLSS) to the technical-university and career-development-center tier (MoHESR; MoHE KRI).

The consultations were conducted between 12 and 30 June 2026 by the UNESCO LMIO Expert; five were held online and one in person, with an average duration of 66 minutes. The scheduling reflects the coordination effort documented in the Baghdad mission: the two Ministry of Labour interviews (Federal MoLSA on 28 June; KRI MoLSA/DOLSS on 30 June) followed dedicated preparatory engagements: a coordination call with the Federal MoLSA Senior Manager on 23 June, and a meeting on 22 June with the President of the Kurdistan Region Statistics Office and Deputy Minister of Planning to facilitate the re-engagement of KRI MoLSA in the validation exercise.

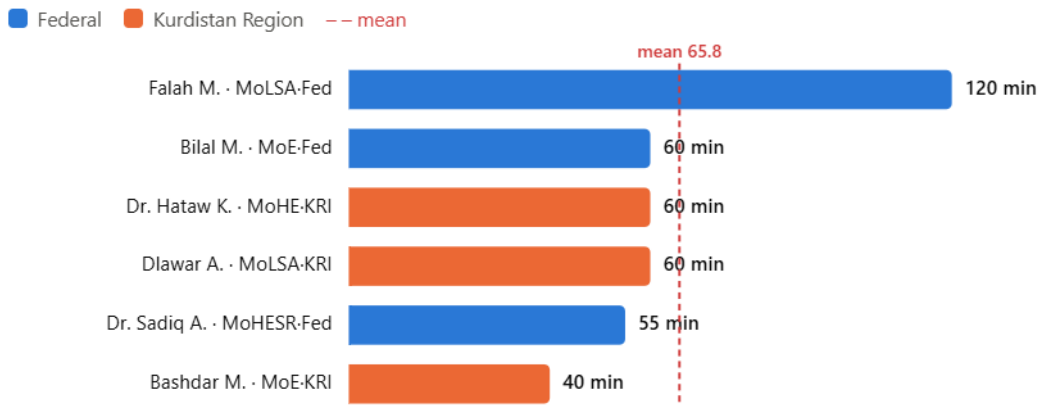


Figure 36 Interview duration by informant, colored by administration

Beyond the interviews, the LMA results were presented to the **TVET III Third Steering Committee Meeting** on 24 June 2026 at the COMSEC Guest House in Baghdad, attended by the Prime Minister's Advisory Commission, the European Union Delegation, and the education, higher-education, labour and planning authorities of both administrations, and discussed in a strategic meeting with the **Federal Ministry of Higher Education and Scientific Research**. These engagements situated the LMA within the wider institutional agenda of the two LMIOs, the ten Green and Digital Sectoral Councils, and the sustainability of the UNESCO digital platform, including a proposal to embed the Sectoral Councils within the Industrial Advisory Councils of the Technical Universities.

N.2 Provider Perspectives and Validation of Findings

Across the six rating dimensions, institutional readiness to deliver the green and digital occupations identified by the LMA was assessed as **consistently low**. The 36 ratings returned an average of **2.14 on the five-point scale**; no dimension, for any informant, reached the top of the scale, only a single rating reached "4", and three-quarters of all responses (27 of 36) sat at "2 low/weak". The convergence of six senior officials across three ministries and two administrations on a uniformly low readiness assessment is itself a strong validation signal: it confirms, from the supply side, the capability gap that the enterprise survey infers from the demand side.

2.14 / 5	**27** / 36	**0**	**6** / 6
Mean of all 36 readiness ratings	Ratings at "low/weak" (≤2) — 75%	Ratings at the top of the scale ("5")	Report a shortage of qualified trainers

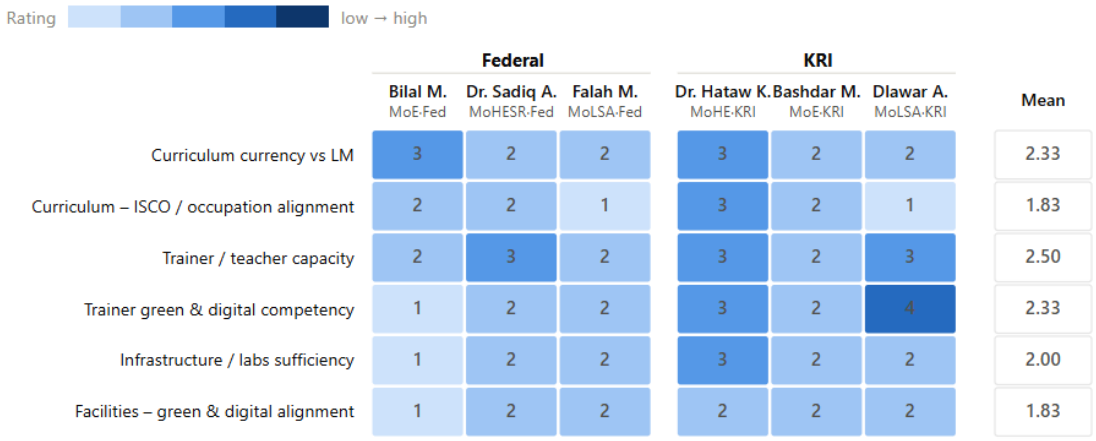


Figure 37 Institutional-readiness ratings: six informants × six dimensions. Right-hand column shows the dimension mean.

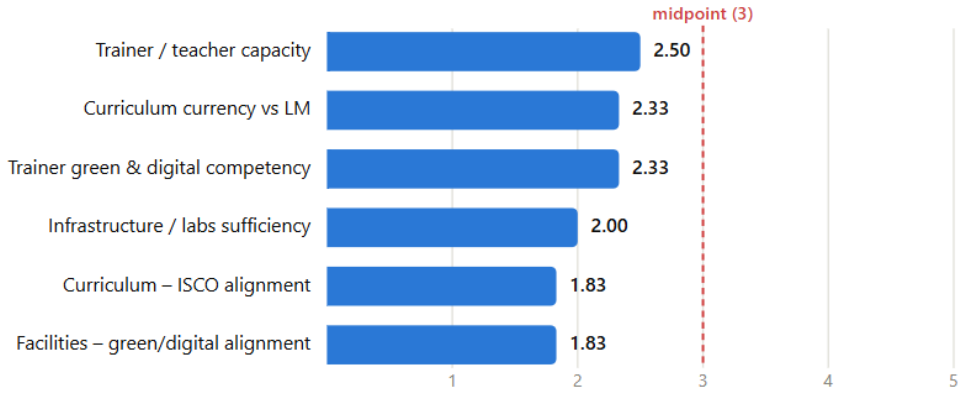


Figure 38 Mean readiness score by dimension (scale 1–5; dashed line = scale midpoint "3 moderate")

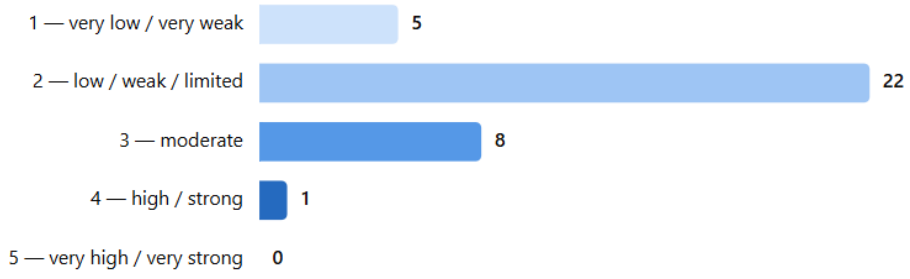


Figure 39 Distribution of all 36 rating responses (six dimensions × six informants).

N.2.1 Curriculum coverage and occupational gaps

Asked whether their institutions currently provide programs for the identified occupations, informants described coverage as partial and concentrated in a few legacy ICT and, more recently, solar-energy offerings, with most priority occupations absent. The Federal MoE informant reported that "most occupations are not currently available", with only computer networking, computer maintenance, cybersecurity, artificial intelligence and e-administration on offer, and even these "lacking equipment, tools, laboratories and trained instructors" (translated from Arabic). The Federal MoLSA informant reported that, on the labour side, only digital marketing and NGO-funded solar-panel installation were being delivered, "not functioning all the time". The KRI institutions reported a somewhat broader base (renewable-energy

technology, automation, ICT and, in Duhok, sustainable agriculture), but still with the advanced digital and green roles missing.

Consolidating the occupations that informants named as not yet covered or requiring new/updated programs (questions 1, 4, 5 and 6), the most frequently flagged were web and software development and network / systems administration (each named by five of the six informants), followed by solar PV and renewable energy, energy efficiency and green buildings, digital marketing, cybersecurity and artificial intelligence.

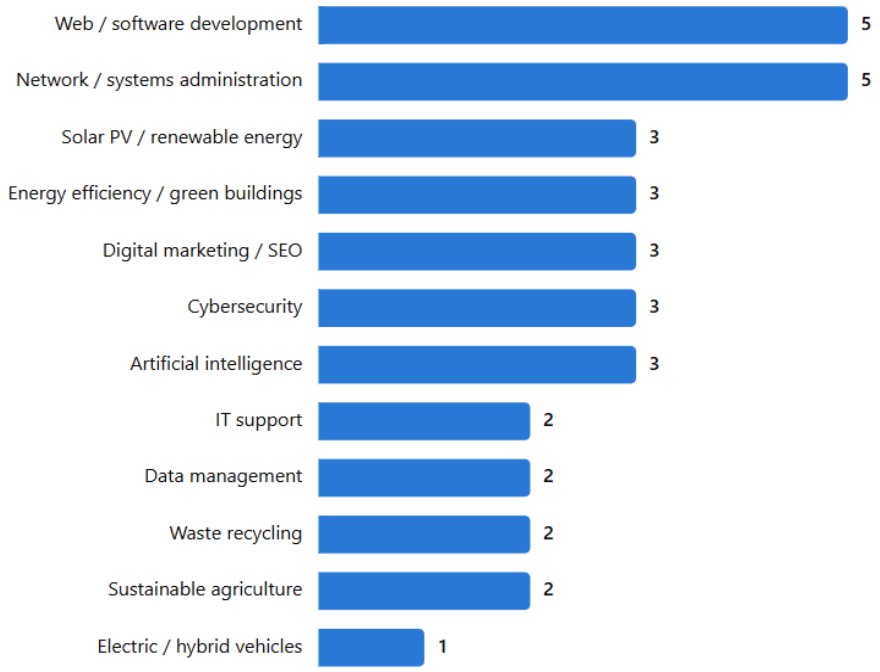


Figure 40 Green and digital occupations / programs most frequently flagged by informants for introduction or modernization

N.2.2 ISCO and TVQF integration

Informants' responses independently validated two methodological choices in the LMA report: anchoring the occupational analysis at the **ISCO major-group level** rather than forcing unit-level codes, and presenting the **TVQF mapping as indicative**. Every informant rated curriculum–ISCO alignment at "moderate" or below, and their explanations pointed to the same structural gap: curricula "not classified according to international standards" (Federal MoE) (translated from Arabic), built on the Bologna process rather than an occupational map (MoHE KRI), or following decentralization left to individual centers to "follow their own modules" (Federal MoLSA). A KRI MoE official stated that provision "has not been systematically mapped to ISCO-08 classifications or formalized TVQF levels".

On integrating the TVQF, informants offered constructive and mutually consistent routes: the Federal MoE informant supplied the national ten-level TVQF structure and located vocational-education provision at **Level 4**; the KRI MoE informant proposed mapping technician courses to **Levels 4–5** and professional engineering qualifications to **Level 6**; and the Federal MoLSA informant proposed first agreeing occupation titles and families, linking them to ISCO, then defining three tiers (essential / middle / advanced) per occupation before curriculum design. The KRI MoLSA informant noted the current constraint bluntly: VTC graduates presently carry a single undifferentiated grade ("Professional Technical Labour"). These perspectives directly endorse the report's Occupation–Skills–Training matrix and its call to map qualifications to ISCO-08 and the TVQF before curriculum revision.

N.3 Validation and Triangulation with the LMA Survey

The KII findings were compared against the headline results of the enterprise survey (n = 1,969). On every point of comparison, the supply-side testimony of the responsible institutions corroborates the demand-side evidence and, importantly, explains it: the occupations employers most demand are precisely those the training system reports it cannot yet supply. Survey figures below are drawn from the LMA Final Report.

KII finding (institutions)	Corroborating survey evidence (employers)	Verdict
Curricula omit solar and renewable-energy occupations; solar named as the leading green gap (Federal MoE, KRI MoE, Federal MoLSA)	Solar installation & maintenance is the **#1 most-needed green skill (25.7%)**; Solar PV technician is the top green occupation, **28.1% growth** vs 18.1% active; 37.6% of firms operate in a green sector.	Confirmed
Curricula omit web/software development and network/systems administration (5 of 6 informants)	Software/web development is the **#1 digital growth occupation (38.9%)**; digital & ICT skills are the **#1 employer-reported gap (49.3%)**; 67.0% of firms are in a digital sector; basic computer literacy tops digital demand (65.6%).	Confirmed
Trainers lack green/digital competency; TOT required (6 of 6)	Employers cite a **lack of technical expertise (44.1%)** as a top barrier, and a **skills mismatch (35.1%)** as the leading reason green/digital posts are hard to fill.	Confirmed
Provision not mapped to ISCO-08 / TVQF; alignment rated ≤ moderate by all (mean 1.83)	The report anchors occupational analysis at ISCO major-group level and presents the TVQF matrix as **indicative**; the KIIs independently confirm the very alignment gap the report cautions about, and endorse mapping qualifications before curriculum revision.	Confirmed
Little or no formal private-sector partnership (only 2 of 6, both universities)	Formal intermediation reaches only **3.6%** of firms (university career centers 1.4%); about 62% of hiring runs through informal referrals and social media.	Confirmed
Soft-skills and English gaps flagged; ~70% of teaching reported as theoretical (Federal MoE)	Soft skills (47.8%) and English (42.0%) are among the top employer-reported gaps; 83.8% of firms rate soft skills as important.	Confirmed
Call to adopt the LMA's priority occupations and short courses (KRI MoE informant referred to "the 12 priority occupations")	The report's Occupation–Skills–Training matrix presents the priority green & digital occupations for CBT revision and short-course design. (Informant's "12" is his phrasing; the report presents the priority set as indicative.)	Aligned

Table 57 Triangulation of KII (supply-side) findings against the LMA enterprise survey (demand-side)

N.4 Institutional Priorities and TVET Absorption Capacity

The interviews converge on a single diagnosis: the demand identified by the LMA is real and recognized by the institutions, but the system's current **absorption capacity trainers, facilities and financing is not yet in place** to deliver it. The barriers are consistent across ministries and administrations, and the priorities the informants set out map closely onto the report's recommendations.

N.4.1 Trainer and teacher capacity

All six informants reported a **shortage of qualified trainers** for the identified occupations, and all six identified **green and digital technical competency** as the principal capacity gap, requiring training-of-trainers (TOT). Trainer backgrounds differ sharply by tier: the higher-education institutions (MoHESR; MoHE KRI) reported master's- and doctorate-qualified staff, whereas the labour-side vocational training centers (MoLSA) reported a cadre that is predominantly high-school- and diploma-qualified with "limited to no recent industry field

experience". The KRI MoLSA informant highlighted a demographic risk on top of the skills gap: no recruitment since 2012 and a recent retirement wave, with budget constraints preventing the contracting of external experts. The Federal MoLSA informant added that there are "no qualifier tests to measure trainer capacity" and called for a credentialed, test-based certification of trainers with periodic refreshers.

N.4.2 Infrastructure and equipment

Informants consistently reported that **buildings largely exist but laboratories, workshops and equipment are outdated or absent** in one case "not updated for decades" (translated from Arabic) and that consumable training materials are not provided. The most frequently cited needs were modern computer laboratories and reliable high-speed internet (both named by all six), followed by licensed software and development tools, networking and cybersecurity lab equipment, digital-marketing/content-production kit, building renovation, and specialized green kit such as solar-PV training rigs and energy-auditing instruments. Facility alignment to green and digital requirements was the joint-lowest-rated dimension in the survey (mean 1.83; every informant "low" or "very low").

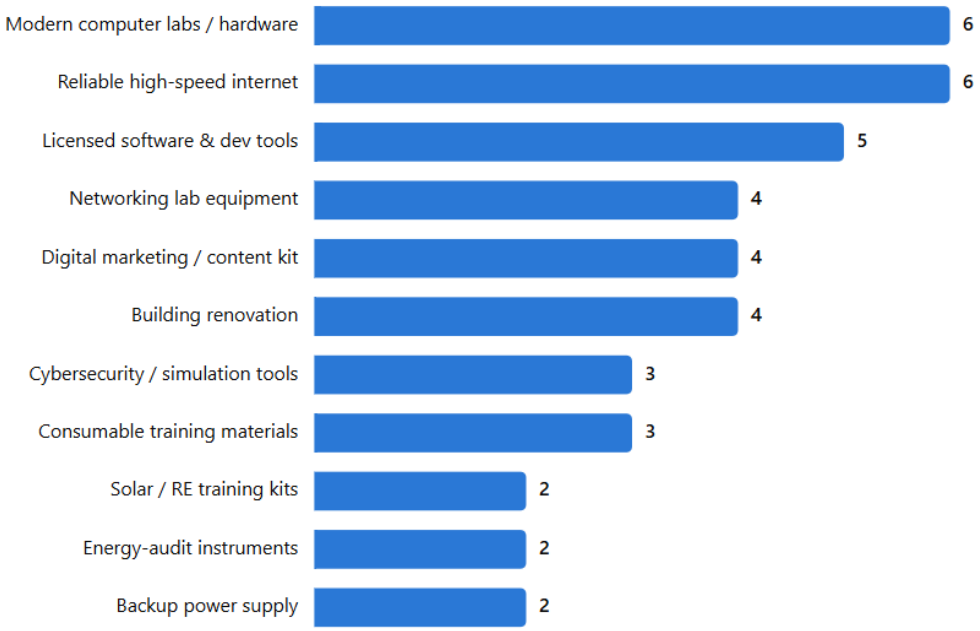


Figure 41 Infrastructure and equipment needs cited by informants.

N.4.3 Plans, financing and private-sector partnerships

No informant reported a government-*funded* plan to upgrade facilities; where plans exist, **financing is the binding constraint**, and the concrete initiatives named were all donor- or NGO-led GIZ and BBW (renovation and light equipping), BFZ (solar-energy workshops, TOT and training materials in the KRI), Rawanga (a mobile maintenance workshop), and ILO (curriculum discussions, not yet agreed). Formal private-sector partnership is largely absent: only two of six informants both on the higher-education side reported any standing arrangement (university Industrial Councils and MoUs), while the others reported none or only nascent efforts to establish sectoral councils. Funding was the single most-cited implementation challenge (named by five of six), alongside bureaucratic approval delays and the trainer shortage.

N.4.4 Priorities and recommendations

The recommendations the informants volunteered are strikingly aligned with one another and with the report's own recommendations. **Private-sector partnership and sectoral**

councils were called for by all six; **modernizing curricula to labour-market demand** by five; and **training-of-trainers** by four. Other priorities included upgrading equipment and laboratories, embedding practical and work-based learning, recruiting a younger trainer cadre, using LMIO data to guide program planning, mapping qualifications to ISCO-08 and the TVQF, establishing graduate tracer studies, and pairing skills provision with MSME and youth financing. The Federal MoLSA and MoHESR informants explicitly endorsed using the LMIO/LMA evidence base to drive program planning the institutionalization that the report calls for.

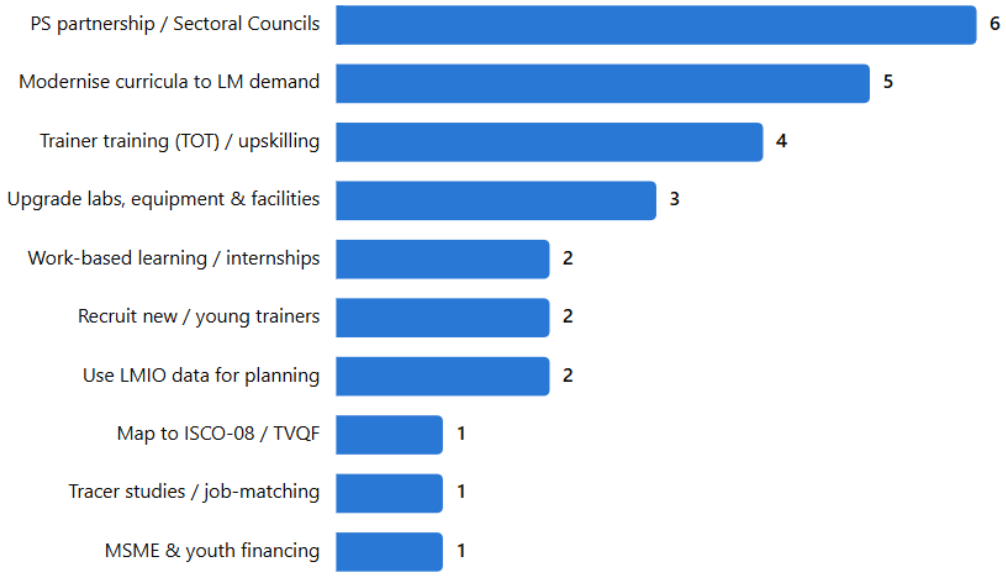


Figure 42 Recommendations volunteered by informants to strengthen TVET–labour-market alignment

N.5 Institutional and Policy-Level Validation

Beyond the technical validation provided by the key-informant interviews with the Observatory's Advisory Body, the assessment's findings and supporting mechanisms were presented to, and endorsed by, the project's Third Steering Committee (Baghdad, 24 June 2026). The committee convened the relevant federal and Kurdistan authorities for planning, labour, higher education and education, together with the Prime Minister's Advisory Commission and the European Union Delegation. Discussion centered on the complementarity between the Observatory and the national Labour Market Information System, on governance and long-term sustainability, and on national ownership of the evidence base; the committee welcomed the proposal to anchor the Green and Digital Sectoral Councils within the Technical Universities' Industrial Advisory Councils. A subsequent strategic meeting with the Federal Ministry of Higher Education and Scientific Research reinforced ministerial ownership of the labour-market evidence agenda. Together, these engagements provide a policy-level endorsement that complements the institution-level validation recorded in the interviews above.

O. Recommendations

The recommendations that follow translate the assessment's findings, and the priorities employers themselves named, into specific actions. When asked what would most improve the labour market, surveyed enterprises pointed above all to training and skills development (raised in around 22.1% of open responses), to government support and incentives (20.1%), and to stronger links between education and the labour market. The recommendations are grouped into skills, policy, employment and cross-cutting actions, and are addressed to UNESCO, to government counterparts at federal and Kurdistan Region level, and to development partners. Each is national in scope but designed to be applied governorate by governorate, reflecting the large local differences documented in this report.

O.1 Skills Recommendations

The clearest single message of the assessment is a skills mismatch. Across all 10 surveyed governorates, employers report that the education and TVET system does not fully prepare graduates for work, with 44.8% saying it does so not much or not at all against 51.7% fully or somewhat, and they name digital, green, technical and soft skills as the competencies most lacking. This structural disconnect between training outputs and real employer demand is producing persistent talent shortfalls across every priority sector and region. The skills recommendations below address it directly, by changing both what is taught and how closely it tracks employer demand.

Build a combined digital and soft-skills foundation in every program. The two most widespread gaps, digital and ICT skills (reported by 49.3% of employers) and soft skills (47.8%, with 83.9% rating them important or very important), appear together and cut across every sector and every level rather than belonging to any single trade. Foundational digital literacy and core soft skills, namely communication, teamwork, professional conduct and problem-solving, should therefore be a mandatory, assessed component of every technical and vocational program rather than an optional add-on. To make that component count where it matters, in hiring, it should carry an employer-endorsed, industry-recognized certification that makes the competency visible to hiring managers and reduces their current reliance on personal networks as a proxy for candidate quality.

Building the supply side to meet demand. The institutional consultations show the demand is recognized but current absorption capacity is not yet in place (mean readiness of 2.14 on a five-point scale). Four measures follow:

- **Training of trainers (TOT) in green and digital skills.** All six institutions report a shortage of qualified trainers and name green and digital competency as the principal capacity gap.
- **Upgrade of workshops, laboratories and equipment.** Modern computer laboratories and reliable high-speed internet were each identified by all six institutions as the priority need, alongside licensed software and networking equipment.
- **A standing curriculum-update mechanism.** Curricula are widely reported as outdated (some unchanged since the 1990s); a periodic revision cycle of about three years should be institutionalized and mapped to ISCO-08 and the TVQF.
- **Formal TVET and private-sector partnerships.** Only two of six institutions report any standing arrangement with employers; structured partnerships and a sustainable financing line are needed to keep provision current.

The detailed evidence for each measure is in Section N.

Establish a focused green and renewable-energy specialism, tailored by governorate. Solar installation and maintenance is the single most-needed green skill (25.7%) and the largest green occupation, so a dedicated solar installation, maintenance and energy-efficiency track should be developed and accredited first. Because green demand takes a different shape across the country, the specialism should be matched to each governorate's dominant opportunity: solar in the high-irradiation south, with Basra leveraging its solar potential and industrial base; energy efficiency, HVAC and green building in the colder Kurdistan provinces of Sulaymaniyah and Erbil; water and irrigation technology where scarcity is acute, notably Al-Qadisiyyah and Dhi Qar; and green agriculture where farming dominates, as in Duhok. Pilots should begin in the governorates showing the strongest green signals.

Strengthen English and entrepreneurship provision. Practical workplace English, a gap for 42.0% of employers, and basic enterprise and business skills, lacking for 26.9%, should be embedded across programs. Entrepreneurship matters especially in a private sector dominated by micro-enterprises, in which many workers operate as owner-managers, while English is a recurring requirement for graduates entering the digital-services and internationally oriented firms concentrated in Baghdad and the Kurdistan Region.

Embed practical, work-based learning as a graduation requirement. Employers repeatedly trace graduates' weakness to a lack of real-world experience rather than missing credentials, and they cite limited practical training as a direct cause of unfilled vacancies. Every TVET program, and every relevant university department, should embed an employer-assessed practicum, internship or apprenticeship in a priority sector before graduation. The employer's assessment should feed back into the curriculum, creating a loop where what students experience in the workplace shapes what the next cohort is taught. This is the fastest route to closing the practical-experience gap that sits behind hard-to-fill vacancies.

Institutionalize a National Employer-TVET Feedback Mechanism. The value of this assessment is greatest if it is repeated rather than treated as a single snapshot. A structured, biannual employer survey, delivered through the same LMIO platform that produced this report, should feed private-sector demand signals directly into curriculum review cycles at the governorate level, with graduate employment outcomes as the accountability metric. This converts curriculum alignment from a one-off exercise into a continuous process, so that provision tracks demand as the green and digital economies evolve.

Together these actions reorient training around the competencies employers actually demand: a common digital-and-soft-skills foundation for everyone, a green and digital specialism matched to local opportunity, practical experience built into every qualification, and a standing mechanism that keeps curricula aligned to demand over time.

Recommendation	Gap or demand addressed (Tool 1)	Recommended action	Priority focus
Combined digital and soft-skills foundation	Digital and ICT skills 49.3%, soft skills 47.8% (rated important by 83.9%)	A mandatory, assessed foundation module in every program, with an employer-endorsed, certified soft-skills component	All governorates
Green and renewable-energy specialism	Solar the most-needed green skill (25.7%); technical and green vocational gap (31.6%)	An accredited solar installation, maintenance and energy-efficiency track, tailored to each governorate's green opportunity	Basra (solar); Sulaymaniyah and Erbil (energy efficiency, green building); Al-Qadisiyyah and Dhi Qar (water and irrigation); Duhok (green agriculture)
English and entrepreneurship provision	English 42.0%; entrepreneurship and business skills 26.9%	Embed practical workplace English and basic enterprise skills across programs	Baghdad and the Kurdistan Region (English); micro-enterprise economies (entrepreneurship)
Practical, work-based learning	Limited practical training cited as a cause of hard-to-fill vacancies	An employer-assessed practicum, internship or apprenticeship as a graduation	All governorates

		requirement, feeding back into the curriculum	
National Employer-TVET Feedback Mechanism	Only 51.7% of employers find TVET prepares graduates, against 44.8% who do not	A biannual employer survey through the LMIO platform feeding curriculum review, with graduate-employment outcomes as the accountability metric	National, applied governorate by governorate
Anchor all provision in the national TVQF	Qualifications not yet benchmarked to a national framework; TVQF approved 2 March 2021	Write revised curricula against the ten-level TVQF and its level descriptors, for national comparability and international recognition	All programs and governorates
Sequence the 36 competency-based curricula on demand	Highest-growth occupations: solar PV 28.1%, software and web 38.9%, digital marketing 35.4%	Priorities the highest-growth occupations; embed a common digital-literacy, soft-skills and English foundation at every level	National, sequenced by demand

Table 58 Skills recommendations: evidence, action and priority focus

O.2 Policy Recommendations

Skills supply alone will not shift employment outcomes if the firms that should absorb those skills cannot, and if the channels that should match workers to jobs do not function. Where the skills recommendations change what is taught, the policy recommendations address the conditions around training: the capacity of firms to adopt green and digital practices, the placement infrastructure that connects graduates to employers, the regulatory environment, and the case for designing all of this locally.

Pair skills investment with firm-level support to resolve the demand-and-adoption paradox. The central paradox of this assessment is that demand for green and digital capability is high, yet firm-level adoption is low. Only 15.5% of enterprises run green or renewable initiatives and only 27.9% run digital ones, and the barriers employers cite most are the high cost of investment (52.5%) and a shortage of technical expertise (44.1%). Training that produces capable graduates will not raise employment if the firms themselves are not digitalized or greened enough to deploy them productively. Two instruments should therefore run alongside skills programs. The first is a co-financed **Digital Readiness Fund** providing cost-sharing grants to small and medium enterprises adopting core digital systems, namely accounting, enterprise resource planning, e-commerce and digital marketing, paired with technical assistance from TVET providers; governorate-level digital infrastructure audits should precede skills investment so that the demand side is confirmed ready to absorb trained graduates. The second is a set of **Green Economy Adoption Packages**, tailored by governorate, combining green finance instruments accessible to SMEs, TVET-to-workplace green-skills certification co-designed with employers, and green procurement incentives and advisory services matched to each governorate's dominant sector. Both instruments tie training directly to firm-level adoption, so that capability and opportunity grow together.

Modernize and connect the public placement infrastructure. Hiring is overwhelmingly informal: 62.0% of recruitment runs through personal referrals and social media, while formal intermediation is the main route for only 3.6% of enterprises. This leaves qualified graduates unfound and positions unfilled, and it systematically disadvantages those without established networks, particularly youth, women and recent graduates. Government should invest in functioning, governorate-level public employment services and digital job-matching platforms that link TVET and university graduates to verified private-sector vacancies, complemented by employer incentives to advertise through formal channels and by graduate-employment tracking that measures placement rates and guides future training investment. These services should connect to TVET graduate databases, so that trained candidates are visible and reachable by employers seeking specific skill profiles.

Align regulation with the green and digital transition. Regulatory and legal barriers are named by 21.9% of enterprises as an obstacle to adopting green and digital practices, alongside the larger constraints of cost and expertise, and regulatory uncertainty, for example over green building standards, is reported as a brake on investment. Government should review the regulatory and licensing environment so that policy supports rather than slows adoption, establish clear green building and energy-efficiency standards to remove that uncertainty, and consider tying public procurement and large construction permits to those standards. Doing so would create demand from the public sector for a certified green workforce, turning regulation from a barrier into an engine of green employment.

Design provision governorate by governorate. A single national template cannot fit a labour market whose local faces differ so sharply, from Basra's 86.7% digital orientation to Salah al-Din's 66.7% green orientation, and from employer confidence in TVET of 80.0% in Sulaymaniyah to 20.0% in Al-Qadisiyyah. Skills and enterprise-support policy should move from uniform national plans to locally tailored ones that reflect each governorate's sector mix, skills gaps, employer confidence and absorption capacity. The governorate-level priorities set out later in this section translate this principle into specific local actions.

Taken together, these measures act on the environment around training rather than its content. They help firms absorb the skills produced, connect graduates to employers through formal channels, clear the regulatory path for green and digital adoption, and ensure that each governorate receives the response its own economy needs.

Recommendation	Gap or demand addressed (Tool 1)	Recommended action	Priority focus
Pair skills investment with firm-level support	Green initiatives 15.5%, digital initiatives 27.9%; barriers of cost (52.5%) and lack of technical expertise (44.1%)	A co-financed Digital Readiness Fund (cost-sharing grants plus TVET technical assistance) and governorate-tailored Green Economy Adoption Packages (green finance, employer-co-designed certification, procurement incentives)	SMEs in all governorates; pilots where green and digital demand is strongest
Modernize and connect public placement infrastructure	Informal hiring 62.0% (referrals and social media); formal intermediation only 3.6%	Governorate-level public employment services and digital job-matching platforms linked to TVET graduate databases, with employer incentives to advertise formally and graduate-placement tracking	All governorates; especially low private-sector-density provinces (Al-Qadisiyyah, Dhi Qar)
Align regulation with the green and digital transition	Regulatory and legal barriers cited by 21.9% of enterprises	Review the licensing environment, set clear green building and energy-efficiency standards, and tie public procurement and construction permits to those standards	National; construction-intensive governorates (Erbil, Babylon, Salah al-Din)
Design provision governorate by governorate	Local contrasts: Basra 86.7% digital, Salah al-Din 66.7% green; TVET confidence 80.0% in Sulaymaniyah versus 20.0% in Al-Qadisiyyah	Replace the uniform national template with locally tailored plans reflecting each governorate's sector mix, skills gaps, employer confidence and absorption capacity	All 10 governorates
Apply the national RPL system	Large existing and informal workforce needing certification in priority trades	Use RPL to certify current workers in priority trades while full curricula are built	Priority trades, all governorates
Route professional-tier digital roles to higher education	Cybersecurity 15.1% and AI/ML 14.9% growth reach above the TVET ceiling	Articulate cybersecurity, AI/ML and software engineering to higher-TVET and university pathways	National; digital clusters

Table 59 Policy recommendations: evidence, action and priority focus

O.3 Employment Recommendations

The groups employers see as most excluded from work are precisely those the education system produces in greatest numbers: recent graduates, named as most affected by 59.7% of enterprises, and youth aged 15 to 29, named by 56.1%. Where the skills recommendations build capability and the policy recommendations build firm-level capacity, the employment recommendations address the pathways that carry people into work, and the creation of the jobs themselves.

Create structured graduate-to-employment pathways. Youth and graduates need formal entry routes to replace the personal networks that currently dominate hiring. Three components should work together: mandatory work-based learning integrated into TVET graduation requirements; employer-subsidized internship and apprenticeship programs concentrated in the priority green and digital sectors; and a national graduate-employment tracking system that monitors placement rates by governorate, sector and gender. The tracking system matters as much as the placements, because it provides real-time evidence to direct training investment and holds institutions accountable for employment outcomes rather than completion alone. The pathway should be adapted to local conditions: a youth employment bridge built around Basra's port, industrial and emerging green sectors; psychosocial support integrated into youth programming in post-conflict Salah al-Din and Ninewa; and mobile or community-based delivery in Dhi Qar, where distance and cultural barriers keep rural youth, and young women in particular, out of fixed-location training.

Develop formal employer-education partnerships. Weak coordination between companies and training institutions is named directly as a cause of recruitment difficulty, and the institutions that should channel graduates into firms are barely used, with only 1.4% of enterprises hiring through career centers. Government and UNESCO should establish standing partnership channels between enterprises and TVET and higher-education institutions, covering employer co-design of courses, guaranteed interview pipelines for strong graduates, practicum and mentorship arrangements, and employer representation in curriculum review. The Erbil model, in which a tech-sector employer consortium co-funds short-cycle certified courses tied to guaranteed interviews, is one workable template. The principle is that employers become partners in producing the workforce they need rather than passive consumers of it.

Support enterprise-led job creation in the priority clusters. Skills supply converts into employment only where there is genuine demand for labour. Enterprise support, namely finance, advisory services and incubation, should be directed toward the digital-services and renewable-energy clusters that show the strongest expected growth, namely software and web development (38.9%), digital marketing (35.4%) and solar installation (28.1%), so that graduates meet expanding rather than static demand. This support should follow each governorate's comparative advantage: digital talent marketplaces and incubation where digital activity is densest, in Baghdad and Erbil; diversification beyond oil in Basra; Agri-technology and digital commerce in the agricultural economies of Duhok, Al-Qadisiyyah and Babylon; and the green heritage and ecotourism economy in Dhi Qar.

Together these actions build the pathways that carry youth and graduates into formal work, make employers partners in producing the workforce, and direct job-creation support to the sectors where demand is genuinely growing.

Recommendation	Gap or demand addressed (Tool 1)	Recommended action	Priority focus
Structured graduate-to-employment pathways	Graduates (59.7%) and youth aged 15 to 29 (56.1%) most cited as facing unemployment; limited practical training cited in hard-to-fill vacancies	Mandatory work-based learning in TVET graduation; employer-subsidized internships in green and digital sectors; national graduate-employment tracking by governorate, sector and gender	All governorates; conflict-sensitive design in Ninewa and Salah al-Din; mobile delivery in Dhi Qar
Formal employer-education partnerships	Weak company-to-TVET coordination cited as a cause of recruitment difficulty; only 1.4% hire through career centers	Standing partnership channels: employer course co-design, guaranteed interview pipelines, practicum and mentorship, curriculum representation	National; employer-consortium model piloted in Erbil
Enterprise-led job creation in priority clusters	Strongest expected growth in software (38.9%), digital marketing (35.4%) and solar (28.1%)	Direct finance, advisory and incubation support to the digital-services and renewable-energy clusters, matched to local advantage	Baghdad and Erbil (digital); Basra (diversification); Duhok, Al-Qadisiyyah, Babylon (Agri-technology); Dhi Qar (green heritage)

Table 60 Employment recommendations: evidence, action and priority focus

O.4 Cross-cutting Recommendations

Some priorities run across every recommendation above and cannot be left to any single one. The assessment shows that exclusion from work falls hardest on women, persons with disabilities and displaced populations, and that the green and digital transitions, if managed separately, risk leaving these groups behind. The cross-cutting recommendations ensure inclusion and coherence across the whole agenda.

Embed gender inclusion across the agenda. Women are markedly under-represented in enterprise leadership, making up only 5.1% of the respondents who spoke for their firm, and they are among the groups employers most often identify as facing high unemployment, at 28.9%. Gender inclusion should be built into every recommendation rather than treated as a separate stream, through explicit targets for women's participation in training and enterprise support, employer sensitization and unconscious-bias training, flexible and childcare-linked training schedules, and a structured women-in-technology pathway connecting female TVET and university graduates to employers committed to gender-inclusive hiring. Sulaymaniyah, which combines one of the higher female participation rates with persistent underemployment of women in its growing digital and professional services, is a natural place to pilot.

Reach persons with disabilities and displaced populations deliberately. Persons with disabilities, cited by 27.1% of employers, and internally displaced persons, cited by 12.4%, are named among the groups facing the highest unemployment, and employers attribute their exclusion to both a scarcity of opportunities and a shortage of skills. Neither placement nor training alone will therefore suffice. Provision for these groups should pair targeted skills support with job-creation or placement commitments, and it should be designed for genuine accessibility, with flexible scheduling, transport support, community-based delivery and, in post-conflict areas, psychosocial support. Ninewa, with its large displaced and returnee population, requires programs co-designed with the UN agencies and local organisations already operating there, with built-in placement commitments from reconstruction employers.

Treat the green and digital transitions as one inclusive agenda. The two transitions that define the surveyed economy should be managed together rather than as competing priorities. A common foundation of digital literacy and soft skills underpins both, and the green specialism builds on it, so managing them jointly avoids duplicated effort and conflicting signals. Crucially, women, youth, persons with disabilities and displaced people should be explicit beneficiaries of both transitions rather than an afterthought. The green and digital economies

offer the newest and fastest-growing entry points into formal work, and they are the best opportunity to widen access rather than reproduce the exclusions that already exist.

Taken together, the cross-cutting recommendations ensure that the skills, policy and employment actions reach those most excluded from work, and that Iraq's green and digital transitions become an engine of inclusion rather than a new source of disadvantage.

Recommendation	Gap or demand addressed (Tool 1)	Recommended action	Priority focus
Embed gender inclusion across the agenda	Women only 5.1% of enterprise respondents; cited as facing high unemployment by 28.9% of employers	Targets for women's participation; employer sensitization and bias training; flexible, childcare-linked schedules; a structured women-in-technology pathway	All governorates; Sulaymaniyah pilot in digital and professional services
Reach persons with disabilities and displaced populations	Persons with disabilities (27.1%) and IDPs (12.4%) cited as facing high unemployment; exclusion attributed to few opportunities and skills gaps	Pair targeted skills support with placement or job-creation commitments; accessible delivery (flexible scheduling, transport, community-based, psychosocial support)	Ninewa and Salah al-Din (IDPs and returnees); national for persons with disabilities
Treat the green and digital transitions as one inclusive agenda	Digital orientation 67.0% and green 37.6%, but low firm-level uptake (digital 27.9%, green 15.5%)	Manage both transitions on a shared digital-and-soft-skills foundation, with women, youth and vulnerable groups as explicit beneficiaries	National

Table 61 Cross-cutting recommendations: evidence, action and priority focus

O.5 Governorate-Level Priorities

The recommendations above apply nationally, but the assessment's strongest practical finding is how sharply governorates differ in sector mix, skills gaps, employer confidence and absorption capacity. This section sets out, for each of the 10 surveyed governorates, the priority interventions that follow from its own economic character and demand signals. They are drawn from the same survey data read at governorate level and are intended to be delivered within the national framework rather than in place of it. The interventions remain provisional pending the provider validation round described earlier.

Governorate	Economic character	Priority interventions
Baghdad	Capital; largest and most diversified economy; strongest absolute digital demand	(1) A Baghdad digital talent marketplace linking graduates to ICT and e-commerce employers; (2) mandatory, certified soft-skills modules in TVET and university curricula; (3) a Baghdad Green Business Program with renewable grants, energy audits and green public procurement
Erbil	Kurdistan Region capital; tech and services ecosystem, FDI, international orientation	(1) An employer-consortium tech-skills accelerator with guaranteed interview pipelines; (2) a green building and energy-efficiency program with green finance and permit standards; (3) a formal, digital-first public employment service
Basra	Oil capital and port; the most digital-oriented governorate in the survey (86.7%), led by digital marketing, with soft skills its top reported gap; solar reflects geographic potential rather than current demand	(1) Strengthen the digital-services and digital-marketing skills that lead local demand, with soft skills embedded; (2) diversification-focused TVET beyond oil (solar, port logistics, industrial maintenance) as a forward-looking opportunity; (3) a Youth Employment Bridge of structured internships and apprenticeships
Ninewa	Post-conflict reconstruction; large displaced and returnee population	(1) Conflict-sensitive reconstruction-trades programming with micro-enterprise formalization; (2) parallel digital-infrastructure and ICT-skills development, with digital incubation in Mosul; (3) an IDP-inclusive skills-to-employment program with placement commitments and psychosocial support
Sulaymaniyah	Stronger education base; growing services; higher female participation	(1) An employer-assessed practicum requirement with a curriculum feedback loop and embedded entrepreneurship skills, the province's top reported gap;

		(2) an energy-efficiency and green-building retrofit program with regulatory clarity; (3) a women's digital and green economy employment pathway
Duhok	Border economy; a digital-leaning survey signal (60.3%, higher than several larger provinces), led by network and systems administration, over a traditional agricultural base	(1) A Digital Skills Hub building the network, systems-administration and digital-commerce skills that lead local demand, leveraging cross-border trade with Turkey; (2) a green agriculture and Agri-tech program to modernize the traditional agricultural base (precision irrigation, organic certification, digital supply chains); (3) work-readiness and soft-skills modules in TVET
Dhi Qar	Oil and agriculture; a digital-leaning survey signal (70.0%), led by telecommunications; Mesopotamian Marshes heritage; largely informal; the highest youth-unemployment signal in the sample (73.3%)	(1) Private-sector formalization paired with aligned TVET, including the telecommunications and digital skills that lead local demand, alongside construction, solar and logistics; (2) a Green Heritage Economy program around the marshes, with UNESCO partnership; (3) mobile, female-inclusive community-based TVET delivery
Al-Qadisiyyah	Agricultural with acute water scarcity, but a strongly digital survey signal (83.3%), led by e-commerce and fintech, with English the top skill gap; it records the lowest employer confidence in TVET (20.0%) and the most pessimistic outlook (85.0% negative) in the sample; low private-sector density	(1) An e-commerce, fintech and digital-skills track responding to the strongest local demand signal, paired with workplace English, the top reported gap; (2) a provincial employment facilitation office in Diwaniyah to address low private-sector density and the weak employment outlook; (3) a water and irrigation technology track as a diversification opportunity given the province's acute water scarcity
Salah al-Din	Post-conflict recovery; Baiji refinery reconstruction; agriculture	(1) An economic-recovery skills program with guaranteed reconstruction placements; (2) green standards integrated into reconstruction (green building, solar-for-SME, environmental compliance); (3) youth-center employment with psychosocial support
Babil	Agriculture, construction and light manufacturing; proximity to the Karbala pilgrimage economy	(1) A construction-trades certification aligned to green building, with recognition of prior learning; (2) digital commerce for existing SMEs, with remote-work links to Baghdad; (3) a tourism and green-hospitality skills track

Table 62 Governorate-level priority interventions

Read together, the governorate priorities translate the national agenda into local terms. They concentrate on digital interventions where digital activity is densest, green interventions where each governorate's environmental and sectoral opportunity is greatest, and employment and inclusion measures where exclusion is most acute, so that a single national strategy is delivered through 10 locally tailored plans.

P. Conclusion and the Way Forward

P.1 Concluding Reflections

This assessment set out to hear the demand side of Iraq's labour market in its own voice, and 1,969 enterprise responses across ten governorates have allowed it to do so with confidence. The picture they paint is consistent and, in its essentials, hopeful. Iraq's small private enterprises are turning towards the digital and green economy, they know which skills they need, and they are clear about what is holding them back. The central problem is not indifference or absent demand; it is a set of broken connections, between the skills the system produces, and the mix employers require, between training institutions and the firms that should hire their graduates, and between the ambition to adopt green and digital practices and the means to do so. None of these is beyond repair. Reading the demand and supply sides together strengthens the confidence of these recommendations: on every point of comparison, the institutions responsible for training independently confirm the shortages employers report. The next phase will add the jobseeker and enrolment data needed to size each gap precisely.

P.2 Strategic Alignment and Call to Action

The direction this report sets out belongs squarely within the frameworks that guide UNESCO and its partners. Its emphasis on a combined foundation of digital and transferable skills, on occupational provision that responds to documented employer demand, and on the green and digital transitions speaks directly to the UNESCO Strategy for Technical and Vocational Education and Training, in particular its priorities on employability and entrepreneurship and on skills for green and digital economies. Its attention to youth, women, persons with disabilities and displaced populations, and to the quality of work and not its quantity alone, reflects the ILO Decent Work Agenda across its pillars, namely employment creation through the green and digital growth occupations, rights and equality through the focus on groups excluded from work, and social dialogue through the coordination between employers, training institutions and government that the findings call for. The assessment gives these frameworks a concrete, Iraq-specific evidence base on which to act.

Acting on that evidence depends on coordinated effort. Government counterparts at federal and Kurdistan Region level are asked to modernize technical and vocational provision around the demand signals in this report and to connect it to functioning placement services. Employers and their representative bodies are asked to engage with training institutions, to offer work-based learning, and to open recruitment beyond informal networks. Development partners are asked to support firm-level investment alongside skills programs, so that capability and opportunity grow together. UNESCO, for its part, will continue to provide the evidence, the platform and the convening that turn these findings into practice, including through the further survey cycles that extend this work beyond the private-sector demand side captured here.

P.3 Planned Next Phase: Tools 1.4 and 1.5

Tool 1.3, the Private Sector employer survey, is complete: 1,969 approved enterprise responses across the 10 governorates establish a robust reading of the labour-demand side of the market. That reading rests on the perspective of private sector employers alone. A demand signal acquires its full value only when set against the supply of skills and the experience of those seeking work. This section sets out the planned next phase, built around two further instruments, Tool 1.4 and Tool 1.5, that would extend the assessment to the supply side and to those entering work. These instruments are planned rather than fielded, and open design parameters are noted as such.

Instrument	Perspective captured	Primary respondents	Status
Tool 1.3	Labour demand	Private sector enterprises and employers	Completed (n = 1,969)
Tool 1.4	Skills supply	TVET and education service providers	Planned, next phase
Tool 1.5	Labour supply	Job seekers and graduates	Planned, next phase

Table 63 The three instruments of the assessment, by perspective and status

P.3.1 Rationale and Strategic Continuity

Extending the assessment is a question of continuity and sustainability, not expansion for its own sake. The phase-one evidence speaks for the demand side, yet it describes only one part of the market. Employers can report on the skills they require and the gaps they encounter. They cannot tell the assessment what the education system supplies or how job seekers experience the transition into work. Triangulating employer demand, the supply from the education and training system, and the experience of job seekers would improve accuracy and ensure that the investment in 1,969 enterprise responses does not stand alone.

P.3.2 The Two Planned Instruments

Tool 1.4 would capture the skills-supply side, that is, the outputs of the education and graduation institutions. It is designed to reach technical and vocational education and training (TVET) providers and the wider education system. Its governance connects to the Ministry of Higher Education and, through the vocational schools, to the Ministry of Education. The instrument is intended to establish what the system produces, in which fields and to what standard, so that supply can be read against documented employer demand.

Tool 1.5 would capture the perspective of job seekers, namely the workers and new entrants whose lived experience completes the labour-supply side of the analysis. Its governance connects to the Ministry of Labour and Social Affairs. By recording how those entering the market search for work, the obstacles they meet and the pathways they pursue, the instrument would give a direct account of the human side of the market. The planned sample, timing and field arrangements for both instruments remain to be settled.

P.3.3 Platform Readiness

The LMA/LMIO platform is already built for multi-tool data collection and could receive Tools 1.4 and 1.5 with limited reconfiguration. Instruments are distributed by QR code and web link, and every submission passes a two-stage approval workflow: the data collector reviews the record first, an LMIO team member then conducts a second, independent review, and only then is the record locked. Role-based dashboards and a live analytics dashboard are already in operation. The infrastructure that validated the 1,969 Tool 1.3 responses would carry the new instruments, so the next phase could begin from an operational footing rather than from first principles.

P.3.4 Recommended Approach

A phased roll-out is recommended: Tool 1.4 first, to establish the supply side, followed by Tool 1.5. Both would apply the same sampling discipline and the same two-stage quality assurance used for Tool 1.3, keeping the datasets directly comparable. The recommendation is to link them from the outset, so that the demand evidence (Tool 1.3), the supply evidence (Tool 1.4) and the job-seeker evidence (Tool 1.5) can be analyzed together rather than in parallel. Governance would be coordinated with the relevant ministries, with sample sizes, timing and resourcing set in the detailed design of the next phase.

Taken together, the two planned instruments would convert a strong demand-side baseline into a connected, three-sided reading of the Iraqi labour market. The intention is not to repeat the phase-one exercise but to complete it. With the platform prepared and the quality-assurance model proven, the next phase could build directly on the foundation established by Tool 1.3.

P.4 Institutionalization and Sustainability of the LMIO

The evidence assembled in this report is only as durable as the institution that maintains it. Alongside the survey instruments, this assessment has established the institutional architecture needed to keep labour-market intelligence current: two Labour Market Information Observatories one for Federal Iraq and one for the Kurdistan Region conceived as standing national mechanisms rather than one-off project outputs, together with a shared digital platform already built to support successive assessment cycles. The task ahead is to anchor these in national structures so that the reading of the market does not lapse when the present phase ends.

The two Observatories are complemented by ten Green and Digital Sectoral Councils, established across the ten target governorates as employer-facing bodies that connect industry to the training system validating demand signals, reviewing emerging skills needs, and guiding curriculum reform. To secure their continuity, it is proposed that these councils be integrated with the Industrial Advisory Councils that already operate within the Technical Universities under the Ministry of Higher Education and Scientific Research. Building an established legal and institutional framework avoids duplication, deepens private-sector engagement, and gives the councils a durable home beyond the life of the project while preserving their technical function.

Sustaining this architecture is as much a question of governance and national ownership as of financing. The Observatories already operate on a role-based model that distributes responsibilities across a team leader and members, governorate focal points, and institutional representatives; embedding their outputs within national labour-market planning and TVET-policy development, and formalizing coordination between the federal and Kurdistan authorities, would convert that operational model into lasting institutional ownership. The endorsement of the assessment and its supporting mechanisms by the project's Steering Committee which brings together the relevant ministries, the Prime Minister's Advisory Commission and development partners provides the policy-level mandate for that transition.

The digital platform that produced and validated this assessment is built to carry future cycles, but its long-term value depends on a clear custody arrangement. Three pathways are available: a direct handover of the platform and its materials to the responsible national authorities; a technical handover that additionally transfers the source code and back-end documentation to enable independent maintenance; and coordination with the International Labour Organization so that the platform's validated intelligence feeds the national Labour Market Information System. Selecting and resourcing one of these routes, together with a defined hosting and maintenance responsibility, is the single most important step for the platform's durability, and the surest guard against a parallel, short-lived system.

The same logic extends to the Career Development Centers that link graduates to employers and to the continued activation of the Sectoral Councils; both require modest but sustained support to remain functional. Taken together, these steps describe a practical route from a completed assessment to a permanent institution: two Observatories with a clear governance and ownership arrangement, sectoral councils anchored in existing university structures, a maintained digital platform articulated with the national information system, and career-development capacity that endures. With that architecture in place, each future survey cycle beginning with Tools 1.4 and 1.5 builds on an institution rather than rebuilding one.

Annex: Methodology (Detailed)

This annex sets out the full technical methodology of the assessment, namely how the enterprise population was estimated and sampled, how fieldwork was organized, how submissions were cleaned and approved, how the data were analyzed, and which tools were used. It is written to be read on its own and to allow the figures reported throughout this study, all of which rest on the 1,969 approved Tool 1 responses held in the backend survey table, to be reproduced and scrutinized.

Sampling Frame and Procedure

Iraq has no single, complete and up-to-date official register of private enterprises that could serve as a ready-made sampling frame. During preparation, comprehensive enterprise lists could not be obtained from official and chamber-of-commerce sources, which were either unavailable or only partial. A conventional list-based frame was therefore not feasible.

To overcome this, the assessment built an estimated frame using an artificial-intelligence-assisted approach to approximate the size and distribution of the private-sector enterprise population. This produced a national working estimate of approximately 15,000 enterprises, which was cross-checked against an internal validation set of approximately 12,000 records to test its plausibility before use. The estimate is acknowledged as an approximation rather than an enumerated census, and this is the principal limitation of the frame.

From this estimated population, a target sample was calculated for a 5% margin of error at a 90% confidence level, giving a national target of 1,932 enterprises. The target was allocated across the ten governorates in proportion to estimated enterprise density and managed dynamically during fieldwork, so that per-governorate targets were adjusted as collection progressed toward proportional coverage. At the close of fieldwork, the approved sample reached 1,969 enterprises, 101.9% of the national target, with every governorate meeting or exceeding its allocation. All counts are unweighted; the dynamic targeting was the mechanism used to approximate representative coverage, and no post-stratification weights were applied.

Governorate	Target	Approved	Achievement
Baghdad	355	362	102.0%
Erbil	337	340	100.9%
Basra	329	339	103.0%
Ninewa	306	316	103.3%
Sulaymaniyah	306	310	101.3%
Duhok	63	63	100.0%
Dhi Qar	59	60	101.7%
Al-Qadisiyyah	59	60	101.7%
Salah al-Din	59	60	101.7%
Babil	59	59	100.0%
Total	**1,932**	**1,969**	**101.9%**

Table 64 Achieved sample against target, by governorate (approved responses, n = 1,969)

Data Cleaning and Quality Assurance

Quality assurance was built into the platform as a two-stage approval workflow rather than applied after the fact. Each submitted response was first reviewed by the data collector, who could approve it or reject it; an approved response then passed to an LMIO team member for a second, independent review. Only when both reviewers approved was the record locked and admitted to the dataset, and either reviewer could reject a response at any stage. This double confirmation is what distinguishes the approved analytical records from raw submissions.

The effect of the workflow is visible in the funnel from submission to analysis. Of 2,066 web submissions, 1,983 were approved through both review stages, while 83 were not approved, having been rejected or left pending. A further 14 approved records were set aside because they lacked a

confirmed governorate, leaving a clean analytical base of 1,969 responses. This base is defined by a single canonical filter, namely records flagged as approved with a non-empty governorate, and it reproduces exactly the total shown on the live analytics page.

Stage	Records
Submitted via web	2,066
Approved by both reviewers	1,983
Not approved (rejected or pending)	83
Approved but excluded for missing governorate	14
Analytical base (canonical filter)	1,969

Table 65 From submission to analytical base

Two further cleaning rules shaped the dataset. Multiple-response questions were stored by the survey tool as concatenated option labels in a single field; these were parsed by matching each full option label, with a guard against shorter labels being miscounted inside longer ones. Open-text fields completed in Arabic, including the sub-sector description and the explanatory questions, were not reproduced verbatim in the report; their content was read thematically and summarized in English, and they were not tabulated as counts except through that thematic reading.

Analytical Procedures | Software and Tools

All analysis was conducted on the 1,969 approved responses as unweighted counts. Single-response questions are reported as counts and as shares of the analytical base. Multiple-response questions, where enterprises could select up to five options, are reported as shares of the respondents who answered the question, so these shares do not sum to one hundred; the base is stated wherever it differs from the full sample, which a subset of enterprises answered.

Several derived are required through the report. The green and digital segments are constructed from the explicit green and digital tags in the sector question, allowing enterprises to be classified as operating in any digital category, any green category, both, or conventional sectors only. Indicators expressed as positive or negative balances are defined by combining adjacent scale points, for example treating confidence in technical and vocational education as positive when an employer answered fully or somewhat. Disaggregation is carried out by governorate, by enterprise size band and by sector segment. Arabic open-text responses were analyzed by keyword themes, which overlap and therefore also do not sum to one hundred.

The assessment ran on an integrated digital stack. Data was collected with a KoboToolbox instrument, the Tool 1 Private Sector Survey, distributed by QR code and web link and completed online by respondents. Submissions flowed into a ClickHouse database, in the table that holds the Tool 1 records, which is the single source of truth for every figure in this report. The LMA/LMIO platform, a role-based web application designed, developed and maintained by MERIT Vision Pty Ltd, Australia, provided the two-stage approval workflow and a live administrative analytics dashboard that visualizes the approved data in real time and against target. Analysis for the report was carried out through structured queries against the database, and the documents themselves were generated programmatically, so that every table and figure can be traced back to a specific query on the approved data.

Annex: Full Occupational Demand Inventory (ISCO-08)

This annex lists every occupation identified in the demand analysis, classified by ISCO-08 major and sub-major group, with its demand metrics. It consolidates the roles derived in Section G into a single classification reference.

Codes are indicative ISCO-08 sub-major groups with a representative unit group, consistent with the simplified approach in G.1. Currently active is the share of enterprises operating in the category; named as growing is the share naming it as a growth area. Both are multiple responses, so shares do not sum to 100 %. The inventory covers 18 occupations across 5 major groups. Source: LMIO platform, /dashboard/admin/detailed-analytics-tool-1 (n = 1,969).

Professionals

ISCO (indicative)	Sub-major group	Occupation	Domain	Currently active	Named as growing
2512/2513	ICT Professionals (25)	Software and web developer	Digital	19.7%	38.9%
2522/2523	ICT Professionals (25)	Network and systems administrator	Digital	14.5%	20.1%
2529	ICT Professionals (25)	Cybersecurity specialist	Digital	5.4%	15.1%
2511	ICT Professionals (25)	AI and machine-learning specialist	Digital	3.6%	14.9%
2511	ICT Professionals (25)	Data analyst	Digital	7.2%	11.2%
2431	Business and Administration Professionals (24)	Digital marketing specialist	Digital	24.1%	35.4%
2431/2511	Business and Administration Professionals (24)	E-commerce and fintech specialist	Digital	21.8%	23.0%
2143	Science and Engineering Professionals (21)	Environmental engineer and protection officer	Green	8.5%	8.6%

Table 66 Professions vs Codes

Technicians and Associate Professionals

ISCO (indicative)	Sub-major group	Occupation	Domain	Currently active	Named as growing
3522	ICT Technicians (35)	Telecommunications technician	Digital	24.6%	29.4%
3512	ICT Technicians (35)	IT support technician	Digital	9.4%	9.0%
25/35	ICT (cross-cutting)	ICT and digital-skills roles	Digital	15.8%	11.9%
3112	Science and Engineering Associate Professionals (31)	Green building and energy-efficiency specialist	Green	8.8%	9.4%
3132	Science and Engineering Associate Professionals (31)	Water resources and irrigation technician	Green	5.0%	4.9%
3257	Health Associate Professionals (32)	Environmental health and safety officer	Green	2.4%	4.1%

Table 67 Technicians and Associate Professionals

Skilled Agricultural, Forestry and Fishery Workers

ISCO (indicative)	Sub-major group	Occupation	Domain	Currently active	Named as growing
6114	Market-oriented Skilled Agricultural Workers (61)	Sustainable agriculture specialist	Green	4.1%	4.5%
6210	Market-oriented Skilled Forestry Workers (62)	Reforestation and afforestation worker	Green	2.9%	3.0%

Table 68 Skilled Agricultural, Forestry and Fishery Workers

Craft and Related Trades Workers

ISCO (indicative)	Sub-major group	Occupation	Domain	Currently active	Named as growing
7411	Electrical and Electronic Trades Workers (74)	Solar PV technician and installer	Green	18.1%	28.1%

Table 69 Craft and Related Trades Workers

Elementary Occupations

ISCO (indicative)	Sub-major group	Occupation	Domain	Currently active	Named as growing
9611	Refuse Workers and Other Elementary Workers (96)	Waste management and recycling operator	Green	2.2%	2.5%

Table 70 Elementary Occupations

ISCO-08 hierarchy: priority green & digital occupations

Occupation	Major Group	Sub-Major	Minor	Unit
Software & web developer	2: Professionals	25: ICT Professionals	251: Software & Applications Developers & Analysts	2512 Software Developers; 2513 Web & Multimedia Developers
Digital marketing / e-commerce specialist	2: Professionals	24: Business & Administration Professionals	243: Sales, Marketing & PR Professionals	2431 Advertising & Marketing Professionals
Network & telecommunications technician	3: Technicians & Associate Professionals	35: ICT Technicians	352: Telecommunications & Broadcasting Technicians	3522 Telecom Engineering Technicians (also 2522 Systems Administrators, Maj. 2)
Solar PV installer / technician	7: Craft & Related Trades Workers	74: Electrical & Electronic Trades Workers	741: Electrical Equipment Installers & Repairers	7411 Building & Related Electricians
Green-building / energy-efficiency technician	3: Technicians & Associate Professionals	31: Science & Engineering Associate Professionals	311: Physical & Engineering Science Technicians	3112 Civil Engineering Technicians
Water, irrigation & environmental technician	3 / 2	31 Sci. & Eng. Assoc. Prof. / 21 Sci. & Eng. Professionals	313 Process Control Technicians / 214 Engineering Professionals	3132 Water-Treatment Plant Operators; 2143 Environmental Engineers

Table 71 ISCO-08 hierarchy: priority green & digital occupations

Annex: Occupation–Skills–Training Matrix (Full)

This annex presents the complete occupation-to-skills-to-training matrix underpinning Sections G and H. Each occupation is set against the skills it requires, the gap employers report, its demand signal, its indicative TVQF level and the recommended training response.

Demand is shown as currently active / named as growing. Required skills draw on the most-needed digital and green skills; reported gaps in the skills most often lacking and the importance of soft skills. ISCO codes are representative ISCO-08 sub-major groups with an example unit group, indicative only. TVQF levels are indicative, to be confirmed against the national framework. Source: LMIO platform, /dashboard/admin/detailed-analytics-tool-1 (n = 1,969).

Digital Economy Occupations

Occupation (ISCO indicative)	Required skills	Reported gap (survey)	Demand : active / growing	TVQF	Recommended TVET action
Software and web developer (25; 2512/2513)	Coding and programming (Python, Java, HTML), application and web development, database management, version control	Digital/ICT skills (49.3%); specialist developer shortage	19.7% / 38.9%	5-6	Higher-TVET pathway; intensive coding programs; articulate to university
Digital marketing specialist (24; 2431)	SEO, web analytics, content creation, social media management (17.5% need), digital advertising	Digital/ICT skills (49.3%); marketing-specific digital skills	24.1% / 35.4%	4-5	Modular short courses and stackable certificates
Telecommunications technician (35; 3522)	Network installation and configuration, transmission equipment, maintenance, fault diagnosis	Practical technical skills shortage	24.6% / 29.4%	3-4	Revise CBT curriculum; modernize and equip labs
E-commerce and fintech specialist (24–25; 2431/2511)	E-commerce platforms, digital payment systems (13.0% need), basic finance, customer analytics	Digital and entrepreneurship/ business skills (26.9%)	21.8% / 23.0%	4-5	Short courses with embedded enterprise-skills modules
Network and systems administrator (25; 2522/2523)	Network configuration, systems administration, cloud and server basics (8.6% need), security fundamentals	Digital/ICT skills (49.3%); low ICT competency	14.5% / 20.1%	4-5	Certified CBT modules; modernize labs
Cybersecurity specialist (25; 2529)	Network and data security, threat detection, encryption, compliance and risk management	Acute specialist shortage; emerging demand	5.4% / 15.1%	5-6	Dedicated specialized certification pathway
AI and machine-learning specialist (25; 2511)	Programming, data engineering, machine learning (8.5% need), model development	Acute specialist shortage; emerging demand	3.6% / 14.9%	6	Advanced/higher-education pathway; industry partnership
ICT and digital-skills roles (25/35; cross-cutting)	General ICT competence, office and productivity tools, collaboration tools (19.9% need)	Digital/ICT skills (49.3%)	15.8% / 11.9%	2-4	Foundational and intermediate ICT modules
Data analyst (25; 2511)	Data analysis and visualization (18.0% need), spreadsheets (30.6%), database management (19.0%)	Digital/ICT skills (49.3%); analytics shortage	7.2% / 11.2%	4-5	Applied data short courses
IT support technician (35; 3512)	Basic computer literacy (65.6%), hardware and software support, troubleshooting, user assistance	Foundational digital literacy gap	9.4% / 9.0%	2-3	Foundational CBT; entry-level short courses

Green Economy Occupations

Occupation (ISCO indicative)	Required skills	Reported gap (survey)	Demand: active / growing	TVQF	Recommended TVET action
Solar PV technician and installer (74; 7411)	Solar panel installation, electrical wiring and mounting, safety, system maintenance (top green skill, 25.7%)	Technical/green vocational skills (31.6%); practical solar skills	18.1% / 28.1%	2-3	Revise and scale CBT curriculum; equip workshops; apprenticeships
Green building and energy-efficiency specialist (31; 3112)	Energy auditing (15.5% need), efficient HVAC and building systems (9.1%), eco-construction (6.7%)	Technical/green skills (31.6%); energy-efficiency competency	8.8% / 9.4%	4-5	Develop new modules and short courses
Environmental engineer and protection officer (21; 2143)	Environmental monitoring (3.8% need), impact assessment, pollution control, compliance	Technical/green skills; professional-level shortage	8.5% / 8.6%	5-6	Higher-TVET or university pathway
Water resources and irrigation technician (31; 3132)	Efficient irrigation systems, water-saving techniques (6.3% need), installation and maintenance	Technical/green skills; water-management competency	5.0% / 4.9%	3-4	Targeted CBT modules in water-stressed governorates
Sustainable agriculture specialist (6/21; 6114/2132)	Sustainable and organic farming practices (4.4% need), soil and crop management, resource efficiency	Technical/green skills	4.1% / 4.5%	3-4	Short courses; link to agricultural extension
Environmental health and safety officer (32; 3257)	EHS compliance (4.4% need), safety and risk management, inspection	Technical/green skills; EHS competency	2.4% / 4.1%	4-5	Certified short course
Reforestation and afforestation worker (6; 6210)	Tree planting and nursery work, landscape management (4.5% need), soil stabilization	Technical/green skills	2.9% / 3.0%	1-2	Short practical course; work-based learning
Waste management and recycling operator (9; 9611)	Waste sorting and recycling operations (4.3% need), composting (3.7%), safe handling	Technical/green skills	2.2% / 2.5%	1-2	Short practical course; on-the-job training

Cross-cutting Foundation

Competency layer (TVQF)	Required skills	Reported gap (survey)	Applies to	Recommended TVET action
Common foundation (1-3)	Basic computer literacy (65.6%), soft skills, communication and teamwork (47.8% gap), workplace English (42.0% gap)	Top reported gaps: digital/ICT 49.3%, soft skills 47.8%, English 42.0%; soft skills rated important by 83.9%	All occupations and levels	Embed as a mandatory common core in every program

Annex: List of Consultations and Key Informants

The consultations conducted to validate the findings of this assessment are recorded below.

#	Informant	Position / title	Institution	Ministry	Gov.	Date	Mode
1	**Bilal Mohammed**	Labour-Market Manager	Vocational Education Directorate	Ministry of Education	Baghdad	12 Jun	Online
2	**Dr. Sadiq Awad**	DG Assistant / LMIO Advisory Member	Scholarships & Relations Directorate	Ministry of Higher Education & Scientific Research	Baghdad	15 Jun	Online
3	**Dr. Hataw Kareem**	Career Development Center Director	CDC Erbil Polytechnic University	Ministry of Higher Education (KRI)	Erbil	15 Jun	In-person
4	**Bashdar Sarbaz Mawlud**	Director of Educational Planning	Directorate of Educational Planning	Ministry of Education (KRI)	Erbil	16 Jun	Online
5	**Mr. Falah Hassan Mohammed**	Senior Manager	Recruitment Division	Ministry of Labour & Social Affairs	Baghdad	28 Jun	Online
6	**Dlawar Anwar Ababekr**	Assistant DG, DOLSS / VT Manager	Directorate of Labour & Social Security (DOLSS)	Ministry of Labour & Social Affairs (KRI)	Erbil	30 Jun	Online

Engagement	Institution(s)	Date	Purpose
KRI Planning / KRSO coordination	Ministry of Planning-KRI / Kurdistan Region Statistics Office	22 Jun 2026	KRI MoLSA re-engagement in validation
TVET III Third Steering Committee	MoP, MoLSA, MoHESR, MoE, PMAC, EU Delegation, UNESCO	24 Jun 2026	Policy-level presentation & endorsement of LMA results
Federal MoHESR strategic meeting	Ministry of Higher Education & Scientific Research	24 Jun 2026	Ministerial ownership of the evidence agenda

Annex: Glossary of Key Terms

Term	Description
2030 Agenda for Sustainable Development	The universal plan of action for people, planet and prosperity adopted by United Nations Member States in September 2015, structured around seventeen Sustainable Development Goals and one hundred and sixty-nine targets. It provides the integrated global framework guiding national development strategies, international cooperation and the reporting of progress over the period to 2030.
Achieved sample	The set of survey records that have been collected, passed all stages of the approval workflow and are admitted to the analytical dataset. In the present assessment, the achieved sample comprises one thousand nine hundred and sixty-nine approved Tool 1 responses, exceeding the calculated target in every governorate.
Achievement rate	The ratio of the number of approved survey records to the sample target, expressed as a percentage. The achievement rate measures the extent to which fieldwork delivered the planned coverage in each stratum and is used to assess the operational performance of the data collection effort against design parameters.
Active labour market program	A publicly funded intervention designed to improve the employment prospects of jobseekers or to maintain the employment of workers at risk, typically through training, job search assistance, wage subsidies, public works or support to self-employment. Active labour market programs are distinguished from passive measures such as unemployment benefits, which provide income support without directly intervening in the matching or retention of workers.
Apprenticeship	A structured form of work-based learning that combines productive work with an employer under a formal training contract and complementary off-the-job instruction, leading to a recognized qualification. Apprenticeships are widely recognized as a high-quality pathway from education into stable employment, particularly in skilled trades and technical occupations.
Artificial intelligence	A field of computer science concerned with the design of systems that perform tasks normally requiring human intelligence, including learning from data, reasoning, perception, natural language processing and decision support. In labour market terms it constitutes both an advanced skill set in growing demand and a general-purpose technology with significant implications for the future content of work across sectors.
Auditable trail	A persistent record of the actions taken on each survey response, capturing the identity of the submitter and of each reviewer, the timing of every approval or rejection action, and any subsequent changes. The auditable trail enables every figure presented in the report to be traced back to a specific approved record and supports independent verification of the analytical pipeline.
Care economy	The paid and unpaid work involved in providing direct and indirect care to children, older persons, persons with disabilities and other dependents, together with the institutions, services and infrastructure that support such care. Recognizing, reducing and redistributing unpaid care work, and rewarding paid care work, is central to expanding women's labour force participation and to building inclusive labour markets.
Centralized data cleaning	A quality assurance process conducted alongside the in-platform approval workflow, in which logical inconsistencies, out-of-range values and incomplete records are flagged, reviewed and corrected or removed in accordance with a documented protocol. It ensures that the final analytical dataset meets the standards of completeness and internal consistency required for publication.
Center of Vocational Excellence (CoVE)	A vocational institution or network of institutions designated and resourced to serve as a national or regional reference point for quality, innovation and employer partnership in defined occupational fields. Centers of Vocational Excellence combine demand-driven curriculum design, modern equipment, teacher upgrading and applied research, and within the UNESCO-led TVET reform program in Iraq five such centers have been established in Duhok, Mosul, Baghdad, Karbala and Basra.
Circular economy	An economic model that decouples growth from the consumption of finite resources by designing out waste, keeping products and materials in use through reuse, repair, remanufacturing and recycling, and regenerating natural systems. It generates employment in product redesign, reverse logistics, secondary materials processing and the servicing of long-lived assets.
Climate adaptation	The process of adjusting human, natural and economic systems to actual or expected climatic change and its effects in order to moderate harm and exploit beneficial opportunities. In a labour market context it encompasses the skills, occupations and enterprise practices required for water management, climate-resilient agriculture, infrastructure protection and the management of climate-induced displacement.
Climate-induced displacement	The forced or involuntary movement of persons from their habitual place of residence as a consequence of climate stress, including drought, desertification, salinization, flooding and other slow-onset or sudden-onset environmental shocks. In Iraq the phenomenon is concentrated in the southern governorates and is generating new patterns of internal mobility with consequences for rural labour supply, urban informality and the geography of skills demand.
Competency-based training	A pedagogical approach in which learning programs and assessment are organized around the demonstrated ability of the learner to perform defined tasks to a specified standard rather than around time served in instruction. Competency-based training is structured by occupational standards, uses criterion-referenced assessment and supports flexible, modular and lifelong learning pathways.
Confidence level	The probability with which the confidence interval around a sample estimate is expected to contain the true population value over repeated sampling. The present assessment adopted a ninety% confidence level, signifying that, in repeated samples drawn under the same design, nine of every ten such intervals would cover the true value.
Core skills	The foundational literacy, numeracy and digital competencies considered indispensable for participation in contemporary working and civic life. Core skills underpin the acquisition of further technical and transferable competencies and are a standard component of basic education and continuing training provision.
Cross-cutting analysis	An analytical treatment of themes that traverse all sectors and governorates covered by an assessment, namely gender, youth, vulnerable groups, the green transition and the digital transformation of work. The

	approach surfaces patterns that would be obscured by purely sectoral or geographic disaggregation and supports the integration of equity and transition objectives across the policy response.
Cross-sectional design	A research design in which data are collected at a single point in time, producing a structured snapshot of the population under study. The present assessment is cross-sectional, capturing demand-side conditions over a defined reference period and establishing a baseline against which subsequent cycles of the Observatory can measure change.
Cross-tabulation	A tabular analytical technique that displays the joint distribution of two or more categorical variables in order to reveal patterns of association between them. It underpins the disaggregated tables of the report by showing, for example, the distribution of skills demand across the intersection of sector and enterprise size.
Curriculum	The structured plan of learning that defines the intended competencies, content, sequencing, pedagogical approaches and assessment requirements of an educational or training program. In TVET, curricula are increasingly derived from occupational standards and labour market intelligence so that learning outcomes correspond to the technical and transferable skills required for productive employment.
Cybersecurity	The protection of digital systems, networks, data and services from unauthorized access, disruption, alteration or theft. As an occupational field it encompasses security architecture and engineering, vulnerability assessment, incident response, governance, risk and compliance, and the security operations functions that safeguard public and private digital infrastructure.
Data collector	A trained enumerator responsible for engaging with respondent enterprises, administering the survey instrument and conducting the first stage of review on each submitted record. In this assessment, data collectors were government employees nominated by the responsible authorities in each governorate and equipped through structured training before deployment.
Decent work	Productive work undertaken in conditions of freedom, equity, security and human dignity, in which rights are protected, an adequate income is generated and adequate social protection is provided. The concept is operationalized by the International Labour Organization through four interrelated pillars, namely productive employment, rights at work, social protection and social dialogue.
Decent Work Agenda	The strategic framework of the International Labour Organization built on four mutually reinforcing pillars, namely productive employment, rights at work, social protection and social dialogue. It defines decent work as productive employment that delivers a fair income, security in the workplace, social protection for workers and their families, prospects for personal development and social integration, freedom to express concerns, and equality of opportunity and treatment.
Decent Work Country Program	A medium-term planning instrument of the International Labour Organization, agreed with national tripartite constituents, which translates the Decent Work Agenda into country-specific priorities, outcomes and activities. It frames cooperation between the ILO, the government, employers' organisations and workers' organisations on employment promotion, rights at work, social protection and social dialogue.
Demand-side assessment	A form of labour market assessment conducted from the perspective of employers, examining the occupations, skills, hiring practices, working conditions and constraints reported by enterprises. It is distinct from supply-side assessments that focus on jobseekers and from institutional assessments that focus on training providers, and is intended to be read in conjunction with the other two for a complete picture.
Descriptive analytical approach	An approach to data analysis that prioritizes the accurate, comparable and disaggregated presentation of empirical patterns over inferential modelling. The present assessment applies a descriptive core, complemented by selective inferential techniques where they add interpretive value, in order to produce findings that are directly usable by policy makers and partners.
Digital adoption	The extent to which an enterprise integrates digital technologies, applications and data into its production, management and customer-facing processes. It is typically measured along a low, moderate or high scale and is interpreted as an indicator of an enterprise's readiness to absorb digital skills and to participate in the digital economy.
Digital economy	The portion of economic activity derived from the production, distribution and use of digital technologies, data, platforms and connectivity. It includes information and communications technology services, software and content industries, electronic commerce, platform-mediated work and the digitally enabled segments of traditional sectors.
Digital literacy	The foundational capacity to use digital devices, applications and networks for communication, information management and everyday productivity tasks. Digital literacy encompasses the operation of office software, email and internet use and is increasingly recognized as a baseline employability skill across virtually all occupations.
Digital skills	The range of abilities required to use, understand and create with digital technologies in personal, civic and economic life. They span a continuum from foundational digital literacy, including basic computer, office software and internet use, through intermediate workplace applications such as data handling, to advanced and specialist competencies in areas such as software development, data analytics, cloud computing, cybersecurity and artificial intelligence.
Digital transformation	The integration of digital technologies, data-driven processes and connected business models across all functions of an enterprise, public administration or sector, resulting in fundamental changes to how value is created and delivered. At the labour market level it reshapes occupations, skills demand, work organisation and the requirements placed on education and training systems.
Disaggregation	The systematic decomposition of aggregate statistics into analytically meaningful subgroups. In this assessment, findings are disaggregated by governorate, by sector and sub-sector, by enterprise size, and where the data permit by gender, age band, formality status and membership of groups of attention, in line with the leave no one behind principle of the 2030 Agenda.
Do no harm principle	A foundational standard of humanitarian and development practice requiring that interventions, including data collection, do not expose participants or affected communities to additional risk. In conflict-affected and displacement settings, it informs enumerator deployment, the framing and sequencing of sensitive questions and the protection of vulnerable groups.

Electronic commerce	The buying and selling of goods and services through electronic networks, typically the internet, encompassing business-to-business, business-to-consumer and platform-mediated transactions. The associated occupations include online store management, digital payments, logistics coordination, customer service, digital marketing and the analytics functions that support online sales.
Employer perception indicator	An indicator derived from the subjective assessments of employers regarding labour market conditions, skills availability or future hiring intentions. Employer perception indicators are valued for their forward-looking character and for capturing demand-side judgements that administrative statistics cannot reveal, while requiring careful interpretation alongside objective measures.
Employment	Engagement in any activity to produce goods or provide services in exchange for pay or profit during a defined reference period. The concept covers wage employment, self-employment and contributing family work, and is measured against international statistical standards established by the International Conference of Labour Statisticians.
Employment Growth Rate (EGR)	A platform indicator that measures the rate of change in employment reported by surveyed enterprises over a defined reference period, expressed as a percentage. It is computed at enterprise, sector and governorate level and is used to read the pace and direction of demand-side job creation in the surveyed segments of the Iraqi economy.
Energy efficiency	The practice of delivering the same level of energy service while consuming less primary or final energy, through improved technologies, building design, industrial processes and behavioral change. Associated skills include energy auditing, retrofitting, building envelope optimization and the operation of efficient heating, cooling, lighting and motor systems.
Enterprise size category	A classification of enterprises by employment headcount, typically distinguishing micro, small, medium and large enterprises against nationally defined thresholds. In Iraqi practice the bands applied are one to four staff for micro, five to twenty-nine for small, thirty to ninety-nine for medium and one hundred or more for large, with size category serving as a primary stratification variable for sampling and analysis.
Entrepreneurship skills	The competencies required to identify economic opportunities, mobilize resources, manage risk and establish or expand a productive enterprise. They include opportunity recognition, business planning, financial management, marketing and the leadership of small and growing firms.
Equity dimension of exclusion	The recognition that labour market exclusion experienced by women, persons with disabilities and displaced populations rests on structural inequalities of opportunity rather than on individual capability, and therefore requires redistributive and corrective policy responses. The framing distinguishes equity-oriented interventions, which deliberately compensate for unequal starting conditions, from generic employment promotion measures.
Federal Iraq	The territory and institutional jurisdiction of the Government of Iraq exercised through federal ministries and agencies in the fifteen governorates outside the Kurdistan Region. Federal Iraq operates under the 2005 Constitution and is governed from Baghdad through the Council of Ministers and the federal legislative, executive and judicial branches.
Female labour force participation	The share of women of working age who are either employed or actively seeking employment, expressed as a percentage of the female working-age population. It is a primary indicator of women's economic inclusion, with Iraq's rate of approximately eleven% among the lowest recorded globally, reflecting compounded supply-side and demand-side constraints on women's access to paid work.
Financial technology (Fintech)	The application of digital technologies to financial services, including payments, lending, savings, insurance, capital markets and regulatory compliance. As an employment category it brings together software development, data analytics, cybersecurity, user experience design and financial domain expertise to deliver platform-based and mobile financial products.
Formalization	The process by which informal enterprises and informal employment relationships are progressively brought within the scope of legal, regulatory, fiscal and social protection frameworks. Formalization strategies typically combine simplified registration, fiscal incentives, access to finance and extension of social protection with strengthened compliance and enforcement.
Foundational skills	The basic cognitive, literacy, numeracy and digital capabilities that underpin further learning, employability and effective participation in economic and civic life. They form the indispensable platform on which technical, transferable and specialized skills are built, and their universal acquisition is a core objective of Sustainable Development Goal 4.
Gender-based violence (GBV)	Harmful acts directed at an individual or group on the basis of their gender, rooted in gender inequality, abuse of power and harmful norms, and encompassing physical, sexual, psychological and economic harm. In employment contexts the concept extends to violence and harassment in the world of work, the elimination of which is the subject of International Labour Organization Convention No. 190.
Gender-disaggregated data	Statistical information collected, tabulated and analyzed separately for women and men, providing the empirical foundation for the identification of gender gaps and the design of gender-responsive policy. The systematic production of such data in labour market assessments is a prerequisite for monitoring progress towards Sustainable Development Goal 5 and the gender-related targets of Sustainable Development Goal 8.
Gender equality	The principle that women and men, girls and boys enjoy equal rights, responsibilities and opportunities, and that their respective interests, needs and priorities are treated with equal weight in policy, programming and resource allocation. In labour market terms, it requires the elimination of discrimination in access to employment, pay, occupational mobility, training and representation in enterprise leadership.
Gender gap in labour force participation	The difference between the male and female labour force participation rates within a given population of working age, conventionally expressed in percentage points. A wide gap signals structural barriers to women's economic activity, including discriminatory norms, unpaid care responsibilities, restricted mobility and labour market segmentation, and is treated as a core indicator of inclusive economic development.
Gender-responsive employment promotion	The design, delivery and evaluation of employment, skills and enterprise interventions in a manner that explicitly recognizes and addresses the differentiated needs, constraints and opportunities of women and men. It encompasses sex-disaggregated data collection, targeted outreach, removal of supply- and demand-side barriers and accountability mechanisms for gender equality outcomes.

Government of Iraq (GoI)	The federal executive authority of the Republic of Iraq, comprising the Office of the Prime Minister, the Council of Ministers and the federal line ministries. The Government of Iraq sets national policy, legislates through the Council of Representatives and represents the country in its international engagements, including those under the United Nations system.
Green economy	An economic configuration that delivers improved human wellbeing and social equity while substantially reducing environmental risks and ecological scarcities. In labour market analysis it is operationalized through sectors and occupations directly engaged in renewable energy, energy efficiency, sustainable construction, water management, waste management and sustainable agriculture.
Green jobs	Decent employment in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment. Following the International Labour Organization definition, such jobs reduce energy and raw material consumption, limit greenhouse gas emissions, minimize waste and pollution, and protect or restore ecosystems.
Green skills	The knowledge, abilities, values and attitudes required by the workforce to support the development and adoption of products, services and processes that reduce environmental impact and to live in a resource-efficient and sustainable economy. They include technical competencies in renewable energy installation, energy efficiency, sustainable construction, water management and circular production, alongside transversal sustainability literacy.
Green transition	The structural shift of an economy from carbon-intensive and resource-intensive activities towards low-carbon, resource-efficient and environmentally sustainable patterns of production, consumption and employment. The labour market implications include the expansion of green occupations, the transformation of existing jobs and the need for reskilling and upskilling pathways for affected workers.
Groups of attention	A composite analytical category used in this assessment to designate populations whose labour market participation requires dedicated policy attention, comprising internally displaced persons, returnees, refugees and persons with disabilities. Findings from the enterprise survey are systematically disaggregated by membership of these groups in order to surface differential patterns of demand, hiring and exclusion.
Hard-to-fill vacancy	A vacancy that an employer is unable to fill within a reasonable period, typically owing to a shortage of suitably qualified applicants, a mismatch between applicant skills and labour market needs or weaknesses in the institutional channels linking jobseekers to firms. The prevalence of hard-to-fill vacancies is a widely used indicator of skills shortage and matching friction.
Headline unemployment rate	The proportion of the labour force that is unemployed, reported as a single aggregate figure for the economy as a whole. It is the most widely communicated indicator of labour market slack, though it requires disaggregation by sex, age and region to support meaningful policy analysis.
Hiring practices	The procedures by which enterprises define vacancies, source candidates, assess suitability and conclude employment relationships. Hiring practices encompass recruitment channels, selection methods, contractual arrangements, induction and probation, and shape the inclusivity and efficiency of labour market matching.
Host community	The local population residing in areas that receive and accommodate displaced persons, including internally displaced persons and refugees. Labour market analysis recognizes host communities as a distinct group of attention because the arrival of displaced populations alters local labour supply, wage dynamics and service demand, and because integrated programming is required to avoid competition and tension over scarce employment opportunities.
ICT skills	Information and communications technology skills cover the competencies needed to deploy, operate, maintain and develop computing systems, networks, software applications and digital services. They include user-level proficiency in standard software, technical capabilities in systems administration and infrastructure management, and specialist expertise in development, integration and information security.
Inclusive labour market	A labour market in which all persons of working age have effective opportunities to access decent and productive employment regardless of sex, age, disability, displacement status, ethnicity or place of residence, supported by non-discriminatory institutions and proactive policy. The concept underpins the equity dimension of the Decent Work Agenda and the 2030 Agenda commitment to inclusive and sustained economic growth.
Informal employment	Employment that lacks legal or social protection, regardless of whether it is carried out within a formal or an informal enterprise. It encompasses employees without written contracts or statutory entitlements, contributing family workers, own-account workers in unregistered enterprises and employers in unregistered enterprises.
Informal sector	The segment of the economy comprising enterprises that are not constituted as separate legal entities, are not registered with national authorities and operate on a small scale with limited or no separation between household and business accounts. It is distinguished analytically from informal employment, which can occur in both formal and informal enterprises.
Informality	The condition in which economic activity, employment relationships or enterprises operate wholly or partly outside the scope of formal legal, regulatory and protective frameworks. Informality manifests in unregistered enterprises, undeclared employment and the absence of written contracts, statutory entitlements and social protection coverage.
Informed consent	The ethical requirement that respondents are made aware of the purpose of the assessment, the use to which their data will be put, the voluntary nature of their participation and their right to decline or withdraw, and that participation is recorded only after this understanding has been confirmed. It is a standing condition of all data collection conducted under UNESCO auspices.
Integrated Vocational Pathway	A national initiative launched by the Iraqi Ministry of Education in 2024, in partnership with the Ministry of Labour and Social Affairs and the Ministry of Industry, to strengthen curriculum relevance and to expand practical training within factory and workplace settings. It is intended to deepen the alignment of vocational provision with the realities of contemporary production.
Internally displaced person (IDP)	A person who has been forced or obliged to flee their place of habitual residence, in particular as a result of armed conflict, generalized violence, human rights violations or natural or human-made disasters, and who has not crossed an internationally recognized State border. In Iraq, the category covers populations displaced

	principally by the 2014 to 2017 Da'esh crisis, as well as a growing cohort displaced by climate stress in the southern governorates.
Internship	A time-bound placement within a workplace that allows learners or recent graduates to acquire practical experience, apply academic knowledge and develop transferable skills. The quality of an internship is judged by the structure of learning, the supervision provided and the protections afforded to the intern, including remuneration where applicable.
Iraq Vision 2050	The long-term strategic vision of the Government of Iraq articulating the country's aspirations for economic diversification, regional integration and institutional modernization over the horizon to 2050. It provides the overarching reference for successive National Development Plans and for sectoral strategies in education, labour, industry and digital transformation.
Iraqi Technical and Vocational Qualifications Framework (TVQF)	The national reference instrument that classifies technical and vocational education and training qualifications in Iraq according to defined levels of complexity, autonomy and responsibility of learning outcomes. Developed jointly by the federal ministries responsible for education, higher education and labour together with their Kurdistan Regional Government counterparts and adopted by the Council of Ministers, it provides a common basis for the recognition of qualifications across vocational secondary education, technical institutes and vocational training centers and supports progression and quality assurance across the system.
Just transition	A framework, promoted by the International Labour Organization and recognized under the Paris Agreement, for managing the shift to environmentally sustainable economies in a way that is fair and inclusive for workers, enterprises and communities. It combines decent work creation, social protection, skills development, social dialogue and active labour market measures to mitigate adverse impacts on those exposed to economic restructuring.
KoBoToolbox	An open-source data collection platform widely used across the United Nations system and the humanitarian community for the design and deployment of structured questionnaires. It supports multilingual instrument design, offline and online submission, and the structured export of survey data, and was used as a complementary collection channel in this assessment.
Kurdistan Region of Iraq (KRI)	The constitutionally recognized federal region of Iraq comprising the governorates of Erbil, Sulaymaniyah, Duhok and Halabja. The Region exercises devolved competences in areas including education, vocational training, labour administration and economic planning, and maintains a parallel institutional architecture to that of the federal level.
Kurdistan Regional Government (KRG)	The executive authority of the Kurdistan Region of Iraq, seated in Erbil and constituted of a Council of Ministers, line ministries and regional agencies. The KRG holds devolved responsibilities for labour, social affairs, education, higher education and economic planning within the Region, and coordinates with the federal Government of Iraq on matters of shared competence.
Labour force	The portion of the working-age population that is either employed or actively seeking employment during a defined reference period. It is the statistical denominator from which participation, employment and unemployment rates are calculated.
Labour force participation rate	The share of the working-age population that is either employed or actively seeking employment. It is a headline indicator of engagement with the labour market and is typically disaggregated by sex, age and education to reveal structural patterns of inclusion and exclusion.
Labour Law No. 37 of 2015	The Federal Labour Law of the Republic of Iraq, enacted in 2015 and entered into force in 2016, which replaced Law No. 71 of 1987 as the principal legal instrument governing the employment relationship in the private sector. It modernized provisions on non-discrimination, working time, termination and collective rights, brought the federal framework closer into alignment with international labour standards, and is administered by the Ministry of Labour and Social Affairs through its network of labour directorates.
Labour market assessment	A structured evidence-gathering exercise that examines how labour is supplied, demanded and matched within a defined economy or territory. It typically combines primary data collection from employers, workers or training institutions with secondary analysis of macroeconomic, demographic and policy indicators, and is intended to inform skills, employment and private sector policy.
Labour Market Formality Index (LMFI)	A composite platform indicator that measures the degree of formality of employment within surveyed enterprises, combining variables such as written contracts, social security coverage and registered employment status. Higher values denote a more formal employment structure, and the index supports comparison of formality across governorates, sectors and enterprise size categories.
Labour market friction	Any structural or institutional factor that impedes the efficient matching of workers to jobs. Frictions include information asymmetries between employers and jobseekers, geographic immobility, weak placement infrastructure, regulatory barriers and reliance on informal networks that disadvantage outsiders and new entrants.
Labour Market Information Observatory (LMIO)	The standing national institutional mechanism established under UNESCO Iraq for the continuous collection, validation, analysis and dissemination of labour market intelligence. The Observatory operates a digital platform, manages successive cycles of assessment, and serves federal and Kurdistan Region authorities, training institutions, employer and worker organisations and development partners with comparable demand-side, supply-side and institutional evidence.
Labour Market Information System (LMIS)	An integrated set of institutional arrangements, data sources, instruments and analytical processes through which information on labour market conditions, occupations, skills and employment outcomes is generated and made available to policy makers, training authorities and social partners. The UNESCO LMA Digital Platform constitutes the operational backbone of such a system for Iraq.
Labour market intermediation	The set of institutions, services and platforms that connect jobseekers with employers and support transitions into and within employment. It encompasses public employment services, private placement agencies, university and college career centers, sector skills councils and digital job-matching platforms.
Leave no one behind	The central transformative commitment of the 2030 Agenda for Sustainable Development, requiring that progress reach the furthest behind first and that no person, group or place be excluded from the gains of development. In labour market policy, the principle translates into deliberate targeting of women, youth,

	persons with disabilities and displacement-affected populations within mainstream employment and skills programming.
Long-term unemployment	Unemployment that has persisted continuously for twelve months or more. It is treated as a distinct policy concern because the probability of re-employment declines with the duration of joblessness, and because long spells are associated with skills depreciation, loss of attachment to the labour market and increased risk of poverty.
Margin of error	The half-width of the confidence interval around a sample estimate, expressed in percentage points. The present assessment applied a margin of error of five percentage points at governorate level, meaning that each province-level estimate is expected to lie within five percentage points of the true population value at the specified confidence level.
Maternity protection	The body of rights and entitlements accorded to women workers in connection with pregnancy, childbirth and the early period of motherhood, including paid maternity leave, employment security, health protection, breastfeeding arrangements and protection against discrimination. The international reference framework is International Labour Organization Convention No. 183, which sets minimum standards of fourteen weeks of paid leave and associated guarantees.
Micro enterprise	The smallest category of enterprise within national size classifications, typically comprising firms with a very small number of employees, in many systems between one and four or up to nine staff. Micro enterprises constitute the largest share of establishments in most developing economies and are characterized by limited formalization, owner management and concentration in trade and services.
Mixed methods design	A research design that combines quantitative and qualitative methods within a single study, in order to triangulate evidence and enrich interpretation. In the present assessment, a predominantly quantitative core based on the Tool 1 survey is enriched by a qualitative layer of key informant consultations, validation exchanges and structured interpretation sessions.
Multiple-response question	A questionnaire item that permits a respondent to select more than one option from a defined list. Aggregate shares for such items reflect the proportion of respondents selecting each option and therefore do not sum to one hundred%, which must be explicitly noted in any tabulation or interpretation.
National Development Plan 2024-2028	The fourth medium-term national planning instrument of the Republic of Iraq, prepared by the Ministry of Planning, which sets the strategic direction of public investment and reform for the period 2024 to 2028. It is structured around four principal pillars, namely economic resilience and diversification, improved public services, environmental sustainability and climate adaptation, and digital transformation linked to private sector growth, and addresses skills development and labour market intermediation across each pillar.
National Qualifications Framework	A nationally agreed, level-based instrument that classifies qualifications according to defined learning outcomes, supporting transparency, comparability, quality assurance and progression across education and training sub-systems. It underpins the recognition of prior learning, the articulation between general education, TVET and higher education, and the international comparability of national qualifications.
Network and systems administration	The technical function responsible for the design, configuration, operation, monitoring and maintenance of computer networks, servers, storage and the platforms on which organisational information systems run. The associated roles ensure availability, performance, security and integration of the digital infrastructure that underpins modern enterprises and public services.
Not in employment, education or training (NEET)	A status applied to young people, typically aged fifteen to twenty-four or fifteen to twenty-nine, who are neither employed nor enrolled in any form of education or training. The NEET rate is a composite indicator of disengagement from both the labour market and the education and training system, captures both unemployment and labour market detachment, and is recognized as a target under Sustainable Development Goal 8.
Occupational standard	A benchmark statement that specifies the tasks, competencies, knowledge and performance criteria required to practice an occupation to an agreed level of proficiency. Developed in consultation with employers, workers and training providers, occupational standards anchor curriculum design, qualification specifications and assessment in TVET systems.
On-the-job training	Structured or semi-structured learning that takes place at the worksite during the performance of normal duties, typically under the supervision of a more experienced colleague. On-the-job training is the predominant form of skills acquisition in many enterprises and is recognized as a critical complement to formal initial education and to off-the-job continuing training.
Operating environment	The locality type within which an enterprise carries out its activities, conventionally classified as urban, mixed urban and rural, or rural. The operating environment is a structural variable for analyzing access to infrastructure, market size, labour pools and the geographic distribution of enterprise activity.
Persons with disabilities (PwD)	Persons who have long-term physical, mental, intellectual or sensory impairments which, in interaction with various barriers, may hinder their full and effective participation in society on an equal basis with others, as defined by the United Nations Convention on the Rights of Persons with Disabilities. Their inclusion in the labour market is supported by reasonable accommodation, accessible workplaces, non-discrimination measures and targeted active labour market programs.
Population denominator	The estimated total number of units in the target population against which sample size requirements and coverage rates are calculated. For this assessment, the population denominator is the dynamically estimated figure of approximately fifteen thousand enterprises operating across the ten surveyed governorates in segments relevant to the green and digital transition.
Post-stratification weighting	A statistical correction applied after data collection to align the achieved sample with the known structure of the sampling frame. Weights are derived from the distribution of governorate, sector and enterprise size categories in the frame and are applied to reduce distortion in aggregate estimates when the realized sample diverges from the design targets.
Priority sector	A sector identified as strategically significant for economic diversification, decent work creation and the absorption of new entrants to the labour force, and therefore selected for deeper analytical treatment within an assessment. In the present configuration the digital and green economy clusters are treated as priority sectors.

Protracted displacement	A situation in which the process of finding durable solutions for displaced persons has stalled, leaving affected populations unable to return, locally integrate or resettle for a prolonged period, typically defined as five years or more. The condition has particular labour market implications, including erosion of human capital, disrupted access to formal employment and dependence on informal livelihoods.
Public employment service	A government-operated institution responsible for assisting jobseekers to find work, supporting employers to recruit, administering active labour market programs and, in many systems, managing unemployment benefits. Public employment services are recognized under International Labour Organization conventions as a core component of national employment policy infrastructure.
Reasonable accommodation	Necessary and appropriate modifications and adjustments, not imposing a disproportionate or undue burden, that are required in a particular case to ensure that persons with disabilities can enjoy or exercise their rights on an equal basis with others. In the world of work, it covers adjustments to physical workplaces, working time, equipment, communication and tasks that enable workers with disabilities to access, retain and progress in employment.
Recent graduates	Persons who have recently completed a program of secondary, technical, vocational or higher education and who are entering the labour market for the first time. Their employment outcomes are closely monitored as an indicator of the relevance of education and training provision and of the efficiency of the school-to-work transition.
Recognition of Prior Learning (RPL)	The formal process by which the knowledge, skills and competencies that an individual has acquired through non-formal training, informal learning or work experience are assessed and certified against established standards. It allows workers, returnees and others without traditional credentials to obtain recognized qualifications, access further learning and improve their position in the labour market.
Recruitment channel	The route through which an enterprise identifies, attracts and selects candidates for vacancies. Channels range from informal mechanisms such as personal networks, employee referrals and social media to formal mechanisms including public employment services, private placement agencies, university and college career centers and online job platforms.
Renewable energy	Energy generated from naturally replenished sources, including solar, wind, hydropower, geothermal and sustainably sourced biomass. As a labour market category, it covers the enterprises, occupations and skills involved in the design, installation, operation and maintenance of renewable generation and ancillary infrastructure.
Replacement protocol	A documented fieldwork procedure under which enterprises that decline to participate or cannot be located are replaced by other units drawn from the same stratum, in order to preserve the structural integrity of a stratified sample. In this assessment, replacements were drawn from within the same governorate, sector and enterprise size cell, and recorded for transparency in the audit trail.
Returnee	A person who has returned to their area of habitual residence after a period of forced or voluntary displacement, whether internal or international. In labour market analysis, returnees are treated as a distinct group of attention because their reintegration depends on functioning local labour demand, recognition of prior learning and access to active labour market measures in areas often characterized by damaged infrastructure and weak service provision.
Role-based access architecture	An access control architecture under which users of a digital system are granted permissions to data, controls and analytical views strictly on the basis of their assigned institutional role. The LMIO platform provisions distinct dashboards for the administrator, Observatory leadership and team members, governorate focal points, donor stakeholders and partner institutions, exposing the same underlying dataset in differentiated form.
Sampling frame	The operational list or procedure from which sampling units are selected, intended to approximate the target population as closely as possible. In the present assessment, the frame was constructed through artificial intelligence assisted online enumeration and secondary data aggregation, validated against an internally maintained register of company records, and used to define the population denominator of approximately fifteen thousand enterprises across the ten governorates.
School-to-work transition	The period during which young people move from initial education or training into stable and productive employment. The quality and duration of this transition is shaped by the alignment of curricula with labour demand, the availability of work-based learning, the functioning of intermediation services and the readiness of enterprises to absorb new entrants.
Sector skills council	An institutionalized, employer-led body, typically tripartite in composition, that articulates the current and future skills needs of a defined economic sector and steers the development of occupational standards, qualifications and training provision in that sector. Sector skills councils serve as a permanent interface between industry and the TVET system, anchoring skills anticipation and qualification design in the realities of enterprise demand.
Sector taxonomy	A structured classification of economic activities used to code enterprise sectors and sub-sectors in a comparable form. The Tool 1 taxonomy distinguishes conventional economic activities from explicitly tagged green and digital categories and is aligned with international classifications while adapted to the structure of the Iraqi economy.
Sectoral analysis	An analytical treatment that presents findings separately for each major sector of economic activity, in order to surface differences in employment composition, skills demand, hiring practices and growth prospects. Sectoral analysis is a standard requirement of labour market assessment and informs the design of sector-specific skills and employment interventions.
Skills demand	The set of technical, transferable and contextual competencies that employers require to perform the tasks associated with current and anticipated occupations. Skills demand is typically measured through structured employer surveys, vacancy analyses and forward-looking projections, and is disaggregated by sector, occupation, enterprise size and geography.
Skills for Work and Life	The UNESCO vision underpinning its Strategy for Technical and Vocational Education and Training, which positions technical skills, transferable skills and the values required for civic participation as parts of a single

	learning continuum. It situates skills development at the intersection of the right to education and the right to decent work, and frames TVET as a foundation for lifelong personal, professional and civic development.
Skills gap	A deficit between the level or composition of skills that an enterprise requires for its current operations and the level or composition of skills present in its existing workforce or available among applicants. Skills gaps are typically identified through direct employer reporting and are distinguished from skills shortages, which refer to insufficient numbers of suitably qualified candidates in the external labour market.
Skills mismatch	A misalignment between the skills that employers require and the skills that workers and jobseekers possess. It can take the form of skills shortages, skills gaps, qualification mismatch or field-of-study mismatch, and is widely associated with unfilled vacancies, depressed productivity and constrained earnings progression.
Skills shortage	A situation in which the number of workers possessing a required set of skills is insufficient to meet labour demand at prevailing wages and conditions. Shortages are typically signaled by hard-to-fill vacancies, extended recruitment times and upward pressure on wages in the affected occupations.
Skills supply	The stock and flow of competencies available within the working-age population, generated through formal education, technical and vocational education and training, higher education, continuing training and informal learning. Skills supply is typically measured through enrolment and graduation data, qualification registers and assessments of learning outcomes.
Small and medium-sized enterprise (SME)	An enterprise whose employment headcount, turnover or balance sheet falls below thresholds defined by national authorities to distinguish it from large firms. Small and medium-sized enterprises are widely recognized as the principal source of formal private sector employment in developing economies and as a strategic constituency for skills and finance policy.
Social inclusion	The process of improving the terms on which individuals and groups take part in society, ensuring equality of opportunity, voice and respect for rights, particularly for those disadvantaged on the basis of identity, status or circumstance. Applied to the labour market, it denotes the deliberate removal of structural barriers to participation in productive employment, decent work and enterprise.
Social protection	The set of policies and programs that protect individuals and households against the economic and social consequences of life-cycle risks and contingencies, including unemployment, sickness, maternity, disability, old age and loss of breadwinner. Social protection encompasses contributory social insurance, tax-financed social assistance and labour market measures, and is a pillar of the Decent Work Agenda.
Social security and pension reform	The ongoing modernization of Iraq's social security and pensions architecture, aimed at extending statutory coverage beyond the historic core of formal private sector workers to encompass segments of the workforce currently operating in informal arrangements. The reform seeks to update contribution schedules, eligibility rules and benefit structures, and to align the social protection system with international standards on universal coverage and the formalization of employment.
Soft skills	Interpersonal, behavioral and self-management capabilities that enable individuals to interact effectively with others and to perform productively in a work environment, including communication, collaboration, adaptability, reliability, problem-solving and time management. Employers consistently rank soft skills alongside technical proficiency as primary hiring criteria, and they are increasingly integrated into TVET curricula as core learning outcomes.
Soft Skills Criticality Rate (SSCR)	A platform indicator that measures the proportion of employers identifying transferable or soft skills, such as communication, teamwork, problem-solving and adaptability, as critical to performance in their enterprise. Higher values denote greater employer reliance on transferable competencies and are interpreted as a call for stronger integration of soft skills into formal training pathways.
Solar photovoltaic	A renewable energy technology that converts sunlight directly into electricity through semiconductor cells assembled into modules and integrated systems. The associated occupations include the design, installation, commissioning, operation and maintenance of grid-connected, off-grid and hybrid solar electricity systems for residential, commercial and utility-scale use.
Stratified sampling	A probability sampling design in which the target population is partitioned into mutually exclusive strata and independent samples are drawn within each stratum. In this assessment, stratification was applied by governorate, by economic sector and by enterprise size category, ensuring sufficient observations in each cell to support disaggregated analysis and protect against the masking of within-country heterogeneity.
Supply-side assessment	A form of labour market assessment that examines the labour market from the perspective of those who seek work, including jobseekers, workers and the broader working-age population. It draws on household and labour force surveys, jobseeker registries and demographic indicators to characterize availability, participation and aspirations on the labour supply side.
Sustainable Development Goal (SDG)	One of the seventeen integrated and indivisible goals adopted by United Nations Member States in 2015 as part of the 2030 Agenda for Sustainable Development. Each Goal sets out specific targets and indicators that guide national policy, international cooperation and the reporting of progress on people, planet, prosperity, peace and partnership.
Sustainable Development Goal 4 (Quality Education)	The fourth Sustainable Development Goal of the 2030 Agenda, which commits Member States to ensure inclusive and equitable quality education and to promote lifelong learning opportunities for all. Its targets cover early childhood, primary, secondary, tertiary and technical and vocational education, and the acquisition of foundational, transferable and job-specific skills.
Sustainable Development Goal 5 (Gender Equality)	The fifth Sustainable Development Goal of the 2030 Agenda, which commits Member States to achieve gender equality and to empower all women and girls. Its targets address discrimination, violence and harmful practices, the recognition of unpaid care and domestic work, equal participation in leadership, sexual and reproductive health and rights, and equal access to economic resources.
Sustainable Development Goal 8 (Decent Work and Economic Growth)	The eighth Sustainable Development Goal of the 2030 Agenda, which commits Member States to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. Its targets address productivity, formalization, youth employment, labour rights, safe working environments and the eradication of forced labour, modern slavery and child labour.

Technical and vocational education and training (TVET)	The branch of education and training that equips learners with the knowledge, technical competencies and transferable skills required to perform specific occupations and to participate productively in the world of work. Within UNESCO's normative framework it is understood as a lifelong learning continuum underpinning the right to education and the right to decent work, encompassing initial preparation, continuing skills upgrading and pathways to higher learning, and is delivered through vocational secondary schools, post-secondary technical institutes, universities of applied science and continuing vocational training centers, often in partnership with employers.
Technical institute	A post-secondary institution providing technical and applied education at sub-degree and short-cycle levels, typically combining theoretical instruction with practical and laboratory-based learning. In the Iraqi system technical institutes are administered under the higher education portfolio and prepare technicians for skilled occupations in industry, services and the public sector.
Technical skills	Occupation-specific knowledge and applied abilities that enable a worker to perform the defined tasks of a trade, technical occupation or professional field to an agreed standard of competence. They are typically acquired through structured TVET programs, on-the-job training, work-based learning and continuing professional development, and are codified through occupational standards and qualifications.
Tool 1.3 (Private Sector Survey)	The principal data collection instrument of the UNESCO Iraq Labour Market Information Observatory, designed to capture, in structured and comparable form, what private sector enterprises report about their workforce composition, skills requirements, hiring practices, business environment and forward outlook. It is organized in modules covering enterprise profile, current employment, skills demand and gaps, hiring practices and TVET linkages, business environment and outlook, and cross-cutting dimensions.
Tool 1.4 (Supply-Side Survey)	Tool 1.4 (Skills-Supply Survey). A planned instrument of the UNESCO Iraq Labour Market Information Observatory, designed to capture institutional evidence from technical and vocational education and training (TVET) providers and higher-education institutions on the skills the system supplies. It is scheduled for the next phase to be read against the demand-side evidence of Tool 1 (Tool 1.3).
Tool 1.5 (TVET and Higher Education Survey)	Tool 1.5 (Labour-Supply Survey). A planned instrument of the UNESCO Iraq Labour Market Information Observatory, designed to capture the experience of jobseekers, graduates and new entrants to the labour market. It is scheduled for the next phase, alongside Tool 1.4, to complete a three-sided reading of the market.
Top Labour Market Constraint (TLMC)	A platform indicator that identifies, for a given segment of the sample, the most frequently reported constraint on business performance and employment growth, drawn from a structured list of regulatory, financial, infrastructural and skills-related barriers. It supports the ranking of binding constraints by governorate, sector and enterprise size and the prioritization of policy response.
Tracer study	A structured follow-up study of the destinations of graduates from an education or training program, typically conducted at defined intervals after completion. By linking training inputs to labour market destinations, tracer studies generate evidence on employment outcomes, alignment between qualifications and occupations and graduate perceptions of program quality, and are a standard instrument of institutional self-evaluation.
Transferable skills	Cross-cutting competencies that retain their value across different occupations, sectors and life contexts, including communication, critical thinking, teamwork, problem-solving, digital literacy, numeracy, collaboration and learning to learn. UNESCO situates transferable skills within its Skills for Work and Life vision as a foundation for adaptability, mobility and lifelong learning in changing labour markets.
Triangulation	A methodological practice in which findings derived from one source or method are tested against findings from independent sources or methods in order to strengthen credibility. In this assessment, primary survey data are triangulated with macroeconomic indicators from national statistical offices, the International Labour Organization, the World Bank and relevant United Nations agencies, and with policy and institutional documentation.
Tripartism	The institutional arrangement under which governments, employers' organisations and workers' organisations participate jointly in the formulation and implementation of labour and social policy. Tripartism is a foundational principle of the International Labour Organization and is operationalized through national consultative bodies, sector councils and bipartite or tripartite agreements.
Tripartite social dialogue	The institutionalized process of negotiation, consultation and information exchange between representatives of governments, employers' organisations and workers' organisations on matters of common interest relating to economic and social policy. It is a foundational principle of the International Labour Organization and underpins the governance of labour markets, the design of employment and social protection policy, and the peaceful resolution of industrial relations.
TVET Confidence Gap Rate (TCGR)	A platform indicator that captures the share of employers expressing low or no confidence in the preparedness of technical and vocational education and training graduates for the workplace. Higher values denote a wider perceived gap between the competencies delivered by the TVET system and those required by enterprises, and the indicator is used to flag occupations and sectors in greatest need of curricular alignment.
TVET-side assessment	An institutional analysis that examines the system producing skills, including technical and vocational education and training providers, curricula, enrolment patterns and graduate outcomes. It typically draws on program reviews, enrolment data, tracer studies of graduates and provider self-assessments to characterize the quality, relevance and reach of training provision.
Two-stage approval workflow	A data quality assurance procedure in which each survey record is reviewed and approved sequentially by two independent actors, in the present configuration first by the data collector and then by an Observatory team member. Only records that clear both stages enter the analytical dataset, generating a continuous record-level quality signal and an auditable trail for every figure reported.
Underemployment	A situation in which a person is employed but their employment is inadequate in relation to their availability, qualifications or hours of work. Time-related underemployment captures persons working fewer hours than they wish and are available to work, while skills-related underemployment captures persons whose qualifications exceed those required by their current occupation.

Unemployment	The condition of persons of working age who are without work, are available for work and have taken active steps to seek work during a defined reference period. The unemployment rate, expressed as a share of the labour force, is one of the most widely used indicators of labour market slack.
UNESCO Strategy for Technical and Vocational Education and Training	The global strategic framework of UNESCO that sets the Organization's vision and priorities for skills development, organized around three priority areas, namely developing skills for employment, decent work and entrepreneurship, advancing equity, gender equality and inclusion, and supporting transitions to digital and green economies. It positions TVET as a foundation for the right to education, the right to decent work and lifelong personal and civic development.
Vacancy	A post within an enterprise that is either newly created or currently unoccupied and for which the employer is taking active steps to recruit. Vacancy statistics are a standard indicator of labour demand and, when combined with unemployment data, of the efficiency of matching in the labour market.
Vacancy Fill Difficulty Index (VFDI)	A platform indicator that measures the relative difficulty employers report in filling vacancies in specified occupations. Computed from employer ratings on a structured difficulty scale, the index ranges from low to high values and is interpreted as a signal of skills shortage intensity, with higher values denoting occupations and sectors in which recruitment is most acutely constrained.
Validation back-check	A quality assurance procedure in which a sample of completed questionnaires is independently re-contacted or cross-verified against external sources to confirm that the recorded responses correspond to the situation of the respondent enterprise. Back-checks are used to detect enumerator error, fabricated entries and inconsistencies, and to inform corrective action and replacement decisions.
Vocational training center	An institution delivering continuing vocational training, short-course provision and skills retraining for working-age adults, jobseekers and incumbent workers, generally under the authority of the labour portfolio. Vocational training centers operate close to enterprise demand, often in partnership with employers, and may also provide second-chance pathways for early school leavers and vulnerable groups.
Vulnerable and marginalized groups	Populations facing systematic barriers to full and equal participation in the labour market on grounds including gender, age, disability, displacement status, nationality or geographic location. In this assessment, the category provides the analytical frame for examining employer-reported exclusion of women, persons with disabilities and internally displaced persons, and for designing inclusive skills and employment responses.
Vulnerable employment	Employment characterized by inadequate earnings, low productivity and difficult conditions of work, undertaken without the protections normally associated with formal wage employment. The category, as defined by the International Labour Organization, conventionally comprises own-account workers and contributing family workers, and is widely used as a proxy indicator for informality and decent work deficits.
Wage subsidy	A public payment to employers, or in some designs to workers, that reduces the cost of employing a defined target group for a defined period. Wage subsidies are widely used to encourage the hiring of young people, the long-term unemployed, persons with disabilities and other groups facing structural disadvantage in the labour market.
Waste management	The collection, sorting, transport, treatment, recycling and safe disposal of solid, liquid and hazardous waste streams in a manner that protects public health and the environment. The associated occupational profiles range from frontline collection and sorting roles to specialist functions in environmental engineering, recycling operations and regulatory compliance.
Work-based learning	An umbrella category for learning that takes place wholly or partly in a real work environment, including apprenticeships, internships, traineeships, dual vocational programs and structured workplace placements within general TVET. Work-based learning is widely identified as an effective mechanism for aligning skills supply with employer demand and easing the school-to-work transition.
Working age population	The segment of the population eligible to participate in the labour market under national statistical conventions, most commonly persons aged fifteen years and over. It is the standard denominator for labour force participation, employment and unemployment indicators.
Youth bulge	A demographic structure in which young people constitute a disproportionately large share of the total population, generating sustained increases in the working-age population over an extended period. In Iraq the youth bulge translates into very large annual cohorts entering the labour market and frames the urgency of expanding decent employment opportunities and aligning skills provision with labour demand.
Youth unemployment	Unemployment affecting young people, conventionally defined as persons aged fifteen to twenty-four, and sometimes extended to twenty-nine in national applications. It is widely monitored because elevated youth unemployment signals weaknesses in the school-to-work transition and carries long-term consequences for earnings, skills accumulation and social cohesion.

Annex: List of Acronyms and Abbreviations

Acronym	Full form
ALMP	Active Labour Market Program
CAPI	Computer-Assisted Personal Interviewing
CBT	Competency-Based Training
CDC	Career Development Center
CEDAW	Convention on the Elimination of All Forms of Discrimination Against Women
CoM	Council of Ministers
CoVE	Center of Vocational Excellence
COVID-19	Coronavirus Disease 2019
CRPD	Convention on the Rights of Persons with Disabilities
CSO	Central Statistical Organisation
CV	Curriculum Vitae
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FGD	Focus Group Discussion
GBV	Gender-Based Violence
GDP	Gross Domestic Product
GESI	Gender Equality and Social Inclusion
GIZ	Deutsche Gesellschaft fuer Internationale Zusammenarbeit (German Agency for International Cooperation)
GoI	Government of Iraq
HEI	Higher Education Institution
HR	Human Resources
ICT	Information and Communications Technology
IDP	Internally Displaced Person
ILO	International Labour Organization
IMF	International Monetary Fund
IMWG	Inter-Ministerial Working Group
IOM	International Organization for Migration
IQD	Iraqi Dinar (ISO 4217 currency code)
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of All Economic Activities
IVP	Integrated Vocational Pathway
KII	Key Informant Interview
KoBo	KoBoToolbox (open-source survey data collection platform)
KPI	Key Performance Indicator
KRG	Kurdistan Regional Government
KRI	Kurdistan Region of Iraq
KRSO	Kurdistan Region Statistics Office
LFP	Labour Force Participation
LFS	Labour Force Survey
LMA	Labour Market Assessment
LMI	Labour Market Information
LMIO	Labour Market Information Observatory
LMIS	Labour Market Information System
M&E	Monitoring and Evaluation
MEAL	Monitoring, Evaluation, Accountability and Learning
MENA	Middle East and North Africa
MoA	Ministry of Agriculture
MoE	Ministry of Education
MoF	Ministry of Finance
MoHESR	Ministry of Higher Education and Scientific Research
MoIM	Ministry of Industry and Minerals
MoLSA	Ministry of Labour and Social Affairs
MoP	Ministry of Planning
MoU	Memorandum of Understanding
MSME	Micro, Small and Medium Enterprise
NDP	National Development Plan
NEET	Not in Employment, Education or Training
NGO	Non-Governmental Organization
NQF	National Qualifications Framework
OECD	Organisation for Economic Co-operation and Development
OJT	On-the-Job Training
OSH	Occupational Safety and Health
PES	Public Employment Service
PMAC	Prime Minister's Advisory Council
PPP	Public-Private Partnership
PwD	Person with Disability

RPL	Recognition of Prior Learning
SDG	Sustainable Development Goal
SME	Small and Medium Enterprise
STEM	Science, Technology, Engineering and Mathematics
ToR	Terms of Reference
ToT	Training of Trainers
TVET	Technical and Vocational Education and Training
TVQAAC	Technical and Vocational Qualifications Award and Accreditation Commission
TVQF	Technical and Vocational Qualifications Framework
UN	United Nations
UNAMI	United Nations Assistance Mission for Iraq
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	UNESCO International Center for Technical and Vocational Education and Training
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USD	United States Dollar
WBL	Work-Based Learning

Annex: The Ten Levels of the Iraqi TVQF

Level	TVET title	Learning-outcome focus (abridged)
1	Certificate 1	Foundational general knowledge; basic, highly-predictable activities under direct supervision.
2	Certificate 2	Basic factual knowledge; routine tasks in structured contexts under supervision.
3	Certificate 3	Factual, technical, procedural knowledge; routine tasks under supervision.
4	Certificate 4	Broad factual, theoretical & applied knowledge; initiates solutions with minimal supervision.
5	Diploma	Broad specialized technical & theoretical knowledge; routine and non-routine activities; paraprofessional.
6	Advanced Diploma	Specialized knowledge; evidence-based solutions to familiar and non-familiar problems; supervision.
7	Professional: Bachelor	Comprehensive theoretical & technical knowledge; evaluates information and solves complex problems.
8	Professional: Graduate Diploma	Advanced theory and practice; masters complex, unpredictable problems at a specialist level.
9	Professional: Master	Advanced, multidisciplinary expertise; specialized problem-solving and research application.
10	Professional: PhD	Highly specialized knowledge at the forefront of discipline; research, innovation and policy leadership.

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LABOUR MARKET ASSESSMENT

This Labour Market Assessment presents the findings of a comprehensive demand-side analysis of Iraq's labour market, based on responses from 1,969 private-sector enterprises across ten selected governorates. Conducted under UNESCO's Green and Digital TVET for Enhancing Employability in Iraq project, the assessment identifies current and emerging labour market opportunities, with a particular focus on the skills required to support Iraq's green and digital transitions.

The report examines enterprise characteristics, employment trends, workforce composition, recruitment practices, skills shortages, occupational demand, and barriers to business growth. It highlights significant demand for digital, technical, green, soft, and English-language skills while identifying persistent gaps between employer needs and the current skills supply. The findings also reveal regional variations in labour market dynamics and emphasize the importance of aligning technical and vocational education and training (TVET) with evolving labour market requirements.

Based on robust quantitative evidence and stakeholder consultations, the report provides practical recommendations for curriculum development, competency-based training, labour market policies, public-private partnerships, and the institutionalization of the Labour Market Information Observatory (LMIO). It offers an evidence-based foundation for policymakers, education providers, employers, and development partners to strengthen employability, promote inclusive economic growth, and support sustainable development across Iraq.

4 QUALITY EDUCATION

Sustainable Development Goals