Ministry of Digital Economy & Entrepreneurship
Youth Technology and Jobs Project
Project ID: P170669
Reference#: JO-MODEE-200653-CS-QCBS

Supply and Demand Gap Analysis for Digital Skills in the ICT[1] Industry

1. PROJECT BACKGROUND AND OBJECTIVES

The Ministry of Digital Economy & Entrepreneurship (MoDEE), Jordan, is the implementing agency of the YTJ project and aims to improve digitally enabled income opportunities and expand digitized government services in Jordan. The YTJ project will build an impetus for private sector-led growth of the digital economy and make interventions to address specific constraints in the supply and demand sides of the economy. The project duration is five years.

The project components are:

Component 1 – Support the supply of digital skills in Jordan

- Sub-component 1.1: Support private sector-led digital skills development. Support the establishment of the National Skills Council for Information and Communication Technology (NSC-ICT), as an independent (financially and administratively) legal entity, with a majority private sector board membership and representation from key public sector stakeholders, and with the mandate to: (a) conduct demand and supply side assessments; (b) establish national occupational standards; (c) qualify training service providers; (d) select and contract training service providers; (e) create, accredit, and disseminate on-line training materials; (f) conduct national awareness activities; (g) engage in monitoring and evaluation; and (h) establish comprehensive customer relationship management (CRM) system for the beneficiaries. The activities of the NSC-ICT will be coordinated with and, when required by vocational training law and regulations, approved by the Vocational and Technical Skills Development Corporation.

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[1] Information, and Communication Technology (ICT) refers to all technologies (software, hardware, data, transactions, internet access, etc.) that enables people and firms to interact in a digital world. Digital technology falls under the ICT umbrella and therefore "digital work" refers to jobs that leverage digital technology tools. The proposed project categorizes two types of tech-related jobs: (i) ICT-dependent jobs: defined as jobs that cannot be performed without the use of technology, including digital; and (ii) ICT-enabled jobs: defined as jobs that uses technology as a tool to improve efficiency and effectiveness, although it could be performed without it. Both category of jobs would however require different levels of digital skills.

- Sub-component 1.2: Enhance digital skills competencies for public school students. Introduce quality technology courses in public classrooms G7-12. The activities under this sub-component will aim to identify gaps in the existing information technology courses in schools, develop context-relevant technology learning assets, train teachers on the new courses and roll-out in a systematic way across public classrooms.

- Sub-component 1.3: Provide working spaces in underserved communities through Tech Hubs. Support upgrading and equipping three to five technology hubs (Tech Hubs) as "for fee" venues for skilling programs, networking, and co-working spaces for trainers, entrepreneurs, freelancers, Civil Society Organizations (CSOs), and Business Process Outsourcing (BPO) businesses in nearby communities.

Component 2 – Support the expansion of digital sector and digital government services in Jordan

- Sub-component 2.1: Support the expansion and access to market for digital firms and digital platforms. Provide incentive packages to support the growth plans of digital firms in underserved communities to help build and scale their activities and generate local job opportunities. Provide access to income opportunities in various tech and non-tech economic activities for individuals in the gig economy. The project will seek to increase the adoption of platforms by supporting CSOs in training individuals to access and offer their services on digital platforms and by conducting market outreach and awareness building, with a focus on underserved communities.

- Sub-component 2.2: Support digital transformation of service delivery to citizens and businesses. Support activities designed to improve access to and quality of selected e-government services. In addition to improving quality and cost efficiency of service, the government's commitment to adopt a private sector-based delivery model for government e-services is expected to create business opportunities for local digital firms, which will provide an impetus for employment growth in the digital sector.

- Sub-component 2.3: Support digitization of payments. Support the government commitment to advance penetration of digital payments in Jordan supporting e-payments for all applicable government services, with a focus on front-end services.

Component 3 - Project management & implementation support.

MoDEE established a Project Management Unit (PMU) at the MoDEE. The PMU (within MoDEE) has the overall fiduciary responsibility for project implementation and ensuring activities are executed in accordance with the Program Operational Manual (POM). Component 1.1 will be implemented in close collaboration with the NSC-ICT, MoL, and TVSDC.

To that end, MoDEE is issuing this ToR to identify and appoint a Consultancy Firm that will be responsible for the below assignment.

2. ASSIGNMENT BACKGROUND

Pre-COVID-19, Jordan's unemployment rate was at 19.2% in Q4 of 2019, compared to 18.7% in Q4 of 2018. The latest official statistics indicate an unemployment rate of 23% in Q2 of 2020; a 3.8% increase compared to Q2 of 2019. These numbers are, and continue to be, alarming.

Jordan's labor force participation-rate has also been extremely low; 34% at the end of 2019[2]. The situation is more difficult for Jordanian women, with a participation rate of 14% (Q4 2019). A combination of qualitative and quantitative studies, in addition to an abundance in anecdotal evidence, indicates that due to cultural and social customs, Jordanian women face significant barriers in accessing employment. These barriers are due to mainly cultural and social restrictions, commute challenges, discrimination in the workplace, and lack of childcare support. In effect, such low participation exemplifies significant missed economic opportunities. The prospect of remote work, especially for the female segment of the population, represents a promising solution.

Although Jordan is well known for its growing number of university graduates in computer science, math and engineering fields, it remains ill-equipped with specialized skills to thrive in a digital economy. The findings of a 2016 Labor Market Study conducted by the ICT Association of Jordan (Intaj) revealed five core weaknesses underlying the skills mismatch: (i) an outdated university curriculum; (ii) lack of soft skills; (iii) lack of awareness of and experience with global technology trends; (iv) little to no practical hands-on experience; and (v) brain drain to neighboring countries.

A two-pronged approach is required to address the gaps in the supply of digital skills: (i) immediate attention to the stock of educated youth with skills gaps; and (ii) a systematic focus on foundational issues in the education system that result in a flow of unprepared students. Innovative rapid skills enhancement models to train a few hundred graduates every year on skills for future jobs have been piloted by the Ministry of Digital Economy and Entrepreneurship (MoDEE) and have produced promising preliminary results. These models represent a nimble approach to closing the skills gap among the stock of youth in the job market and will be part of the ongoing offering of skills development programs to provide rapid response to the changing set of skills sets needed by the digital technologies sector. These models include ReBootKamp (RbK), Al-Hussein Technical University (Luminus, SAGO Training and Education and others. Graduates from these programs have been rapidly absorbed by the private sector at a placement rate of more than 80 percent.

The passage of the Vocational and Technical Skills Development Law in July 2019 has created the institutional framework for sector-specific skills development, including in the digital or ICT sector. The law approved the establishment of the Vocational and Technical Skills Development Commission (VTSDC), which is mandated to set standards and foundations for the formation of sectoral councils and will lead the development of vocational and technical education and training, governed by a bylaw that will be issued by the Council of Ministers by March 2020. The government established a National Skills Council for ICT (NSC-ICT) as an advisory body for the VTSDC in February 2019. Most of the council members come from the private sector, and it includes representatives from the government, employers and relevant employee associations.

Hence, the Youth, Technology, and Jobs project will support the establishment of the NSC-ICT, as an independent (financially and administratively) legal entity, with a majority private sector board

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[2] https://tradingeconomics.com/jordan/labor-force-participation-rate

membership and representation from key public sector stakeholders, and with the mandate to: (a) conduct demand and supply side assessments; (b) establish national occupational standards to be adopted by VTSDC; (c) qualify training service providers; (d) select and contract training service providers; (e) create, accredit, and disseminate on-line training materials; (f) conduct national awareness activities; (g) engage in monitoring and evaluation; and (h) establish comprehensive CRM system for the beneficiaries.

A RAPIDLY EVOLVING STATE OF REMOTE WORK

Increasingly, remote work is not only becoming an option for employers, but also a necessity. Data illustrates that 56% of companies globally allow remote work and 16% are fully remote[3], and that telecommuting and remote work are growing at exponential rates in recent years. In addition to offering both employers and employees increased flexibility, remote work and telecommuting help reduce costs for the employer, the employee, and the environment. Employers operating in countries with a high per capita income often choose to outsource tasks or positions to countries with lower per capita incomes, saving significant operational costs and widening their access to talent pools around the globe. This necessity has also become heightened for health, safety, and accessibility concerns due to the COVID-19 outbreak which accelerated the move towards remote work, with many companies worldwide and in Jordan considering how to continue with this model.

Jordan has the potential to grow its digital sector and absorb more digitally skilled labor, through developing its business process outsourcing (BPO) and IT outsourcing (ITO) sectors. Enterprises across the globe are outsourcing business processes to concentrate on their core business effectively.

The Global ITO/BPO Market is expected to expand at 11% (cumulative annual growth rate) to reach $335 billion in 2024[4]. Jordan enjoys a unique blend of qualities, making it an attractive destination for ITO/BPO services. Global giants such as Cisco, Expedia, Amazon, Microsoft, Webhelp, and Oracle have already established operations in Jordan. Local ITO/BPO players such as Aspire, Crystel, and Extensya are experiencing organic growth, targeting global and regional markets. Some of the critical success factors that help position Jordan as an ideal ITO/BPO destination include availability of affordable technical and nontechnical talents, neutral Arabic speaking dialect, geopolitical stability, good infrastructure, liberalized telecom sector, proximity to key target markets in the GCC, and government support when it comes to easing policies and regulations that enable investment in the sector. However, critical gaps remain such as a mismatch between the workforce and job market requirements, limited domestic market and access to export opportunities, limited access to funding necessary for business development and expansion, as well as lack of data on digital skills and the opportunities for women to enroll in the digital economy[5].

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[3] https://www.markinblog.com/remote-work-statistics/#:~:text=56%25%20of%20global%20companies%20allow%20remote%20work,-According%20to%20Owl&text=Global%20Work%20Statistics%20points%20out,(457)%20work%20on%20site.

[4] https://documents.worldbank.org/en/publication/documents-reports/documentdetail/799631573209713687/project-information-document-jordan-youth-technology-and-jobs-project-p170669

[5] http://pubdocs.worldbank.org/en/868581592904029814/State-of-the-Mashreq-Women.pdf

3. ASSIGNMENT OBJECTIVES

The overall objective of this study is to map the current job landscape in ICT, identify employment opportunities factoring in sector growth and demand in the next 2-3 years, and provide recommendations for bridging the demand-supply gap. This mapping will allow for action towards increasing the number of available jobs for citizens and residents of Jordan through ITO/BPO and remote ICT-enabled opportunities, focusing specifically on underemployed and unemployed Jordanian women and youth. It is essential that the mapping includes tapping into the existing and future demand of employment opportunities in certain countries that experience a shortage in IT-skilled workforce (including GCC Countries, Western Europe and North America). The mapping will also be established through a combination of a research-led mapping process of available studies on the topic (for example "The Future of Work in ICT" Project Report by ILO[6], and "The Changing Nature of Work" Report by the World Bank[7]), direct communication with relevant stakeholders, and the main gap analysis activity.

In addition to Jordan, targeted employment generating countries are:
- North America: U.S.A. and Canada
- Western Europe: France, Germany, Ireland, Netherlands, Sweden, and the United Kingdom
- Countries of the Gulf Cooperation Council (GCC)
- Any other countries identified through secondary research carried out on employment opportunity mapping carried out in earlier section.

Given the likelihood of the long-term restrictive effects of COVID-19 on global travel and logistical operations, the focus will be on generating sufficient remote opportunities for part- or full-time work. Subsequently, these employers might consider setting up a base in Jordan similar to the cases of Amazon and Expedia, or recruiting Jordanians for remote work opportunities in overseas establishments.

To that end, MoDEE is issuing this ToR to identify and appoint a Consultancy Firm that will be responsible for conducting a supply and demand gap analysis for digital skills in the ICT industry with the following scope.

4. SCOPE OF WORK

Research indicates that sufficient demand exists globally on the part of employers to employ IT-skilled workers, and many countries are especially suffering from significant shortage of ICT-skilled people. For example, Sweden has a shortage of 70,000 people with IT or digital-related competencies that are needed by 2022. Primary research conducted by Int@j on remote employers indicates that such demand can be persuaded to provide employment opportunities for Jordanians, given that some enterprise security concerns are addressed. The objective of the skills-demand analysis is to provide a detailed identification and mapping of these in-demand skills locally, regionally, and internationally.

The objective of the skills supply analysis is to provide recommendations on the training and skills development requirements of the ICT industry for the next 2-3 years. These recommendations will

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[6] https://www.ilo.org/wcmsp5/groups/public/---ed_dialogue/---sector/documents/publication/wcms_710031.pdf
[7] http://documents1.worldbank.org/curated/en/816281518818814423/2019-WDR-Report.pdf

better guide training interventions and will provide clear requirements for the TVET, management, and soft skills providers on designing future training services. The analysis will gauge existing skills' gap, skills shortage, changes in requirements and future demands in line with sectorial growth (from the demand side) and technological modernization.

In order to achieve the above objectives, the Consultancy Firm shall undertake the following services[8].

Task 1: Estimate domestic, regional & international demand for digitally skilled labor, which includes, but not limited to, the following activities:

a. Identify domestic labor demand for ICT related skills through:
   i. Conducting desk review of available sources and relevant literature including national and international surveys, reports and plans, etc.
   ii. Analyze DOS data and other databases for net jobs created under relevant sectors/activities to ICT.
   iii. Scanning relevant vacancies available through various online job portals in terms of the number of open vacancies and their percentage against the overall demand pool
   iv. Contacting key employers in the market for an estimation of current positions, both filled and vacant, as well as expected future vacancies
   v. Contacting the Social Security Corporation, Ministry of Industry and Trade, and Ministry of Labor to obtain an estimate on the number of firms and employees operating in the ICT industry which are not subject to restrictions on company size (in terms of working capital and number of employees)
   vi. Interviewing a representative sample of outsourcing companies and large enterprises to pinpoint most demanded skills locally
   vii. Estimating (through the above data) the time needed for digital vacancies to be filled; from job opening to final candidate selection, and skills needed. The estimation should cover a brief overview of job creation trends in the Jordanian ICT industry over the past decade[9].

b. Map and assess all available regional and international present work opportunities for the next 2-3 years (see Annex for links to relevant information) in the ICT industry (including remote work and ITP/BPO), primarily focusing on countries such as the GCC Countries, United States, Canada and Western Europe (Germany, Sweden etc.) by:
   i. Selecting relevant regional and international large enterprises located in the countries of focus in this study and obtaining leads for each
   ii. Creating a database of the industry by mapping current players and work opportunities in the regional and international landscape – as well as covering the local industry human resource needs and contact details which include, but not limited to, the following:
      1. Company name
      2. Company website
      3. Contact details (decision makers' name(s), email(s), phone number(s), etc.)
      4. Needed skills and required qualifications

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[8] Unless otherwise instructed in the TOR, all data should be disaggregated by gender and age.
[9] http://dosweb.dos.gov.jo/labourforce/job-creation/

5. Classification of companies (i.e. country, region, city, size of employees, revenue, capital, years in business, markets, specialization, etc.)
6. The company's ability to hire for remote work and the ability to provide the required setup for remote employees (devices, internet speed, cyber security considerations, etc.)
7. The support required to the HR needs that allow for remote work (working capital, regional policy, HR-counselling services and support, etc.) especially during and after the pandemic, in addition to addressing hurdles or constraints when filling the company's specified HR needs
8. Hiring plan (the number of employees needed over a specified period of time, duration of hiring, etc.)

c. Conduct secondary research on sector trends in employment and projected employment generation; capturing projected local, regional, and global ICT trends such as big data, AI, and others, and their implications on the demand globally. This can include studies conducted by various strategic agencies in Jordan such as NCHRD, World Bank, GIZ; as well as reports and studies by government agencies, trade associations or other businesses in Jordan and select countries.

Task 2: Identify the present status of the ICT workforce according to international occupational standards, in terms of the following:

a. Strengths and weaknesses (areas of development) of the workforce in digital skills and other essential skills essential to employment such as language proficiency, and soft skills
b. Academic qualifications, trainings, professional certifications, and professional experience
c. Main categories of employment (full-time, part-time, etc.)
d. Employment wages and existing benefit packages
e. Entry-level jobs' requirements
f. Age distribution
g. Gender composition
h. Disability rates and characteristics

Task 3: Conduct labor force analysis to the current ICT talent produced by higher education and TVET providers, in terms of the following:

a. Listing all local universities and community colleges, all majors related to ICT per university/community college and number of female/male graduates per major in the last 10 years.
b. Identify the strengths and weaknesses in the curricula/course plan for these majors and evaluate the extent of coverage of certain advanced topics highlighted through the findings of tasks 1 and 2.
c. Listing all boot camp programs in Jordan, including topics, duration and number of female/male graduates per each for the last 2-3 years.
d. Number of annual graduates categorized by program and disaggregated by gender, age, and sector.
e. Number of jobs landed and startups started by graduates annually disaggregated by gender, sector, country, and region within the country.

f. Quantity of talent produced annually which meets the in-demand digital skills' requirements but lacks other skills (such as language, soft skills, etc.) which, in turn, disables the talent from entering the ICT job market

Task 4: Evaluate the availability of ICT related skills' qualifications, in terms of the following:

a. Available accredited qualifications for ICT related skills categorized by topic and level of mastery
b. Available unaccredited educational programs for ICT related skills categorized by topic and level of mastery
c. Available open (free and online) resources for developing ICT related skills categorized by topic and level of mastery

Task 5: Assess Jordan's digital labor market competitiveness and attractiveness regionally and globally through:

a. Evaluating barriers to entry to Jordan as a potential global hub for digital labor and available incentives
b. Propose top 5 neighboring countries and evaluate their competitive edge in attracting outsourced and offshored jobs
c. Assessing regional and international employers for their remote working in terms of applicability, guidelines, and infrastructure requirements (data protection policies, connectivity, workspaces, etc.)
d. Identifying and articulating (i) the global reliance on both off-shoring and outsourcing digital jobs, (ii) the estimate of the YoY growth of off-shoring and outsourcing as a method of employment, (iii) and the key drivers for this method of employment
e. Outlining the forecasted global demand of digital skills and their level of mastery

Task 6: Outline and define the required intervention to bridge the gap between the identified in-demand skills requirements and the available supply of talent benchmarked against international best-practices in digital skilling, by:

a. Highlighting the major gaps in digital skills' supply referencing digital skills competencies' frameworks such as EU's DigiComp 2.1. The identified framework should be used to assess the content (i.e. competency areas and proficiency levels) of the digital skills programs offered in universities, TVET institutions, schools, and by NGOs (relevant to Task 3); and identify the digital skills that are in demand and gaps in supply that need to be developed by education and training institutions and/or the private sector.
b. Highlighting the major gaps in other skills (such as language, soft skills, etc.) which disable talent that otherwise meet the demanded digital skills requirements from entering the ICT job market
c. Recommending action to be taken towards attracting investments that would increase the local demand for specific digital skills
d. Providing actionable insights on bridging the gap between the identified in-demand skills' requirements and the available supply of talent per-country studied

It is recommended to implement Task 1 and Task 2 in parallel as the methodology and stakeholders are the same.

5. DELIVERABLES DURATION AND TIMEFRAME

#	Deliverables	Schedule
1	**D1: Inception Report (including stakeholder mapping, plan of action, and open questions)**	Week 1
2	**D2: Demand Report** This report will contain all activities outlined under Task 1	Week 5
3	**D3: Supply Status Report** This report will contain all activities outlined under Task 2	Week 6
4	**D4: Talent and Qualification Report** This report will contain all activities outlined under Task 3 and Task 4	Week 10
5	**D5: Competitiveness Report** This report will contain all activities outlined under Task 5	Week 12
6	**D6: Supply and Demand Gap Report** This report will consolidate the findings of tasks 1 to 5 in addition to activities "a" and "b" under Task 6	Week 16
7	**D7: Recommended Interventions Report** This report will contain activities "c" and "d" under Task 6	Week 18
8	**D8: Final Report and Communications Product** This report will include a consolidation of all the findings and relevant presentation assets (infographics, charts, slides, etc.)	Week 20

Schedule refers to the number of weeks from the start of the assignment to the completion of the deliverable, including approval of deliverable by the PMU.

6. REPORTING AND SUPERVISION

The Consultancy Firm will work under the guidance and supervision of the PMU. The Consultancy Firm will be responsible for coordinating with relevant stakeholders (like int@j, telecom companies, etc.) to ensure full ownership of the assessment and its findings.

Consultation meetings will be held with the PMU on an ongoing basis and when required. The Consultancy Firm will prepare bi-weekly progress reports and coordinate regularly with the designated points of contact at the PMU. The **bi-weekly updates of implementation progress** will be shared by email to the PMU. These should include:

- Reporting on activities scheduled for the period, per task, and describing any change to the schedule or activities
- Reporting on results, for the period, per task activity
- Flagging findings, lessons, or emerging issues of interest or concern
- Identifying issues or problems that have affected or may affect task implementation

7. PAYMENT SCHEDULE

The Consultancy Firm will be paid upon the fulfilment of deliverables.

10%	Upon submission and the PMU's acceptance of deliverable 1 – Inception Report
20%	Upon submission and the PMU's acceptance of deliverable 2 & 3 – Demand Report & Supply Status Report
20%	Upon submission and the PMU's acceptance of deliverable 4 & 5 – Talent and Qualification Report & Competitiveness Report
20%	Upon submission and the PMU's acceptance of deliverable 6 & 7 – Supply and Demand Gap Report & Recommended Interventions Report
30%	Upon submission and the PMU's acceptance of deliverable 8 – Final Report and Communications Product

* All payments are bound to receiving a written satisfaction letter from the PMU 5 working days after completion of the deliverable.

8. ASSIGNMENT TIMEFRAME

Deliverables should be achieved in a period not exceeding 20 weeks from the beginning of the contract including the time designated for revisions and approvals.

9. CONSULTANCY FIRM QUALIFICATIONS REQUIREMENT

The Consultancy Firm must have the required qualifications and relevant experience to perform the Services, as per the criteria below:

1. Experience in primary information gathering; surveys, interviews, and focus group discussions with government, private sector, multilateral agencies, and other relevant key stakeholders in the past 3 years.
2. Minimum 5 years' experience in research and/or business consultancy with a focus on an evidence-based approach.
3. Significant professional background in conducting qualitative studies and data analysis, preferably on skills development and/or the future of work.
4. Experience in working on a multi-stakeholder project and in providing clear and actionable recommendations and provisions based on data and insights.
5. Substantive knowledge and exposure to key players in ICT/ITO/BPO sector and solid understanding of its trends in Jordan, regionally, and globally.
6. Proficiency in communicating data clearly and professionally to stakeholders through visualization of data and the presentation of well-articulated findings.
7. Proven capacity to supervise and coordinate all administrative and technical aspects of the consultancy.

The composition of skills, competencies, and professional experience within the Consultancy Firm must cover:

1. Significant knowledge of and experience in the ICT sector
2. Proficiency in carrying out and presenting a gap analysis report
3. Excellent verbal and written English skills
4. Excellent communication and relationship management skills
5. Proficiency with cleaning data, running basic analysis, and creating impactful presentations (run analysis, chart, and write up recommendations)
6. Proven experience in at least one analytical programming language such as Microsoft SQL Server, R, Python, etc.
7. Proven experience using at least one data visualization software such as Power BI, Tableau, SSRS, Excel, etc.

The Consultancy Firm must at least include:

1. **A Team Lead** to manage the assignment and act the main point of contact and project manager to ensure carrying out the project and completing it on time, with the following qualifications:

   a. A Bachelor's degree in economics, sociology, public policy, labor studies, or other relevant fields to the assignment
   b. A minimum of 15 years' experience in research administration and/or project management related to relevant issues such as digital skills development, labor policies, business expansion in ICT sector, trends analysis, future of work, etc.
   c. Proven track record of excellent communication and relationship management
   d. English fluency with a proven ability to write reports

2. **A Key Expert** to carry out the technical aspects of the assignment related to skills analysis and trends, with the following qualifications:

   a. A Master's degree in a quantitative discipline (e.g. mathematics, statistics, economics) or a scientific discipline with demonstration of excellent analytical skills
   b. A minimum of 7 years' experience in an analytical role in relevant fields such as educational technology, skills development, skills trends analysis, digital literacy, etc.
   c. English fluency with a proven ability to write reports

3. **A Key Expert** to carry out the technical aspects of the assignment related to labor market demands and future of work, with the following qualifications:

   a. A Master's degree in a quantitative discipline (e.g. mathematics, statistics, economics) or a scientific discipline with demonstration of excellent analytical skills
   b. A minimum of 7 years' experience in an analytical role in relevant fields such as labor market research, future of work, 21st century employment trends, labor demand trends analysis, etc.
   c. English fluency with a proven ability to write reports

10. CONTRACT FORM

The Consultancy Firm will be selected following the World Bank's Procurement Regulations for IPF Borrowers of July 2016 and revised on November 2017 and August 2018. The contract would be Lump Sum.

A Consultancy Firm may associate with other firms to enhance their qualifications but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

Annex

The below pointers can be used as a starting point by the Consultancy Firm:

1. A report from the United States Department of Labor forecasts there will be 1.4 million computer specialist job openings by 2020[10]
2. Direct hiring requirement of more than 182,000 ICT workers in Canada by 2019, with an additional 36,000 workers by 2020.[11]
3. The European Commission anticipates a shortfall of around 825,000 ICT positions by 2020.[12]

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[10] https://obamawhitehouse.archives.gov/blog/2013/12/11/computer-science-everyone
[11] https://www.ictc-ctic.ca/wp-content/uploads/2016/03/ICTC_DigitalTalent2020_ENGLISH_FINAL_March2016.pdf
[12] https://ec.europa.eu/digital-single-market/en/coding-21st-century-skill