INDIVIDUAL CONSULTANT PROCUREMENT NOTICE

Location: Home-based

Description of the assignment: 3D Design and Printing Technologies and New Modes of Work - Research Consultant

Project/Office: UNDP Istanbul International Center for Private Sector in Development

Period of services (if applicable): 28 April 2022– 10 July 2022 (maximum 30 working days within the period of assignment)

Any request for clarification must be sent by standard electronic communication to the e-mail: gokce.kaya@undp.org. The response will be provided by standard electronic mail.

1. Background

Digital transformation is revolutionizing all aspects of society and accelerating a process known as the Fourth Industrial Revolution. The Fourth Industrial Revolution (4IR) refers to a series of contemporary social, political, cultural, and economic shifts which are fundamentally changing the ways we live, work, and relate to one another. From artificial intelligence to blockchain, robotics, and 3D printing, 4IR innovations provide a new chapter in human development and offer new means of addressing complex global challenges. Besides benefiting economic practices, these technologies are active across the social, political, public and private spheres. In particular, 3D design and 3D printing are expected to be used in wide range of areas including basic practices of daily life. In this sense, 3D design and 3D printing technologies are changing the traditional ways of production and is expected to have a wide impact on everyday life.

Furthermore, introduction of digital platforms positions 3D design and printing as well as skills requirements related to 3D technologies in the center of future priorities. Developments in the augmented reality and virtual reality encouraged many companies to invest in digital worlds and platforms such as Metaverse and Omniverse. These companies propel public into this new tech world and promise to provide various benefits for individuals and businesses. For example, companies can increase productivity through creating digital twins and simulating supply chain operations or advertise and place their own products within these digital spaces. In addition, companies now can move their work in a digital space and have the opportunity to collaborate digitally. These developments and the promise for a new technological future requires 3D design and production of various items, including every-day items, for the digital world.
Moreover, these platforms bring remote working to a different level and changes the nature of work along with other technologies introduced with the 4IR. Given its expected effect on traditional practices, 3D technology will affect the future of work and labour market dynamics. Thus, in the context of 4IR, work looks different as digital tools are reshaping the supply and demand of labour. This Changing Nature of Work (CNoW) demands workers to be highly adaptable and have multifunctional skillsets to remain competitive through shifting industry. On the other hand, CNoW strengthened the potential of new opportunities in the employment market as the 4IR and its technologies are changing forms and functions of employment. As digital tools allow people to work anytime and anywhere, work is no longer grounded in place. Instead, it’s increasingly accessible, flexible, and varied. The 4IR allows for global supply and demand of goods, services, and labour. Moreover, online work delivers unprecedented employment choice and flexibility at global scale. This change includes a shift towards shorter-term tenures, contract roles, and freelance, online or ‘gig’ work.¹ Workers can now develop their own portfolio and schedule, turning employment to their needs and lifestyle. Gig work is even reshaping the informal sector in many parts of the world and provides opportunities for independent and online workers.

As advances in technologies brought by 4IR have decreased costs and barriers to adoption. The industry is becoming increasingly accessible and competitive. Online platforms and digital marketplaces already started to connect producers and consumers in real time and across geographies. These opportunities will be multiplied with the introduction of digital worlds in the future. As a result, this evolution is positioned to deliver great opportunities to previously underemployed and disadvantaged groups. Through 3D design and printing technology, goods can be designed, produced, traded, and consumed directly, quickly, and remotely. These efficiencies represent cost savings to businesses and consumers alike.

As it is the case for other new technologies brought by the 4IR, 3D technology, if utilized correctly, can address existing inequalities, and contribute significantly to the socio-economic progress of developing nations through offering new employment areas and proposing new modes of work.

Recognizing the transformative potential of 3D technologies as well as the opportunities that CNoW brought, this report will shed light on changes that 4IR may bring to the nature of work in relation to labour markets and development. The research will explore possible ways of achieving inclusive skills development, mobilization and socio-economic progress in developing nations. The report will provide a roadmap for cultivating the necessary knowledge and skills to harness the potential of these disruptive technologies - 3D Design, 3D printing and CNoW- via inclusive skills development and employment for sustainable development. In this regard, overall objective of the consultancy is to conduct research with a structured methodology, (i) to identify how evolving labour trends and the rise of online work may better include women, youth, and other marginalized groups in social and economic growth, (ii) to identify how 3D design and printing technology and the new modes of work can be used to provide

employment and livelihoods opportunities for the disadvantaged groups, (iii) to identify the necessary skills and qualifications to secure competitive livelihoods from the 3D and CNoW labor markets (iv) to map out the transformative role of 3D design and printing technology ecosystem as a development catalyst and in providing mediums of employment.

This position is home-based. The Consultant will report to the IICPSD Technical Specialist based in Istanbul. The activities will be carried out in collaboration with IICPSD Digital Transformation and Skills team.

2. Description of responsibilities

Under the supervision of the Technical Specialist, the consultant is responsible for the following tasks:

- Develop and finalize research methodology and the report outline as per UNDP comments;
- Analyze the current state of 3D design and 3D printing technologies and Changing Nature of Work, identify the opportunities they provide as well as challenges they cause. Analyze how 3D design and printing technologies can be used to provide better employment and livelihoods opportunities with also considering the emerging virtual reality and augmented reality markets.
- Identify case studies and good practices from different countries;
- Conduct a literature review of existing work around the issue of 3D design and printing technologies, 4IF, Changing Nature of Work, and implications that COVID-19 might brought;
  - Map out existing research, tools, and resources that indicates current situation, including (i) how 4IF and CNoW affected labour markets and working practices (including challenges and advantages), (ii) how evolving labour trends and the rise of online work can be utilised for creating better and inclusive labour markets and socio-economic growth, (iii) how 3D design and printing technologies affected job market (opportunities it provides as well as challenges), and (iv) how COVID-19 affected new modes of work and labour market practices;
  - Identify necessary skills and qualifications with referring to National Qualification Systems, leading certification systems and online job portal advertisements and map them to career paths;
  - Map out relevant policy interventions of public organizations;
  - Map out relevant good practices and case studies;
- Collect and analyze relevant data (statistics, figures, etc.)
- Develop a comprehensive report in English including analysis, case studies, good practices, recommendations for from public, private and third sector actors;
- Develop a summary presentation which includes findings and the interpretation of findings in PPT format;
• Provide a draft roadmap/end to end skills development program for cultivating the necessary knowledge and skills to harness the potential of these disruptive technologies 3D Design, 3D printing and CNoW.
• Ensure better interpretation of the findings, data visualization is important;
• Conduct meetings with UNDP to collect background materials, comments and revision requests;
• The consultant shall consider comments of UNDP to the draft report. If needed, UNDP has the right to comment on the second draft report and expect that the consultant incorporates the comments in the final version.

3. Expected outputs and deliverables

Under the supervision of the IICPSD Technical Specialist, the consultant will be responsible for the following deliverables:

• An analytical report and a summary presentation in English, containing research findings (including good practices and recommendations), methodology description, and data visualization in the Microsoft Word format (10,000 words excluding front and back matter\(^2\)) as well as the suggested skills development programme.

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>Deadline</th>
<th>Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>An analytical report and a summary presentation in English, containing research findings (including good practices and recommendations), methodology description, and data visualization in the Microsoft Word format (10,000 words excluding front and back matter(^3)) as well as the suggested skills development programme.</td>
<td>10 July 2022</td>
<td>%100</td>
</tr>
</tbody>
</table>

\(^2\) **Front matter** is the information about the publication which precedes the main text. It may include title pages, writers name, logo, copyright details, testimonial, disclaimer, acknowledgement, contents page, foreword, preface, and introduction. **Back matter** is the information about the publication which includes notes, references, and appendices.

\(^3\) **Front matter** is the information about the publication which precedes the main text. It may include title pages, writers name, logo, copyright details, testimonial, disclaimer, acknowledgement, contents page, foreword, preface, and introduction. **Back matter** is the information about the publication which includes notes, references, and appendices.
Basic characteristics of the report:

- The structure of the report shall include a cover page, executive summary (400 words), pull out summary (1200 words), contents, introduction, report body (methodology and analysis of the research findings), recommendations, conclusion, and appendices.
- All appendices should be numbered; all tables and illustrations should have citations referring to the sources and have references within the text of the report.
- All tables should be presented in the Microsoft Excel format or be easily converted hereinto. The consultant shall not embed external editable Excel images and tables into the Word documents.
- The results of the work shall include but not be limited to: the electronic version of the report (*.docx), baseline materials (*.docx, *.xls, formats).
- The report should be written in English and not exceed 10,000 words, excluding front and back matter.

4. Consultant reporting requirements

- The Consultant shall report to the Technical Specialist based in İstanbul.
- The Consultant shall be ready to undertake international travel during the assignment period if required and the travel expenses will be covered following UNDP rules and procedures.
- The assignment is home-based for the duration of the contract.

5. Competencies

Corporate Competencies

- Commitment to UNDP mission, vision and values;
- Sensitivity to cultural, gender, religion, race, nationality, and age differences.

Functional Competencies

- Strong communication skills, including writing, speaking, non-verbal and visual communications;
- Strong analytical skills, including ability to produce high quality reports and knowledge products;
- Experience in Additive Manufacturing, 3D Design and Printing Technologies, CNoW, Skills Development and 4IR;
- Strategic sense for understanding multiple audiences;
- Experience in knowledge management and global development issues;
- Familiarity and experience of UN Agencies;
- Ability to function in a diverse, multicultural team environment;
- Flexibility and entrepreneurial spirit to deliver outputs under sometimes tight deadlines.

Behavioural Competencies
Productive and efficient worker, highly motivated;
Excellent organizational skills and ability to prioritize tasks;
Performance-oriented and focused on results;
Persistence and willingness to follow through;
Strong interpersonal skills and flexibility;
Ability to take instructions and to learn on the job;
Curiosity and desire to work a complex, international environment.

6. Qualifications

Academic Qualifications/Education:

- Bachelor’s Degree in Engineering, International Relations, Economics/Management, Development Studies, or related field.
- Master’s degree in these areas with a specific focus on additive manufacturing and/or 4IR, and CNoW will be an added value.

Experience:

- Minimum 5 years of experience (3 years with master’s degree) in development work and research development.
- Minimum 3 years of development work and/or research experience on creative technologies, 3D design and printing, additive manufacturing technologies, 4IR, CNoW (remote working, gig economy, etc.), and digital transformation and skills development, employment for disadvantaged groups, or related topics;
- Experience in writing research papers/development reports with ability in editing and writing in English is required;
- Experience in working with international organizations is an asset.

Language skills:

- Excellent written and verbal skills in English.

7. Evaluation of applicants

Individual consultants will be evaluated based on cumulative analysis.
When using this weighted scoring method, the award of the contract should be made to the individual consultant whose offer received the highest score out of a pre-determined set of weighted technical and financial criteria:

Total score = Technical Score + Financial Score

Example
- Technical Criteria weight; [70%], maximum 700 points
- Financial Criteria weight; [30%], maximum 300 points
All the offers of individual consultants who scored 490 (70% from 700) and more points during the desk review/interview are acceptable for the financial evaluation.

The lowest technically qualified proposal receives 300 points and all the other technically qualified proposals receive points in inverse proportion according to the formula:

\[ P = Y \times \left( \frac{L}{Z} \right), \]

where

- \( P \) = points for the financial proposal being evaluated;
- \( Y \) = maximum number of points for the financial proposal;
- \( L \) = price of the lowest price proposal;
- \( Z \) = price of the proposal being evaluated.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
<th>Max. Points - 1000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Academic qualifications:</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td>Bachelor’s Degree in Engineering, International Relations, Economics/Management, Development Studies, or related field is a requirement</td>
<td>6%</td>
<td>60</td>
</tr>
<tr>
<td>Master’s Degree or higher in Engineering, International Relations, Economics/Management, Development Studies, or related field with a specific focus on creative technologies, 3D design and/or 3D printing technologies, 4IR, Changing Nature of Work is an advantage</td>
<td>4%</td>
<td>40</td>
</tr>
<tr>
<td>• Professional experience:</td>
<td>35%</td>
<td>350</td>
</tr>
<tr>
<td>Minimum 5 years (3 years with master’s degree) of work experience in development work and research development is a requirement</td>
<td>10%</td>
<td>100</td>
</tr>
<tr>
<td>More than 5 years of work experience in development work and research development is a requirement – 5 points for each additional year but not more than 20 points</td>
<td>2%</td>
<td>20</td>
</tr>
<tr>
<td>Experience in writing research papers/development reports with ability in editing and writing in English (confirmed by CV)</td>
<td>10%</td>
<td>100**</td>
</tr>
<tr>
<td>Minimum 3 years of development work and/or research experience on creative technologies, 3D design and printing, additive manufacturing technologies, 4IR, CNoW (remote working, gig economy, etc.), and digital transformation and skills development, employment for disadvantaged groups, or related topics (confirmed by CV)</td>
<td>10%</td>
<td>100**</td>
</tr>
<tr>
<td>Experience in working with international organizations is an advantage</td>
<td>3%</td>
<td>30</td>
</tr>
<tr>
<td>• Competencies</td>
<td>25%</td>
<td>250</td>
</tr>
<tr>
<td>Communication skills*</td>
<td>5%</td>
<td>50**</td>
</tr>
<tr>
<td>Flexibility and entrepreneurial spirit to deliver outputs under sometimes tight deadlines *</td>
<td>5%</td>
<td>50**</td>
</tr>
<tr>
<td>Excellent written and verbal skills in English*</td>
<td>10%</td>
<td>100**</td>
</tr>
<tr>
<td>Excellent organizational skills and ability to prioritize tasks *</td>
<td>5%</td>
<td>50**</td>
</tr>
<tr>
<td><strong>Financial</strong></td>
<td>30%</td>
<td>300</td>
</tr>
<tr>
<td><strong>Financial Proposal</strong></td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

*Will be evaluated during the interview with shortlisted candidates

**Applied scoring system:

<table>
<thead>
<tr>
<th>Degree of compliance of the candidate with the required competence</th>
<th>Degree of compliance Supporting Evidence Scoring scale (% from maximum available score for the given sub-criteria)</th>
<th>% from maximum available score for the given criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td>Excellent evidence of ability to exceed contract requirements</td>
<td>80-100%</td>
</tr>
<tr>
<td>Good</td>
<td>Good evidence of ability to exceed contract requirements</td>
<td>60-80%</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>Satisfactory evidence of ability to support contract requirements</td>
<td>40-60%</td>
</tr>
<tr>
<td>Poor</td>
<td>Marginally acceptable or weak evidence of ability to comply with contract requirements</td>
<td>10-40%</td>
</tr>
<tr>
<td>Very poor</td>
<td>Lack of evidence to demonstrate ability to comply with contract requirements</td>
<td>0-10%</td>
</tr>
<tr>
<td>No submission</td>
<td>Information has not been submitted or is unacceptable</td>
<td>0%</td>
</tr>
</tbody>
</table>

8. Application procedures

The application submission is a two-step process. Failing to comply with the submission process may result in disqualifying the applications.

Step 1: Interested candidates must include the following documents when submitting the applications (Please group all your documents into one (1) single PDF attachment as the system only allows upload of one document):

- **Cover letter** explaining why you are the most suitable candidate for the advertised position. Please paste the letter into the "Resume and Motivation" section of the electronic application.
- **Brief methodology** on how you will approach and conduct the work (if applicable)
- **Copies of language certificates**, if available
- **Filled P11 form** or CV including past experience in similar projects and contact details of referees (blank form can be downloaded
Step 2: Submission of Financial Proposal - Only shortlisted candidates will be contacted and requested to provide a financial offer.

- **Payments** will be made only upon confirmation of UNDP on delivering on the contract obligations in a satisfactory manner.

Individual Consultants are responsible for ensuring they have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director. Consultants are also required to comply with the UN security directives set forth under dss.un.org

General Terms and conditions as well as other related documents can be found under: http://on.undp.org/t7fJs.

Qualified women and members of minorities are encouraged to apply.

Due to large number of applications we receive, we are able to inform only the successful candidates about the outcome or status of the selection process.

Further information to get a better understanding of the hiring unit and the work can be found from this link.

Annexes:

Annex I – Letter to UNDP Confirming Interest and Availability including Finance Proposal
Annex II – Individual Consultant Contract Form
Annex III – Individual Consultant General Terms and Conditions
Annex IV – Statement of Good Health