INTERSESSIONAL PANEL OF THE UNITED NATIONS COMMISSION ON SCIENCE AND TECHNOLOGY FOR DEVELOPMENT (CSTD)

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Contribution of Portugal

to the CSTD 2017-18 priority theme on 'Building digital competencies to benefit from existing and emerging technologies with special focus on gender and youth dimensions'

United Nations Commission on Science and Technology for Development (CSTD)

Request for inputs for CSTD 2017-18 Priority Theme 2: 'Building digital **competencies to benefit from existing and emerging technologies, with special** focus on gender and youth dimensions'

The CSTD 20th annual session selected "Building digital competencies to benefit from existing and emerging technologies, with special focus on gender and youth dimensions" as one of the priority themes for its 21st session (2017-18 period).

The CSTD secretariat is in the process of drafting an issues paper on the theme to be presented at the CSTD inter-sessional panel meeting. In this context, we would like to hereby solicit inputs from the CSTD members on this theme. We would be grateful if you could kindly answer the following questions based on your experience from your country or region.

1. Can you give examples of digital competencies projects/policies in your country and how they have contributed to benefit from existing and emerging technologies? What are the main challenges confronted while trying to implement these projects/policies in your country or region?

1.1. An integrated public policy initiative to enhance digital competencies

The world we live increasingly relies on digital technologies, so it is important that everyone has the competencies to deal with this new reality. The new practices tend to be based online, and users normally interact with them through electronic devices. In the case of the active population, learning, productivity and competitiveness are also increasingly dependent on digital factors, meaning that there is a growing need for digital competencies in many different professions.

Even though Portugal is close to the European median in terms of digital competencies (15th in the DESI 2017 Index, Digital Economy and Society Index of the European Commission; Figure 1), it needs to reinforce basic Information and Communication Technologies (ICT) competencies, especially in terms of human capital and internet usage levels, preventing them to stay at a worrying threshold. This is also true for specialists, who need to be able to make the most of the growing availability of jobs in the digital market.

To this end, we have a training infrastructure as well as the human potential capable of being (re)qualified to meet the demands of employment opportunities typical of modern societies, such

as Portugal. However, this (re)qualification is a demanding task that requires mobilization and a combination of efforts from different areas of governance and civil society.

This is the 21st Government's purpose with the "Portugal INCoDe.2030 - National Digital Competencies Initiative e.2030".

Indeed, during 2016, the challenge of further promoting the uptake of digital competencies gained strength and was thus adopted as a priority in the political agenda. The Portugal INCoDe.2030 Initiative was launched on April 3rd by the Portuguese Prime-Minister and is structured as an integrated programme for Portugal, which will bring together in collaboration different public and private organizations to overcome the great challenge that is to train the Portuguese population in digital competencies, addressing its various dimensions (social, political, economic and cultural).

INCoDe.2030 has established a set of goals, namely in inclusion and digital literacy, guaranteed physical and cognitive access to digital public services for the entire population, promotion of analytical capacity for society and the economy in the context of big data, production and dissemination of information, privacy and security, the use of information, communication and electronic technologies in the process of life-long learning and, finally, research and development activities (R&D) aimed at the production of new knowledge, and advanced forms of scientific computing.

The aim of this National Digital Competencies Initiative - Portugal INCoDe.2030 – is thus to position Portugal at the top of European digital competencies ranking by overcoming three big challenges:

- **Citizenship:** Generalize digital literacy, with a view to the full exercise of citizenship and inclusion in a society with increasingly more digital practices, where many social interactions happen on the internet and are increasingly mediated by electronic devices;

- **Employability:** Stimulate employability and professional training and specialization in digital technologies and applications, in order to respond to the increasing demand of the market and to promote the qualifications needed for employment in a higher added value economy;

- **Knowledge:** Ensure strong participation in international R&D networks and the production of new knowledge in digital areas.

1.2. Other relevant projects

- Academia de Código (Coding Academy);
- "Acertar o Rumo" - A programme for professional requalification, made possible by a partnership of University of Coimbra, Critical Software among other public and private agents;
- Digital Academy (initiative from Associação Portuguesa para o Desenvolvimento das Comunicações);
- MUDA - MUDA is a national movement promoted by several companies, universities, associations and the Portuguese State. The movement is committed to encourage Portuguese participation in the digital space, contributing to a more advanced, inclusive and participative society;
- QUALIFICA IT (Qualify IT) a one year program for professional requalification of STEM graduates, at the University of Minho;
- **SWitCH** - Program for the competences development and professional integration in the area of Informatics, organized by Porto Tech HUB.

Other industry-lead activities from companies like Cisco, Microsoft, Google, among others.

1.3. Main challenges

- Bring together all the main actors (public, private, academia, civil society) and make them deliver concrete projects at local, regional, and national levels. These projects have to change the current paradigm by achieving the goals defined by INCoDe.2030;
- Deliverables in the short, medium and long terms in all INCoDe.2030 priority axes.

2. Can you provide examples of digital policies/projects/initiatives to benefit from existing and emerging technologies specially focused on gender and youth? How have the policies benefited women and youth? What are the particular challenges confronted in implementing these projects?

INCoDe.2030 addresses these two dimensions along two relevant axes of intervention, 1) Inclusion and 2) Education.

The first axis, "Inclusion", claims to ensure that the whole population has access to digital technologies to obtain information, communicate, and interact with others. For this reason, it foresees measures related to the promotion of digital competencies which include the gender dimension and also digital competencies training from the user's perspective, including the most vulnerable groups of citizens.

Regarding the second axis, “Education”, it focus the education of the youngest sections of the population by stimulating and reinforcing digital literacy and digital competencies at all levels of schooling and as part of lifelong learning through the following measures:

- Promotion of pedagogical innovation in teaching and learning processes;
- Development of digital educational resources;
- Training pre-school and primary and secondary education teachers;
- Promotion and dissemination of the Robotics and Digital Literacy Code;
- Use of digital technologies in a context of inclusion for specific education and training needs.
- From September 2017, formal education includes important ICT related competences such as coding and logical reasoning.

The biggest obstacle to overcome is to prepare and train teachers for IT related subjects so that they are capable of transmitting this knowledge in the classroom. Nonetheless, this challenge is also addressed in INCoDe.2030.

3. How can the science, technology and innovation community contribute towards overcoming these challenges? Can you give any success stories in this regard from your country or region?

Looking over our experience with building/promoting digital competencies, the science, technology and innovation communities revealed to be very important to lead and pave the way for this change. Their contribution comes from many forms of participation, namely through active networks and partnerships. Given their nature, as primary stakeholders they set themselves naturally as key partners in tackling the digital competencies related challenges. Some examples:

- ICT qualification for Industry, services and public administration;
- Requalification of graduates or persons with equivalent qualification, towards ICT areas;
- Professional Technical Courses (TesPs) and networks of Academies in ICT areas and expansion of the problem based learning methodology;
- Professional Master's in ICT areas in articulation with the business world;
- Platform for distance education and training of the Public Administration or non-profit entities, targeting large groups;
- Advanced Computing Network;
- International partnerships (MIT-Portugal, CMU-Portugal, UT Austin-Portugal, Indian Institutes of Technology, Atlantic and Mediterranean).

Eventually, the concept of digital competencies is linked to the use of digital technologies to design new solutions for different types of problems, the integration of interdisciplinary

knowledge and data analysis, intensive use of artificial intelligence, the use of advanced instrumentation and communication networks and mobile systems, and the development and programming of cyber-physical systems, which all fosters development and innovation. To that effect, science, technology and innovation contribute to better involve and put together the communities from developing and developed countries, with a special focus on gender and youth dimensions.

4. Could you suggest some contact persons of the nodal agency responsible for digital competencies projects/policies, particularly those related to gender and youth, as well as any experts (from academia, private sector, civil society or government) dealing with projects in this area? We might contact them directly for further inputs or invite some of them as speakers for the CSTD inter-sessional panel and annual session.

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5. Do you have any documentation, references, or reports on the specific examples on digital competencies to benefit from existing and emerging technologies in your country or region?

- http://www.incode2030.gov.pt
- http://www.cmuportugal.org/
- https://www.mitportugal.org/
- https://www.utaustinportugal.org/
- The Digital Economy and Society Index (the human resources/capital analysis)
- DGEEC Journal – statistics on education, science and information society
- Study Report *"Mapeamento da Oferta de Educação e Formação em Tecnologias de Informação, Comunicação e Eletrónica (TICE) em Portugal (Mapping on Education and Training in IT, Communication and Electronics provided in Portugal)"*
- Preliminary Study Report *"Opção dos jovens por percursos educativos/formativos em TICE: Perceções, bloqueios e fatores facilitadores (Young people's option for educational / training paths in TICE: perceptions, locks and facilitating factors)"*

Please send your responses and any further inputs on the theme to the CSTD secretariat (stdev@unctad.org) by 29 September 2017. We look forward to receiving your valuable inputs.