

EDUCATION IN THE DIGITAL ERA FOR DIGITALIZATION - "2021 IEEE INTERNATIONAL FORUM ON SMART GRID FOR SMART CITIES" CONFERENCE HIGHLIGHTS

1st of April 2021, Carina Ioana ZIDARU & Marta STURZEANU

The representatives of the Romanian Energy Center (CRE) Association participated in the Online Video-Conference organized by IEEE Smart Grid in collaboration with RWTH Aachen University. During the Conference, EDDIE Project – „EDucation for Digitalization of Energy”, created the context for the interventions in Tech Session 8 - „Education in the Digital Era for Digitalization” on Tuesday, 23rd of March 2021, from 17:00 – 18:30 CET (18:00 – 19:30 RO), within a lineup secured by distinguished professors and researchers from high ranked universities. The role of Education in the Digital Era for Digitalization and the Development of synergies with other innovation projects funded by the European Commission (EC) through the ERASMUS+ program will create the framework for EDDIE Project to actively contribute to decisions in the process of Digitalization of the European Energy Sector (DEES).

“[2021 IEEE International Forum on Smart Grids for Smart Cities](#)” ended its 3rd edition, a five-day Event, on the 23rd of March. In the session „Education in the Digital Era for Digitalization” were addressed different angles of the topic like New Trends in Education and Training in Engineering, Educational Services in Energy Transition, Education at the Nexus of Smart Grids and Smart Cities. EDDIE representatives, Miguel SANCHEZ-FORNIE and Panos KOTSAMPOPOULOS, covered the general context for the important role of Education for Digitalization within the Energy Sector presenting core insights about the project development supported by data results regarding Emerging Skill Needs of the Industry and Skill Offer of Education Providers during DEES.

In 2020, CRE expanded its research and innovation portfolio, through the European Project “[EDDIE](#)” – „**EDucation for Digitalization of Energy**”, funded by the European Commission (EC) under the ERASMUS+ Program. EDDIE aims at creating a Sector Skills Alliance (SSA) by bringing together all the relevant stakeholders in the Energy value chain such as industry, education and training providers, European organizations, recruiters, social partners, and public authorities. The main objective of this SSA is to develop a long-driven Blueprint for the DEES to enable the matching between the current and future demand of skills necessary for the DEES and the supply of improved Vocational Education and Training (VET) systems and beyond.



Opening and moderating Tech Session 8 - „**Education in the Digital Era for Digitalization**”, Panos KOTSAMPOPOULOS - Senior Researcher, National Technical University of Athens (NTUA) invited speakers, professors, and researchers to discuss challenges related to Education in the Digital Era for Digitalization to identify the essential areas where action is needed and to shape several directions on addressing the challenges of the present subject.

The speakers that contributed with their ideas and visions to the important and pragmatic discussions within this session were: Carlo Alberto NUCCI - Professor at University of Bologna; Ferdinanda PONCI - Professor at RWTH Aachen University; Miguel Angel SANCHEZ FORNIE - EDDIE Consortium Coordinator, Comillas University; Panos KOTSAMPOPOULOS – Senior Researcher at NTUA; Anil PAHWA – Professor at Kansas State University.

Carlo Alberto NUCCI - Professor at University of Bologna pointed out during his presentation the high impact of the pandemic on the delivering format of the lectures and its effect of accelerating the ongoing transition. “*We need to take advantage of this experience. If adequately accomplished, the remote teaching is an unvaluable asset*”. Also, **Carlo Alberto NUCCI** highlighted the importance of revising Electrical Engineering Programs, saying that “*Multidisciplinary skills are required now even more than they were in the past. One example is the way in which Smart Grids are enablers for Smart Cities*”.

Ferdinanda PONCI - Professor at RWTH Aachen University presented the overview of the ASSET Project, funded by the EC under the H2020 Research and Innovation Programme, who aims at delivering a framework and tools to create and share knowledge and competences needed for energy transition. In this regard, **Ferdinanda PONCI** underlined the motivation - Europe is transitioning towards a low carbon society, but also the challenges faced during the process like upskilling staff with multidisciplinary competencies, intensifying research (liaised with industry), strengthening the industry-academia relationship.



Education in digital within the energy sector: the EDDIE project

EDDIE is a four-year (starting January 2020) Erasmus+ European Union funded collaborative project creating a **Sector Skill Alliance (SSA)** to develop a long-driven **Blueprint** for the digitalization the European Energy sector. The Consortia is coordinated by **COMILLAS** and brings together **16 partners** from **10 EU Countries**.

Digital Energy Education Briefly

Title: Education for Digitalisation of Energy
Type of action: Sector Skill Alliance
Total Cost: € 3,995,690.00
Start Date: 01/01/2020
End date: 31/12/2023
Duration: 48 months
Project Web Site: www.eddie-erasmus.eu
Key Words: Digitalization, Energy, Education, SSA, VET
Project Coordinator: MIGUEL SANCHEZ-FORNIE

With the support of the European Programme of the European Union

16 2021 EDDIE International Forum on Smart Skills for Smart Cities | 17-23 March 2021 - Virtual Edition

Miguel Angel SANCHEZ FORNIE - EDDIE Consortium Coordinator, Comillas University addressed during his presentation the European context of the Digitalization of Energy Sector, underlining the EC initiative in this regard with complementary aspects related to **EDDIE** Project. „Energy Transition is a must and digitalization shall accelerate it. Sustainability and the human life on our planet require a fundamental modification of all the parts of the whole value chain in the Energy

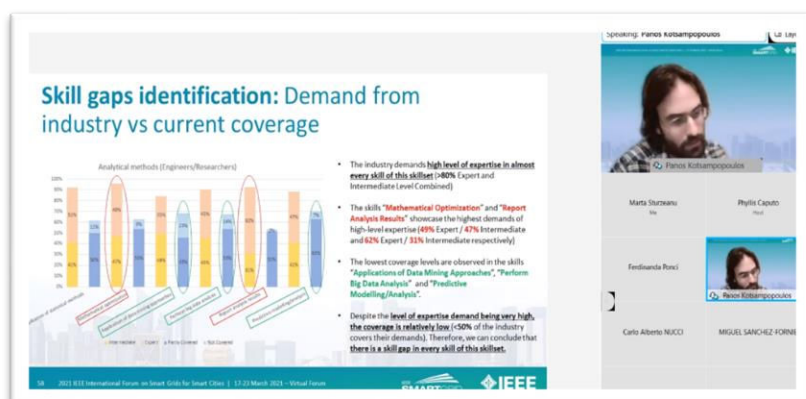
Sector. Digitalization is and will be affecting the energy and other economic sectors of our society. This is a concept based on the technology whose main elements are: data which also means connectivity, telecommunications, and information processing”, said **Miguel Angel SANCHEZ-FORNIE**. Further on, he presented key information about the EDDIE project like the methodology to review national systems defined by three main stages: review legal framework of VET, review structuring and functioning of VET, review position of vocational training in relation to energy transition and digitalization. All of these will help the identification of legislation-related, territorial, or organizational challenges for future skills delivery required by energy transition and digitalization. Considering all of the above aspects the „EDDIE Project has to be fully seen as an initiative of the EC and the actual policy context very much conducted to the area of the Green Deal and the Digital Europe Programmes”, said the Consortium Coordinator.

Panos KOTSAMPOPOULOS - Senior Researcher, NTUA underlined in his presentation important aspects released by the Industry Survey and the Survey on Education and Training Providers conducted within the EDDIE project. The assessment of skills needs for the digital transformation by the industry and the skill offer by education and training providers to

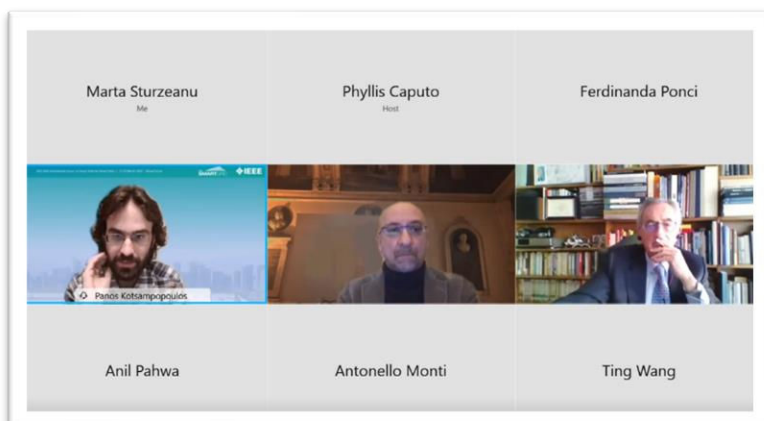
identify skills gaps present challenges by sector, skill needs, coverage, and gaps. In the surveys made within these assessments it was revealed that the lack of adequate skills of employees is a very warning challenge and a useful insight for the EDDIE Project since the blueprint will attempt to mitigate those skill gaps. It also resulted that data management is also a significant challenge for the digital transformation. „The work performed by EDDIE Partners to identify skill gaps, point out that the key areas towards digitalization, as reflected by different analyses in this work, targets data management and analysis, big data, cybersecurity, programming and development competences and green skills”, mentioned **Panos KOTSAMPOPOULOS**. Furthermore, he added that even if the curricula review, online training platforms as well as industrial training programmes cover several aspects of digitalization, there is yet plenty of room for improvement to foster the digital transformation.

Anil PAHWA – Professor at Kansas State University pointed out that the concept of the Grid of the Future implies a high penetration of Renewable Energy Sources (RES) – wind and solar, the changing demand profiles and consumers’ engagement, a strong cybersecurity of power grid and the integration of power electronics for power system operation. In this regard, **Anil PAHWA** underlined that the Smart Cities’ management includes the following: data driven models, privacy and cyber security, human behavior modeling and co-optimization of resources. In terms of Educational Opportunities pointed out: convergence of engineering, computer, and social science; advance courses covering electricity, but also more infrastructures like electrical engineering, civil engineering, computer science.

Further on, the addressed topics like impact of the Covid Pandemic in Education and Training in Engineering, Education Services in Energy Transition, Emerging Skill Needs of the Industry and Skill Offer of Education Providers



on the Digitalization of the Energy Sector, Education at the Nexus of Smart Grid and Smart Cities followed during the Q&A session.



The first question addressed by **Panos KOTSAMPOPOULOS** to Professor Carlo Alberto NUCCI, was about how we can exploit the – pandemic in education benefits. „*The main conclusion I can withdraw is the following: the big mistake we [us education providers] can make is to use the same type of lecture that we were delivering offline, in our classrooms, for online teaching. Also, in the case of a hybrid teaching option [part online and part offline] it is very difficult to provide an effective lecture in these conditions*”, said the professor.

On the same topic, Professor **Anil PAHWA** also mentioned his experience with both online teaching – in the initial months of the pandemic, and hybrid teaching - later in the fall, concluding that the fully remote learning process is required only in critical situation.

Also, a question from the audience came up regarding the way in each someone can get involve in the ASSET project. “*By joining the community, access will be available for the structure of the courses with examples of the topics and related outcomes description. The same things is available for the MOOCs. Becoming a member, you can create your own learning graph for your own course with your own learning objectives. Afterwards, it can be developed and put in the marketplace.*”, explained professor **Ferdinanda PONCI**.

Additionally, **EDDIE** Project was part of the Project Zone of IEEE International Forum on Smart Grid for Smart Cities, by setting up a Virtual Booth. There participants of the Smart Grid for Smart Cities event were able to interact with consortium representatives of the project and discover information about the project’s overview, objectives, ongoing work, and more other interesting details. The first year brochure, the EDDIE project presentation video and relevant material have been uploaded on the platform for users to access them.



Conclusions and Final Remarks

The picture in Education in the Digital Era for Digitalization is very nuanced due to the high number of challenges that the Energy Sector is currently facing. Numerous solutions for a more digitalized world are being proposed or in development, and the Academia, the Research and Development institutions, as well as Industry will collaborate for a common good. In this regard, the EDDIE project is the most appropriate example, as it proposes an innovative strategic approach for Education in the European energy Sector as an industry-driven movement, where the skills emerge as a need of the real application instead of the classic approach that starts from fundamentals to reach application.

CRE Association is an active and strategic partner together with its members and other potential members in international consortia for deploying energy projects funded by the EC, such as: [CROSSBOW](#), [PHOENIX](#), [TRINITY](#), [EDDIE](#), [EDGEFLEX](#), [SUCCESS](#), [RESERVE](#), [NRG5](#), [WISEGRID](#), [SOGNO](#) and [CYBERSEAS](#).