SUPEERA

Support to the coordination of national research and innovation programmes in areas of activity of the European Energy Research Alliance

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 949125.

A European Green Deal fit for the Digital Age: What's in for Clean Energy Research?

Webinar – 28 May 2021

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Webinar information

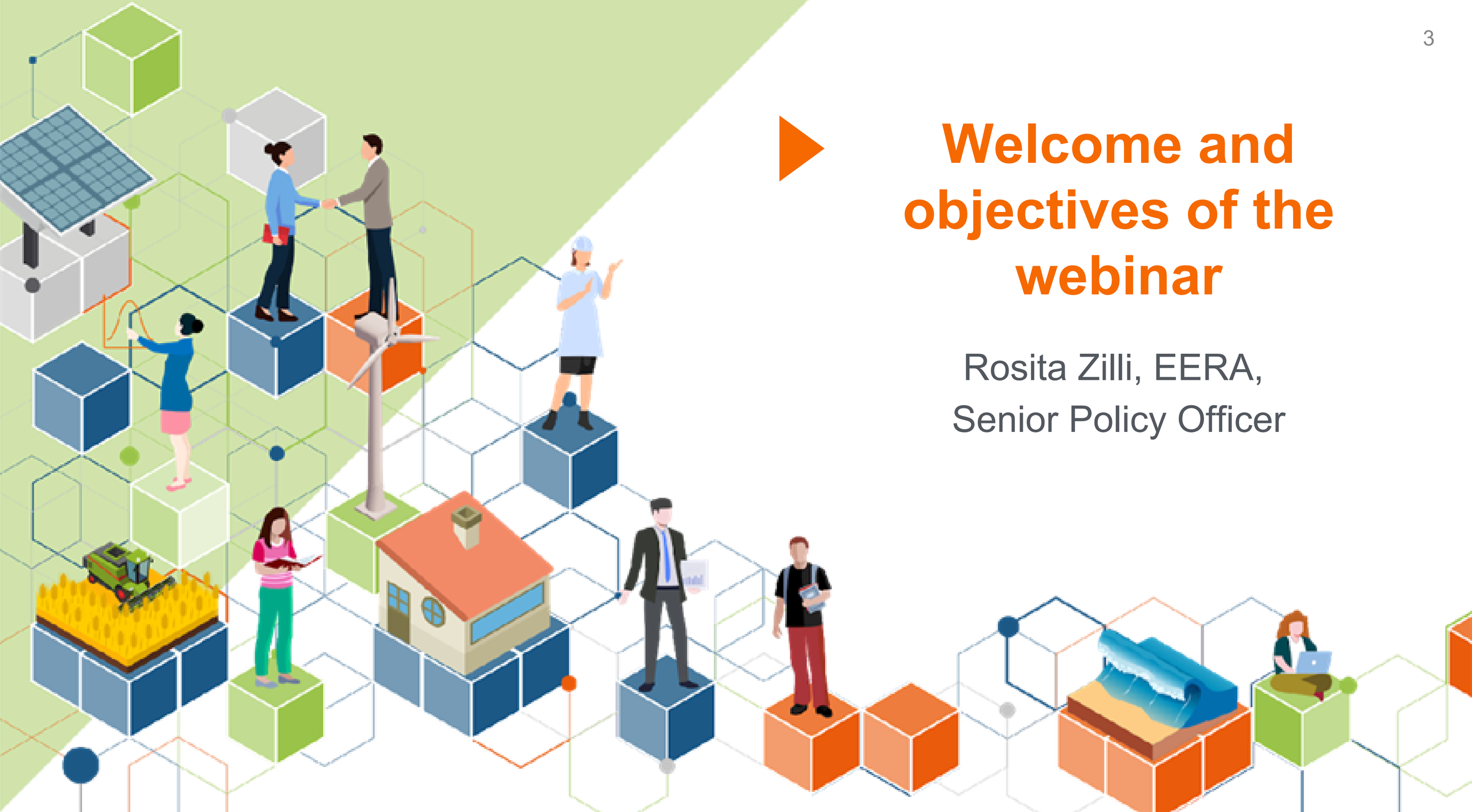
→ *The webinar is **recorded***

→ ***Do not turn on your microphone and camera during the event;** you **only** might be requested to do so during the Q&A session*

→ *Please **send your questions via chat***

→ *The **recording** of the webinar and the **PPT** will be **circulated shortly after***

→ *A **participants' survey** will be circulated after the event*



Welcome and objectives of the webinar

Rosita Zilli, EERA,
Senior Policy Officer

SUPEERA supports the SET Plan and the Clean Energy Transition

We...

- Facilitate the coordination of the research community
- Accelerate innovation and uptake by industry
- Provide recommendations on policy
- Promote the SET Plan and the Clean Energy Transition

We connect the dots.

EERA European Energy Research Alliance

cea

DTU

KIT Karlsruhe Institute of Technology

SINTEF

VTT

SUPEERA Policy Webinars

Objectives:

- To **inform** about the latest EU climate and energy policies and how these can be concretely translated into R&I challenges to EERA and SET Plan community
- To **support the implementation** of new EU policies by advancing research in related fields of actions
- To **encourage the engagement of the research community** to share science-based recommendations when expertise is already available

OBJECTIVES of today's webinar

→The EGD is much more than about cutting CO2 emissions, it is about systemic change

→The energy sector is called to play a key role in this process, with digitalisation being one of the main enablers of the transition

→How this change will happen is still in many respects uncharted territory, which today we intend to start further exploring by:

– highlighting the R&I, policy and business priorities regarding the Clean Energy Transition in Europe in their complex relations with the unfolding digital landscape

– contributing to developing innovative solutions to address these challenges

AGENDA

Moderator - EERA – Adel El Gammal, Secretary General	
Introductory Remarks **EERA – Rosita Zilli, Senior Policy Officer**	10:00-10:05
Panel Discussion – Digitalisation of Energy R&I for a Clean Energy Transition • **European Parliament – Claudia Gamon,** MEP, Member of the Committee on Industry, Research and Energy • **European Commission – Vincent Berrutto,** Head of Unit Innovation, Research, Digitalisation, Competitiveness - Directorate-General for Energy • **EERA – Rafael Mayo-Garcia,** Senior Researcher at CIEMAT and Coordinator of the transversal Joint Programme Digitalisation for Energy • **Industrial Research Council for Artificial Intelligence (ICAIR) – Olena Kushakovska,** Member	10:05-11:05
Q&A Session	11:05-11:25
Summary & Operational Conclusions **EERA – Ivan Matejak,** Operations Director and SUPEERA Project Coordinator	11:25-11:30

Panel Discussion

Moderated by: Adel El Gammal, EERA Secretary General

European Parliament – Claudia Gamon, MEP, Member of the Committee on Industry, Research and Energy

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European Commission – Vincent Berrutto, Head of Unit Innovation, Research, Digitalisation, Competitiveness - Directorate-General for Energy

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EERA – Rafael Mayo-Garcia, Senior Researcher at CIEMAT and Coordinator of the transversal Joint Programme Digitalisation for Energy

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Industrial Research Council for Artificial Intelligence (ICAIR) – Olena Kushakovska, Member

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EERA – Rafael Mayo-Garcia

Senior Researcher at CIEMAT and Coordinator of the transversal Joint Programme Digitalisation for Energy

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EERA steps to foster a digital transformation

Rafael Mayo-García

EERA
European Energy Research Alliance

THE STRUCTURE OF THE TJP

- EERA identified several cross-cutting activities that should be reinforced by the energy sector

- Digitalization is changing the way in which research and innovation is being carried out, so it was selected by EERA as the first pilot for the development of these cross-cutting activities

- The transversal Joint Programme Digitalisation for Energy was launched on October 2020
  - An Strategic Research and Innovation Agenda for this tJP has been defined

- Structured in several Subprogrammes with ongoing mature initiatives
  - SP1: High Performance Computing (HPC)
  - SP2: Data Science & Artificial Intelligence
  - tSPs coming from other JPs

EERA European Energy Research Alliance

KEY RESEARCH SUBJECTS / PRIORITIES

- Positioning EERA in the forefront of the digital transformation related to the energy sector
  - Enhancing their actual relationships and networking activities with principal stakeholders
- Create a modular tJP in which new SPs and activities can be easily integrated
- Application of HPC, Data Science, and Artificial Intelligence methodologies to topics of interest to energy
  - Fostering synergies and avoiding double efforts
- Identification of opportunities in which digital solutions are needed
  - Horizon Europe, Digital Europe, but not only

EERA European Energy Research Alliance

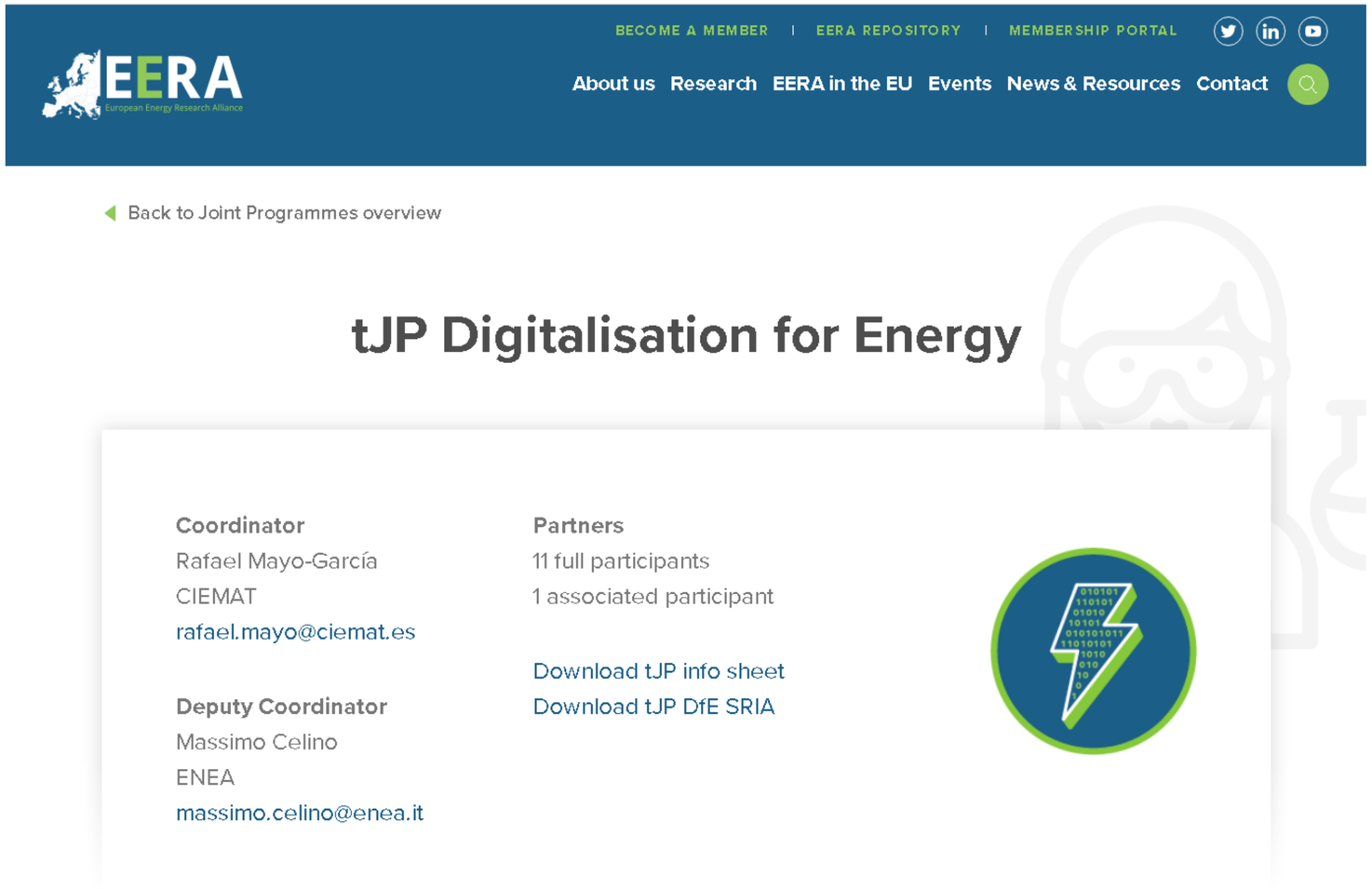
SOME EXAMPLES OF ACTIVITIES CARRIED OUT

- SRIA of the Clean Energy Transition Partnership
- JPSC for the Cities Mission Research Programme
- Energy Materials for Innovation' initiative jointly with NM and AMPEA
- White/Position papers
  - FAIR+(meta)data already submitted with the EERAdata project
  - HPC+Energy being drafted with the EoCoE project
  - AI+Energy to be started
- Questionnaire for collecting info about codes, repositories, and (AI) methodologies exploited within EERA already circulated
  - Provisionally closed on Apr 12th --> Compilation document already drafted and being analyzed
  - Short new period to be open again?
  - Afterwards, the document will propose collaborations and potential lines of research

EERA European Energy Research Alliance

WEBPAGE

- EERA website (https://www.eera-set.eu/) → Research → Joint Programmes → DfE
  - https://www.eera-set.eu/component/projects/projects.html?id=183



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Thank you!!!

Rafael Mayo-García

CIEMAT and EERA tJP DfE Coordinator

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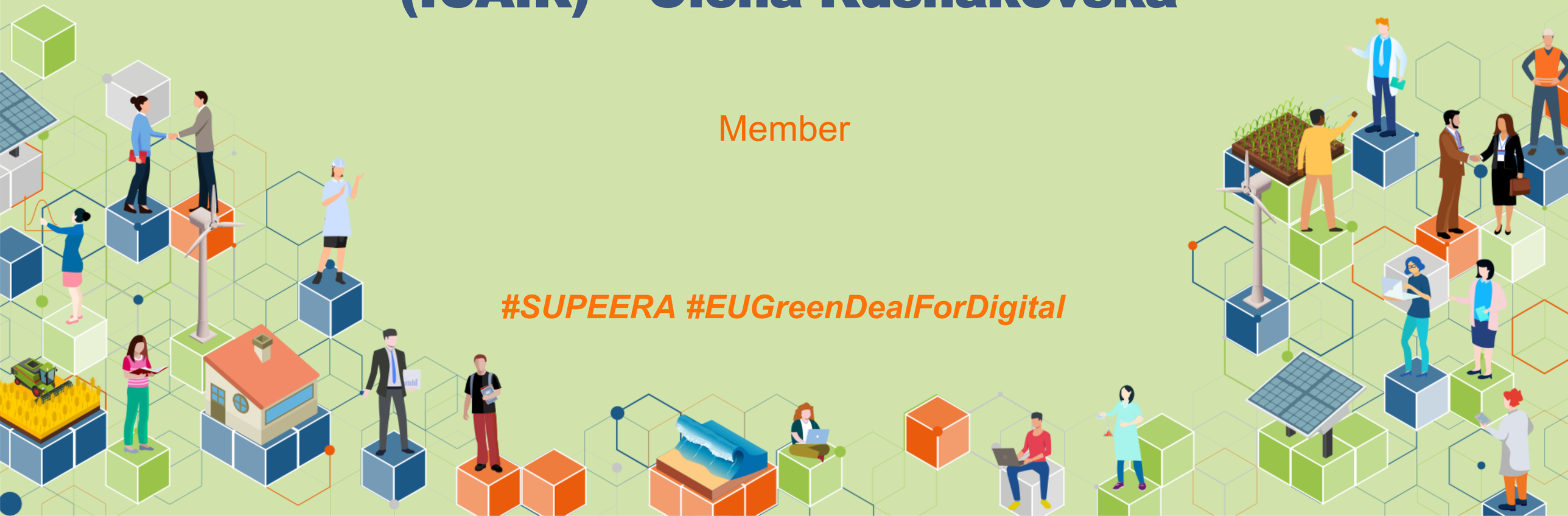
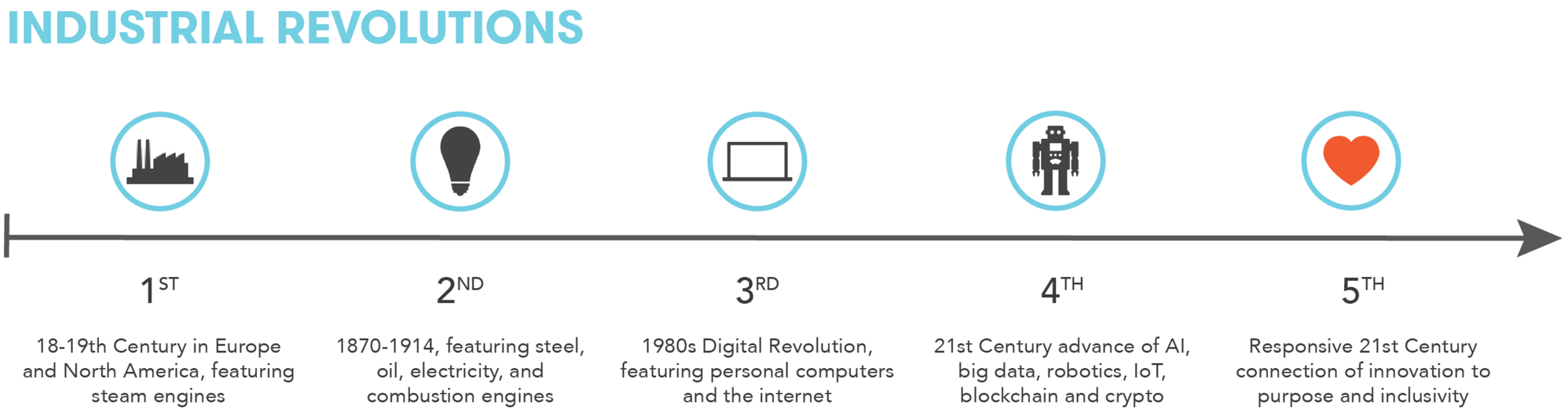


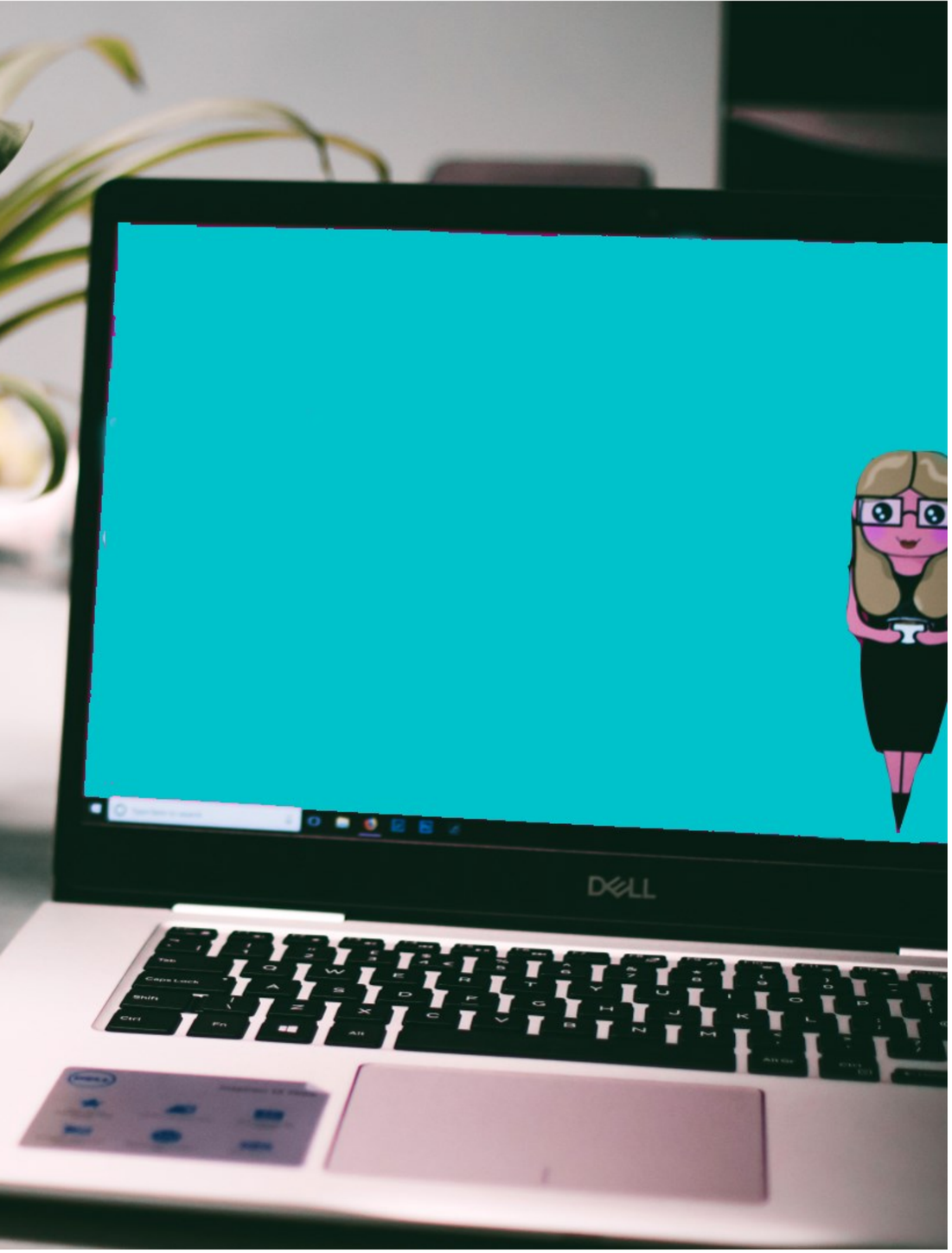

icair
Industrial Council of
Artificial Intelligence Research
Adopting Sustainable AI
to manage
the **energy transition**.

01

What is the Artificial Intelligence?

- AI is a game-changer: it reshapes the society as we know it. For ever.
  - AI is a facilitator: it supports organizations to reach out their goals.
    - AI drives the 5th industrial revolution.





02
Energy Sector & AI

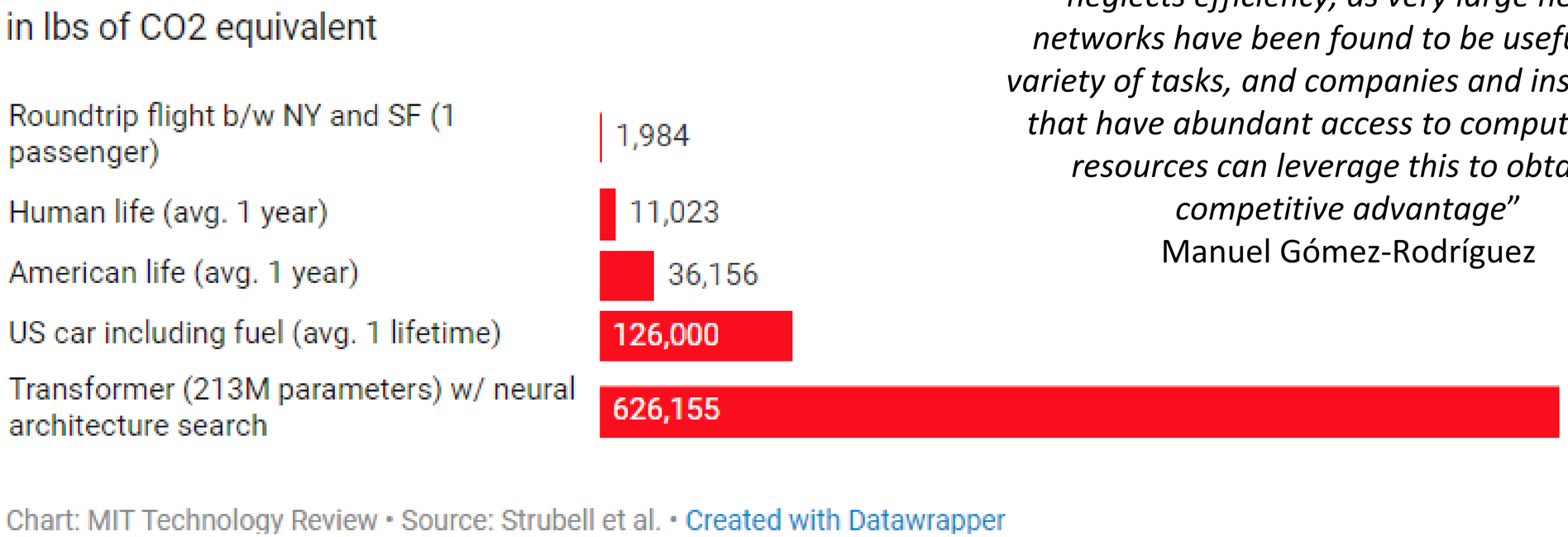
There are multiple challenges

- Forecast peaks in demands
- Reduce energy consumption
- Predict renewable energy production
- Optimize utilization and storage need

04

Red AI vs. Green AI

AI has become more accurate for the past few years but at an immense **cost of computer resources**.



"In general, much of the latest research in AI neglects efficiency, as very large neural networks have been found to be useful for a variety of tasks, and companies and institutions that have abundant access to computational resources can leverage this to obtain a competitive advantage"
Manuel Gómez-Rodríguez

03

ICAIR & Sustainable AI

- ICAIR is the Industrial Council for Artificial Intelligence Research, created on 2019
- 14 companies driving the industrial agenda in parallel to the academic one
- AI can be designed and used in a sustainable manner and bring value in ways which are respectful of the planet and the communities.

Why Sustainability and AI Together?

2 symmetrical ways of seeing things

AI is not (yet) sustainable

- Gigantic resource consumption
- Waste production
- Not trustworthy
- Compromising privacy
- Biased

World needs help (AI)

- Pollution detection/reduction, agriculture optimization, population protection
- Safe digital infrastructure
- Smart cities/territories
- Access to personalised education & health care

Thank you.

Olena Kushakovska
Industrial Council for Artificial Intelligence Research
olena.kushakovska@sap.com

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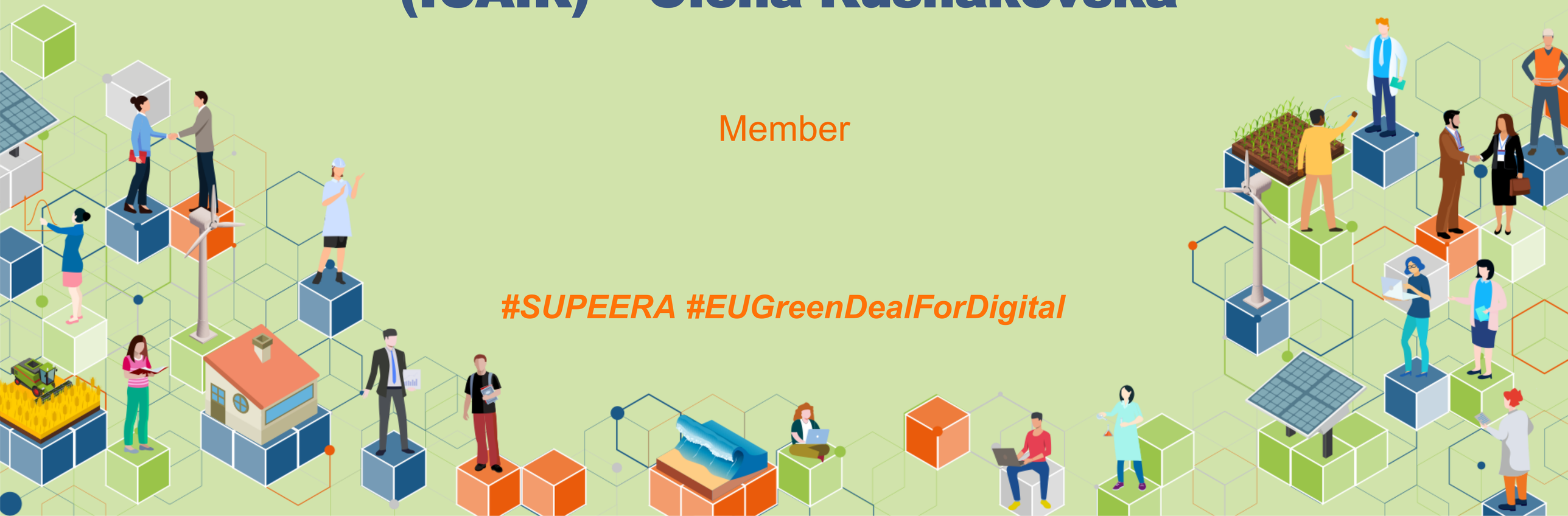

Q&A Session

Adel El Gammal, EERA,
Secretary General

Summary & Operational Conclusions

Ivan Matejak,
EERA, Project Coordinator


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