ETIP SNET Workshop Proceedings

11th Regional Workshop

ETIP SNET

European Technology and Innovation Platform
Smart Networks for Energy Transition

ETIP SNET Workshop Proceedings

11th Regional Workshop

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1. INTRODUCTION

As part of its mission of guiding Research and Innovation activities to support Europe's energy transition, the European Technology and Innovation Platform for Smart Networks for Energy Transition (ETIP SNET) will organize 8 Regional Workshops in the course of the next 3 years, covering the whole European Union.

To guarantee to cover all EU countries (including associated ones), these Workshops has been named "Regional" because they gather together Member States in 4 Macro "Regions". The gathering is mainly based on criteria of Neighbourhood and common geographic characteristics and priorities.

Please find them below:

- Western Region: (France, Ireland, Portugal, Spain and the United Kingdom)
- Central Region: (Belgium, Netherlands, Luxembourg, Poland, Austria, Germany, Switzerland, Czech Republic, Slovakia)
- South-Eastern Region: (Bulgaria, Croatia, Cyprus, Greece, Hungary, Italy, Malta, Romania and Slovenia)
- Northern Region: (Finland, Denmark, Norway, Latvia, Lithuania, Estonia)

This "Regional" dimension has been discarded for the first 4 due to the pandemic crisis and due to the fact that the workshops have been held on line and the regional dimension did not bring an added value in this format.

In the framework of ETIP SNET - from 2016 till today - already 8 Regional Workshops took place. You can find here the minutes and PPTs of all of them HERE and in specific the ones held in 2019 (that are the ones that will reflect more the structure ETIP SNET will follow in the next series).

The 1st of the 8 Regional Workshops of the new Series took place **on 21st April 2021 from 9.30 till 13.00.**

1.1 OBJECTIVES OF THE REGIONAL WORKSHOPS

The aim of the regional workshops organise is to contribute to the next ETIP SNET R&I Implementation Plans, Roadmap update and the Progress Reports. The selected R&I projects present their findings and will help to identify R&I gaps to update the R&I Implementation Plans (2023-2026) and update of the current Roadmap 2020-2030.

The regional workshops have four overall objectives:

- Present and create knowledge on project research results, good practices and lessons learnt of R&I projects on energy system integration;
- Monitor and identify gaps in R&I topics and priorities and to have convergence among national, regional and the European levels;

- Ensuring consistency between national and European views;
- Collect information from national and regional projects to feed the Progress Reports and Implementation Plans and Road Map;
- Stimulating knowledge-sharing between stakeholders and among Member States and associated countries, to foster the efficient implementation of R&I projects all over Europe.
- Involve BRIDGE projects.

1.2 ORGANISATION OF THE REGIONAL WORKSHOPS

To achieve all the main goals mentioned in the paragraph above the workshops are divided in 2 Panel joint sessions and on 4 Parallel sessions.

During the first join session the main aim is to Map ETIP SNET Research Area, R&I Priorities and link them to the Topics of the 4 Parallel sessions. Discussion around the general R&I priorities Gaps at EU and National level with an angle from the EC, from the Members States and from the stakeholders take place.

During the 4 parallel sessions 3/4 nationally and regionally EU Funded and 1 or more BRIDGE projects of significant added value addressing energy system integration issues will be presented, along the 4 thematic priorities identified before each Workshop based on exchanges with EC, ETIP SNET Working Groups and Projects Representatives:

During the final Joint session the Key conclusions of the discussions during the Parallel sessions and specific Recommendations from ETIP SNET WG5 in terms of "Innovation implementation in the business environment" take place.

All the input collected during these workshops will be used by ETIP SNET in drafting the 2 IMPLEMENTATION PLANs schedule to be published in December 2021 and in August 2023.

As stated in the introduction, 8 workshops are planned for the 2020-2023 period. In 2021, due to the sanitary crisis, it was decided to organise a series of 4 ETIP SNET workshops virtually.

The 4 themes selected for the first Workshop held on 21st April 2021 – and object of this proceeding report – have been the following:

- Theme 1: Electromobility integration in the energy systems
- Theme 2: Cooperation between energy system operators
- Theme 3: Digitalisation: managing energy data and Cyber security
- Theme 4: Consumer involvement, citizen engagement and energy communities

The 4 themes have been selected based on the research areas of the ETIP SNET Working Groups and the BRIDGE initiative as well as with view to contributing to the ETIP SNET Implementation Plan and Road Map.

1.3 STRUCTURE OF THIS REPORT

For each of the Workshop a Report including all the proceedings and key recommendations will be produced.

The Proceedings will gather the following information:

- List of projects presented at the workshop, with a short description of each of them;
- Number of people registered to the workshop and their distribution per country and organisation of origin;
- Minutes of each session and Main questions raised during the panel sessions, including SLIDO questions and results from each session;
- Recommendations for innovation implementation in the business environment.

2. ETIP SNET 11th REGIONAL WORKSHOP

The 11th ETIP SNET Regional workshop was held online via MICROSOFT TEAMS on 21 April 2021, 9:30 – 13:00 CET.

The workshop was attended by more than 220 people and overall, 20 projects from all over Europe presented their findings.

Detailed information are included in the next paragraphs.

2.2 PROGRAMME OF THE WORKSHOP

The agenda of the 11th Regional Workshop held on 21st April 2021 from 9.30 to 13.00 is the following:

PLENARY SESSION 09:30 - 10:30		
TIME	***TOPIC***	***SPEAKERS***
9.30 – 9.35	**Welcoming**	***Maria Laura Trifiletti*** – ZABALA (ETIP SNET Coordinator)
9.35 – 9.45	**ETIP SNET and BRIDGE Presentation**	***Jan Okko Ziegler*** - ENEL (ETIP SNET Chair)
9:45 – 10.00	**EC Keynote Speech**	***Mark Van Stiphout***, Deputy Head of Unit DG ENER B.5
10:00-10:30	**Panel session** • Map ETIP SNET Research Area, R&I Priorities and link to the 4 Parallel sessions • Discussion about R&I priorities Gaps at EU and National level Q&A Session	**Moderators:** ***Ludwig Karg*** – B.A.U.M. Consult ***Shenja Ruthenberg*** - CLERENS ***Panelists:*** ➢ ***ETIP SNET Technical CORE TEAM*** ✓ ***Rainer Bacher*** – BACHER Energie ✓ ***Aris Dimeas*** - ICCS ✓ ***Nikos Hatziargyriou*** - ICCS ➢ ***ETIP SNET Working Groups Representatives*** ✓ ***Natalie Samovich*** - ENERCOUTIM (WG1) ✓ ***Enrique Morgades Prat*** - CIRCE (WG2) ✓ ***Alexander Wiedermann*** - MAN Energy Solutions (WG3) ✓ ***Elena Boskov-Kovacs*** - Blueprint Energy solutions (WG4) ✓ ***Jan Roschek*** - GreenCom Networks (WG4) ✓ ***Venizelos Efthymiou*** – University of Cyprus (WG5)

Parallel Sessions 10.30 – 12.00	
Parallel Session 1	**Parallel Session 2**
Electromobility integration in the energy systems	**Cooperation between energy system operators**
MODERATORS	**MODERATORS**
Aris Dimeas – ICCS ***Shenja Ruthenberg*** – CLERENS	***Nikos Hatziargyriou*** – ICCS ***Rita Dornmair*** – B.A.U.M. Consult
PANELISTS	**PANELISTS**

- ***Rolf Riemenschneider*** - EC DG CNECT - ***Enrique Morgades Prat***- CIRCE (ETIP SNET WG2 Chair) - ***Antonio Iliceto*** – ENTSO-E (ETIP SNET WG1 Co-Chair) - ***Dominique Bertin –*** Enedis & ***Xavier Serrier*** - Groupe Renault (***INCIT EV project***) - ***Sanna Öörni*** – VTT, ***Paakkinen Marko*** - VTT (***Smart Otaniemi project***) - ***Thomas Zeinzinger*** - lab10 collective eG (***CLUE Project***) - ***Albedo Bettini*** - University of Applied Sciences and Arts of Southern Switzerland (***EVA project***)	- ***Nathalie Samovich*** - ENERCOUTIM (ETIP SNET WG1 Chair) - ***Alexander Wiedermann*** -MAN Energy Solutions (ETIP SNET WG 3 Chair) - ***Nikolaos Bilidis*** - European Dynamics Luxembourg SA (***INTERRFACE project***) - ***Biljana Stojkovska*** – National Grid ESO (***Power Potential Project***) - ***Lorenzo Zanni*** - Zaphiro Technologies SA & ***Mario Paolone*** - EPFL (***SCCER FURIES REeL Demo project***) - ***Eric Lambert*** – EDF R&D & ***Ioana Pisica*** – Brunel University London (***TDX-ASSIST project***) - ***José Pablo Chaves Ávila***-COMILLAS ***(COORDINET Project)***
Parallel Session 3 **Digitalisation: Managing energy data and Cyber security**	**Parallel Session 4** **Consumer involvement, citizen engagement and energy communities**
MODERATORS	**MODERATORS**
Rainer Bacher – BACHER Energie ***Maria Laura Trifiletti***- ZABALA	***Ludwig Karg*** – B.A.U.M. Consult ***Esther Hardi*** - Energiecooperatie 2030
PANELISTS	**PANELISTS**
- ***Svetoslav Mihaylov*** EC - DG CNECT - ***Elena Boskov-Kovacs*** – Blueprint Energy solutions (ETIP SNET WG4) - ***Olivier Genest*** – Trialog (BRIDGE Data Management WG Chair) - ***Antonello Monti*** - RWTH Aachen University and Fraunhofer Center for Digital Energy ***(PLATONE Project)*** - ***Erik Maqueda Moro & Iñaki Angulo*** - Tecnalia ***(PLATOON project)*** - ***Valeria Jana Schwanitz*** - HVL ***(EERA data project)*** - ***Niall Conway*** - Spatial Outlook Ltd ***(REDAP project)*** - ***Friederich Kupzog*** - AIT Austrian Institute of Technology GmbH ***(LARGO project)*** - ***Tasos Tsitsanis*** - Suite5 Data Intelligence Solutions (***SYNERGY project)***	- ***Jan Roschek*** - GreenCom Networks (ETIP SNET WG4 member) - ***Thierry Coosemans*** - VUB ***(Renaissance project);*** - ***Ole Langniss*** - OLI Systems GmbH ***(C/sells project)*** - ***Thijs Bouman*** - University of Groningen (***TOP-UP project)*** - ***Thomas Walter*** - Easy Smart Grid GmbH ***(SoLAR project)*** - ***Stefan Wilker*** - Technische Universität Wien ***(SONDER project)***
Panel session ***Parallel Sessions outcomes and Conclusions*** **12:00 - 13:00**	
12:00-13.00	**Moderator - *Maria Laura Trifiletti***, ETIP SNET Coordinator **Panelists:** - ***Venizelos Efthymiou –*** University of Cyprus (WG5) - Recommendations from ETIP SNET WG5 in terms of "Innovation implementation in the business environment" - ***Aris Dimeas -*** ICCS - Parallel session 1 Key conclusions - ***Nikos Hatziargyriou*** - ICCS - Parallel session 2 Key conclusions - ***Rainer Bacher –*** BACHER Energie - Parallel session 3 Key conclusions - ***Ludwig Karg –*** B.A.U.M. Consult **-** Parallel session 4 Key conclusions

2.3 LIST OF ATTENDEES

Around 380 people registered for the workshop. Overall, the workshop was attended by more than 220 people.

The distribution of registrants by country is provided in the figure below:

Figure 1: Distribution of registrants by country

Moreover, the following figure gives an indication of the distribution of participants by their type of organization:

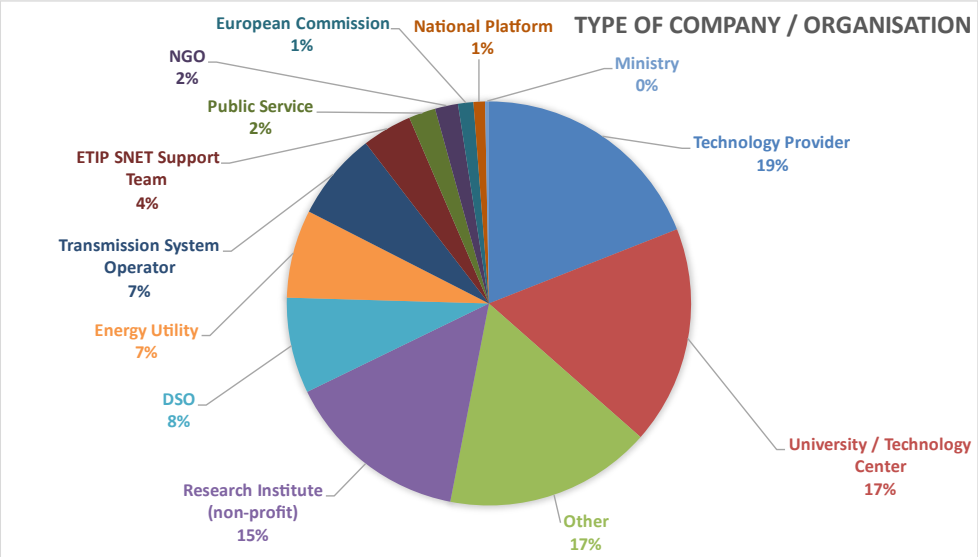

Figure 2: Distribution of participants by organisation

First Name	Last Name	Company
Adeola	Adeoti	CLERENS
Albedo	Bettini	University of Applied Sciences and Arts of Southern Switzerland
Ales	Hvala	Blueprint Energy Solutions
Alexander	Mazikas	Elektrilevi OÜ
Alexander	Wiedermann	MAN Energy Solutions
Alexander	Chemeris	
Alexandros	Vavouris	
Alina	Göstl	Energie Zukunft Niederösterreich
Ana	Izauierdo Garijo	Tecnatom, S.A.
Ana Maria	Sanchez Infante	EC DG ENER

First Name	Last Name	Company
Andreea	Badicu	BEIA Ro
Andrei	Morch	SINTEF Energy Research
Anna	Mutule	Institute of Physical Energetics
Anna	Nilsson	IVL Swedish Environmental Research Institute
Antonello	Monti	RWTH Aachen University
Antonio	Iliceto	Entso-E
Antonios	Papaemmanouil	Lucerne University of Applied Sciences and Arts
Aoifw	McCarthy	GlasPort Bio
Arina	Anisie	International Renewable Energy Agency (IRENA)
Aris	Dimeas	National Technical University of Athens
Armando	Mendoza	Armando Aguayo Mendoza
Ashwini	Danabal	Tractebel Engie
Ata	Khavari	DERlab e. V.
Athanasios	Krontiris	Hochschule Darmstadt
Aynur	Eray	Hacettepe University
Bartlomiej	Arendarski	Fraunhofer Institute for Factory Operation and Automation IFF
Benedikt	Schmitz	Metraco
Benjamin	Carnerero	Omexom
Bernard	Istasse	EISIS
Bharath Varsh	Rao	Austrian Institute of Technology
Biljana	Stojkovska	National Grid ESO
Boris	Njavro	BLUEPRINT ENERGY SYSTEMS GMBH
Brandi	Gunn	Tractebel GmbH
Bruno	Robisson	CEA
Bruno	Gouverneur	ENTSO-E
Carla	Marin	EDSO
Carlos	Rodrigues	LNEG - UEREE
Carlos Alberto	Froes Lima	KNBS
Carolina	Ávila	OMIE
Catalin	Chimirel	CNTEE Transelectrica SA
Catarina	Augusto	E.DSO
Christina	Papadimitriou	FOSS/UCY
Claus	Kern	Siemens
Cristian	Beceanu	Beia-ROU
Dagmar	Jarásová	SFÉRA, a.s.
Dan-Eric	Archer	Checkwatt
Daniel	Averbuch	IFPEN
Daniela	Gaddari	CLERENS
Daniele	Farrace	AEM SA
Darcin	Hombre Fernandez	OMIE
David	Ziegler	JRC-ISPRA
David	Teixeira	IFPEN
Diana	Prsancova	ZABALA
Diego	Piserà	algoWatt S.p.A.

First Name	Last Name	Company
Dimitrios	Rakopoulos	Centre for Research and Technology Hellas (CERTH)
Dimitrios	Karras	National and Kapodistrian University of Athens
Dimitrios	Skias	Intrasoft International SA
Dominique	Bertin	Enedis
Donato	Palomares Herrero	Empresa de Alumbrado Eléctrico de Ceuta SA
Edgar	Marco	Alpiq
Eiska	Trmalova	ČEPS, a.s.
Elena	Boscov Kovacs	Blueprint Energy
Eleni	Daridou	National Technical University of Athens
Elisa	Anderson Vazquez	E.DSO
Emilio	Tereñes	CTIC
Enrique	Morgades	FUNDACION CIRCE
Eric	lambert	EDF
Erik	Maqueda Moro	
Esther	Hardi	2030.nu
Eva	Sluismans	DG ENER
Evangelos	Koulis	STRATAGEM ENERGY LTD
Evelyn	Heylen	KU LUVEN
Fabio	Aprà	R2M Solution
Felix	Garcia-Torres	Spanish National Centre on Hydrogen
Fernando	Gonzalez	engie
Fernando	Garcia Martinez	UFD
Fernando David	Martín Utrilla	i-DE (Iberdrola)
Francisco Javier	Diez	Tekniker
Friederich	Kupzog	AIT Austrian Institute of Technology GmbH
Geanina	Vintila	BEIA-RO
George	Boultadakis	European Dynamics
George	Suciu	BEIA
Gerfried	Cebrat	
Gianluigi	Migliavacca	RSE S.p.A.
Giulia	SERRA	European Commission
Gustavo	Giacomelli	ZABALA
Hamid	Aghaie	AIT
Hassan	Abou El Gheit	Tractebel Engineering GmbH
Henrik	Bindner	DTU Elektro
Hynek	Beran	ČVUT (Czech technical university)
Igor	Kotsiuba	
Igor	Kotsiuba	
Ilias	Lamprinos	Intracom Telecom
Ioana	Pisica	Brunel University
Irene	GAROFALO	CLERENS
Jan	Pedersen	Agder Energi
Jan	Roschek	GreenCom Networks

First Name	Last Name	Company
Jan Okko	Ziegler	ENEL
Janez	Humar	ELES
João	Campos	Enercoutim
John	Lowry	Eirgrid TSO Ireland
John	Karakitsios	National Technical University of Athens School of Electrical and Computer Engineering
Jon	Martinez	
Jordi	Masip	SAP
José Carlos	Díaz Murillo	LOMARTOV S.L.
Jose Pablo	Avila	Universidad Pontificia Comillas
José Pedro	Ramalho Veiga Simao	SUPSI
Joseph	Negreira	Ssmart Innovation Norway
Julia	Chenut	BAUM
Julio	Diaz	
Kalle	Kukk	Elering
Kalman	Makay	Broadcom Inc.
Kamaldeen	Adekola	IMT Atlantique
Karim	Sidi-Ali-Chérif	CEA
Katerina	Drivakou	UBITECH Energy
Katerina	Dimitriou	
Kirsten	GLENNUNG	E.DSO for smart grids
Konstantin	Staschus	ENTSO-E
Konuk	Melih	
Lannoye	Eamonn	EPRI Europe
Laura	Pérez	R2M Solution
Lauri	Kumpulainen	University of Vaasa
Lennard	Sijtsma	Guidehouse
Leslie	Herding	Universidad Pontificia Comillas
Liam	Beard	Vodafone
Lluís	Trilla	IREC
Lola	Alacreu	ETRAI+D
Lorenzo	Zanni	Zaphiro Technologies
Luciano	Zapparata	Luciano Zapparata
Ludwig	Karg	B.A.U.M. Consult GmbH, München / Berlin
Luis	Badesa Bernardo	Imperial College London
Magnus	Brolin	RISE Research Institutes of Sweden
Manfred	Tragner	UAS Technikum Wien
Marcel	Schweitzer	UAS Technikum Vienna
Marco	Baron	Enel
Marcus	Meisel	Sprecher Automation GmbH
Margot	Delestre	ZABALA
Maria	Vanegas	Europa-Universität Flensburg
Maria Laura	Trifiletti	ZABALA
Maria Luisa	Fernandez Vanoni	EERA

First Name	Last Name	Company
Mariana	Stancheva	CINEA
Mariano	Gaudo Navarro	Indra
Marie	Novak	Sibelga
Mario	Paolone	EPFL
Mark	Morris	Samui France
Mark	Van Stiphout	DG Energy
Markus	Wolf	EPRI
Martin	Godemann	Coreso
Martin	Chytra	EG.D, a.s.
Matilde	Defraeije	flux50
Matthew	Hamman	BEIS
Michele	De nigris	Rse
Miguel Ángel	Sánchez Bodas	OMIE
Nadja	Novak	ELES
Natalie	Samovich	ENERCOUTIM
Nathan	Bliscaux	MEDEE
Nathaniel	Saura	
Niall	Conway	Spatial Outlook Ltd - Regional Energy Demand Insights
Niccolò	Poretti	Azienda Elettrica di Massagno (AEM) SA
Nikolaos	Chrysanthopoulos	Imperial College London
Nikos	Bilidis	EUROPEAN DYNAMICS
Nikos	Hatziargyriou	National Technical University of Athens
Nuno	S Silva	R&D Nester
Ole	Langniß	OLI Systems GmbH
Oleksandr	Novykh	University of La Laguna
Olena	holubowska	DTU
Olivier	Genest	Trialog
Oscar	Azorín	T-Systems
Otilia	Bularca	SIMAVI
Pailine	Caroni	ZABALA
Panagiotis	Psychogyios	BW
Paolo	Rossi	AEM SA
Paolo	Sonvilla	Creara
Paolo	Romano	Zaphiro Technologies SA
Pat	Brown	
Paula	Carroll	Enterprise Ireland
Peter	Stettner	ANDRITZ HYDRO
Philippe	Szczech	AKKA
Philippe	Calvez	ENGIE LAB CRIGEN
Primoz	Rust	Eles d.o.o.
Prodromos	Makris	ICCS/NTUA
Quim	Meléndez	
Rad	Stanev	TU-Sofia
Rafael	Mayo-Garcia	
Rainer	Bacher	BACHER ENERGIE AG

First Name	Last Name	Company
Rasmus	Armas	Elektrilevi OÜ
Raul	Alonso	Fundacion CTIC
Rebecca	Hueting	
Ricardo	Pastor	R&D NESTER
Rimantas	Bakas	Lithuanian energy institute
Rita	Dornmair	BAUM
Robert	Kielak	PSE S.A
Rohit	Trivedi	IERC
Rolf	Riemenschneider	DG CNECT
Romualdas	Petraitis	SMART ENERGY DIH
Rooktabir Nandan	Sauba	
Sanket	Puranik	Smart Innovation Norway
Sanna	Oorni	VTT
Santiago	Gallego	i-DE
Sara	Momi	
Seppo	Horsmanheimo	
Sergio	Rodriguez	Sertogal
Severin	Novak	
Shenja	Ruthenberg	CLERENS
Slobodan	Lukovic	USI
Sophia	Giovanett	E.DSO
Stamatios	Chondrogiannis	JRC
Stefan	Wilker	TU Wien, Institute of Computer Technology
Stefan	Ubermasser	
Stefan	Gross	
Stefano	Bianchi	algoWatt SpA
Stella	Arapoglou	VUB
Svetoslav	MIHAYLOV	DG CNECT
Svitlana	Kolosok	Sumy State University
Tasos	Tsitsanis	Suite5 Data Intelligence Solutions
Teresa	Bertrand	Enercoutim
Thierry	Coosemans	VUB
Thijs	Bouman	University of Groningen
Thomas	Walter	Easy Smart Grid GmbH
Thomas	Zeinzinger	lab10 collective eG
Tidian	Baerens	Hudara
Ugo	Stecchi	Cidetec
Valentin	Rigoni	
Valentina	Ferrara	CLERENS
Valeria	Schwanitz	Western Norway University of Applied Sciences
Vasileios	Iliadis	AESTechnologies
Venizelos	Efthymiou	FOSS
Vera	Kissler	ENER
Vincent	Krakowski	HESPUL
Vladimir	Alexiev	Ontotext

First Name	Last Name	Company
Wilfried	Pimenta	Alpha Venturi
Wilhelm	Sußenbacher	University of Applied Sciences Upper Austria
Yves-Marie	Bourien	CEA Liten
Zhivorad	Serafimoski	MEPSO-Macedonian Transmission System Operator
Zoltán	Székely	Székely Family and Co. Kft.

3. PROCEEDINGS

3.1 PLENARY SESSION

The keynote speech during the opening session was given by Mark Van Stiphout, Deputy Head of Unit DG ENER B.5, who mentioned the review of key elements of legislation within the 'Fit for 55' package to have the necessary rules in place to reduce GHG emissions to less than 55 percent by 2030.

The legislation looks at different aspects of the energy system and the importance of ETIP SNET was underlined due to its links between electricity and heating, respectively, electricity and transport, where some unanswered questions prevail. The role of ETIP SNET as 'Scout' was emphasised to provide indications where the constraints in the system remain and which measures should be adopted to meet the aforementioned targets.

The role of the Horizon Europe programme was emphasised with the approach on 'systemic innovation' as key element of the work programme. The ETIP SNET regional workshops and their role in identifying upcoming themes and in ensuring that the systemic approach was kept to meeting the targets and to avoiding bottlenecks, was stressed in line with the importance of the cooperation between ETIP SNET and further stakeholder platforms.

The Horizon Europe work programme for 2021/22 would be soon published, providing space to gather new ideas and evidence in the current phase and to ensure the outreach to different parts of the system.

The importance of projects, where different actors start working together was stressed, for example, in the framework of joint calls with DG CONNECT on digitalisation, where the positive impact of bringing digital stakeholders in the energy discussion, was noticed. In this regard, the potential for industrial calls was mentioned to address the question how the sector could provide flexibility to the grid. In addition, the links between ETIP SNET with the 2ZERO partnership and the Batteries Europe partnership were mentioned in relation to the questions of e-mobility integration in the energy systems.

It was emphasised that the way the electricity system is operated is changing with digitalisation being a key enabler. The Digitalisation of energy action plan was mentioned elaborating how energy can support the energy transition including the important field of data exchange to enable such transition. The tendency for digitalisation and data sharing was noticed to enable a better renewable integration into the grid. The potential business cases and benefits could be provided by ETIP SNET to point on examples and on concrete benefits.

3.2 PARALLEL SESSIONS

After the plenary sessions, participants were invited to join one of the **four parallel sessions** devoted to different key topics of the energy transition:

1. Electromobility integration in the energy systems
2. Cooperation between energy system operators
3. Digitalisation: Managing energy data and Cyber security
4. Consumer involvement, citizen engagement and energy communities

Each parallel session was organised as follows:

- 99-second pitch by European, national and regional projects
- Moderated panel discussion between representatives of European Commission, ETIP SNET Working Group and projects
- Interaction with the audience via SLIDO and Q&A session

Below the list of participants for each parallel session:

Table 1: Panellists from the parallel sessions

Parallel session nr.	Participants
1	• Rolf Riemenschneider - EC DG CNECT • Aris Dimeas – ICCS • Shenja Ruthenberg – CLERENS • Enrique Morgades Prat- CIRCE (ETIP SNET WG2 Chair) • Antonio Iliceto – ENTSO-E (ETIP SNET WG1 Co-Chair) • Dominique Bertin – Enedis & *Xavier Serrier* - Groupe Renault (*INCIT EV project*) • Sanna Öörni – VTT, Paakkinen Marko - VTT (Smart Otaniemi project) • Thomas Zeinzinger - lab10 collective eG (CLUE Project) • Albedo Bettini - University of Applied Sciences and Arts of Southern Switzerland (EVA project)
2	• Nikos Hatziargyriou – ICCS – Moderator • Rita Dornmair – B.A.U.M. Consult - Moderator • Nathalie Samovich - ENERCOUTIM (ETIP SNET WG1 Chair) • Alexander Wiedermann -MAN Energy Solutions (ETIP SNET WG 3 Chair) • Nikolaos Bilidis - European Dynamics Luxembourg SA (INTERRFACE project) • Biljana Stojkovska – National Grid ESO (Power Potential Project)

	• Lorenzo Zanni - Zaphiro Technologies SA & Mario Paolone - EPFL (SCCER FURIES REeL Demo project) • Eric Lambert – EDF R&D (TDX-ASSIST project) • José Pablo Chaves Ávila-COMILLAS (COORDINET Project)
3	• Rainer Bacher – BACHER Energie – Moderator • Maria Laura Trifiletti – ZABALA – Moderator • Svetoslav Mihaylov – EC DG CNECT • Elena Boskov-Kovacs – Blueprint Energy Solutions (ETIP SNET WG4) • Antonello Monti – RWTH Aachen University and Fraunhofer Center for Digital Energy (Platone project) • Erik Maqueda Moro & Inaki Angulo – Tecnalia (PLATOON project) • Valeria Juana Schwanitz – HVL (EERA data project) • Niall Conway – Spatial Outlook Ltd (REDAP project) • Friederich Kupzog – AIT Austrian Institute of Technology GmbH (LARGO project) • Tasos Tsitsanis – Suite5 Data Intelligence Solutions (SYNERGY project)
4	• Ana Maria Sanchez Infante – EC DG ENER • Jan Roschek – GreenCom Networks (ETIP SNET WG4 member) • Thierry Coosemans – VUB (Reinassance project) • Ole Langniss – OLI Systems GmbH (C/sells project) • Thijs Bouman – University of Groningen (TOP-UP project) • Thomas Walter – Easy Smart Grid GmbH (SoLAR project) • Stefan Wilker – Technische Universität Wien (SONDER project)

3.2.1 PRESENTATION OF R&I PROJECTS

During each of the parallel sessions, R&I projects from a variety of European countries were presented, as displayed in the table below.

Table 2: Projects presented during the 11th Regional Workshop

Project	Country (Project Coordinator)	Purpose	Speaker
Session 1: Electromobility integration in the energy systems			
INCIT EV	France	The project explores different approaches to provide charging opportunities starting from customers' needs. Specifically, it aims to demonstrate, at five demonstration environments including TENT-T corridors, an innovative set of charging infrastructures,	Dominique Bertin

		technologies and its associated business models, ready to improve the EV users experience with the ultimate goal of fostering the EV market share in the EU.	
Smart Otaniemi	Finland	The general aim of Smart Otaniemi project is to co-innovate new solutions for flexible energy systems and digitalisation of energy. Smart EV charging has been one of the co-used cases. Key output: the concept of Zero Emission Mobility testbed (ZEM Hub). This is a multi-actor and multi-purpose testbed for novel sector-integrated urban mobility use cases helping to shorten time solutions for customers' charging services.	Sanna Öörni
CLUE	Austria	CLUE project's focus is on giving households the opportunity of having energy accounts. Depending on energy consumption and production rates, households receive an energy token, called "e-kWh", which can be used on a centralized system or transferred to a decentralized blockchain system. One of the use case CLUE is working on consists in giving the users the possibility to use their digital wallet to charge their EV car. As soon as the user is paying for the charging, the service provider of the charging services, who is monitoring an account in the blockchain system, receives a notification that the payment is coming in and enables the EV charging.	Thomas Zeinzinger
EVA	Switzerland	EVA project explores the optimization of energy infrastructures for the transition to Electric and Connected Autonomous Vehicles. The project includes two pilot sites in Ticino and Bolzano. After an analysis of the possible future mobility scenarios, the impact on the grid of these mobility scenarios is taken into consideration. The final goal is to provide some guidelines to support the regional transition by summer 2022.	Albedo Bettini
Session 2: Cooperation between energy system operators			
INTERRFACE	Luxembourg	The INTERRFACE project will design, develop and exploit an Interoperable pan-European Grid Services Architecture (IEGSA) to act as the interface between the power system (TSO and DSO) and the customers and allow the seamless and coordinated operation of all stakeholders to use and procure common services. State-of-the-art digital tools based on blockchains and big data management will provide new opportunities for electricity market participation and thus engage consumers into the INTERRFACE proposed market structures that will be designed to exploit Distributed Energy Resources.	Nikolaos Bilidis
COORDINET	Spain	The CoordiNet project will help to demostrate how DSOs and TSOs shall act in a coordinated manner and use the same pool of resources to procure grid services in the most reliable and efficient way through the implementation of large scale "TSO-DSO-Consumer" demonstrations, in cooperation with market participants (and end users).	José Pablo Chaves Ávil
Power Potential	United Kingdom	Power Potential is trial project that demonstrated a world-first regional reactive power market using DERMS system which enabled day-ahead procurement of reactive power services from DER. The project has demonstrated the concept of end to end dynamic voltage control from DER with a Virtual Power Plant (VPP). This is a new means of NG ESO procuring reactive power services using DER capability within a competitive market environment.	Biljana Stojkovska

SCCER FURIES REeL Demo	Switzerland	The project aims at demonstrating the first "grid-aware" control solution for utility-scale Battery Energy Storage System (BESS). The solution is able to guarantee the stability of the grid where it is deployed as well as to provide ancillary services to the national transmission grid. The demonstrator has been deployed in a medium-voltage distribution feeder operated by the local utility Romande Energie, which connects a 2.6 MWh, 2 MW battery from Leclanché, 3.2 MW of rooftop PV (including a 1.8 MW PV plant), 3.4 MVA hydroelectric plant and 1.8 MW fast EV charging station. The solution relies on the real-time knowledge of the grid status provided by Zaphiro Technologies flagship product SynchroGuard (the first PMU-based grid monitoring system for distribution grid)	Lorenzo Zanni & Mario Paolone
TDX-ASSIST	United Kingdom	This project aims to design and develop novel ICT tools and techniques to facilitate scalable and secure information systems for data exchange between TSOs and DSOs to support active distribution network developments. Three novel aspects of ICT tools and techniques: • Scalability – ability to deal with new users and increasingly larger volumes of information and data • Security – protection against external threats and attacks Interoperability – information systems and data exchange based on international standards	Eric Lamber & Ioana Pisica
Session 3: Digitalisation: Managing energy data and Cyber security			
PLATONE	Germany	Platone aims at defining new approaches to increase the observability of renewable energy resources and of the less predictable loads while exploiting their flexibility. Our consortium of 12 partners from Belgium, Germany, Greece and Italy will develop advanced management platforms to unlock grid flexibility and to realize an open and non-discriminatory market, linking users, aggregators and operators. The solutions developed in the project will be tested in three European demonstration examples.	Antonello Monti
PLATOON	France	PLATOON will deploy distributed edge processing and data analytics technologies for optimized real-time energy system management in a simple way for the energy domain expert. The data governance among the different stakeholders for multi-party data exchange, coordination and cooperation in the energy value chain will be guaranteed via IDS based connectors. The project will develop and use the PLATOON reference architecture, which is COSMAG-compliant, for building and deploying scalable and replicable energy management solutions, contributing thus to increased renewable energy consumption, smart grids management, increased energy efficiency and optimised energy asset management, addressing the needs of various stakeholders along the value chain of the energy sector.	Erik Maqueda Moro
EERA data	Norway	EERAdata aims to accelerate the implementation of the Energy Efficiency first principle across Europe by supporting policy-makers to effectively assess the impacts of EE investments, with an initial focus on investments in buildings, in order to achieve a highly energy efficient and decarbonised building stock.	Valeria Jana Schwanitz
REDAP	Germany	Regional Energy Demand Analysis Portal (REDAP) provides regions with clarity on the characteristics, distribution and patterns of energy demand in the building and transport sectors. This includes data insights on the average fuel type and expenditure, building efficiency ratings, and areas with potential for district heating and mobility electrification. The insights help decision-makers identify opportunities for synergies, efficiencies and cost-savings.	Niall Conway

LARGO	Austria	LarGo! enables the mass roll-out of smart grid applications for grid and energy management by defining a seamless, safe and secure application deployment process for the grid and customer domain. The critical challenge of stable and resilient system operation is addressed in a setting where communication systems are used for both smart grid run-time operation, including monitoring and control, and ICT maintenance, such as application deployment and remote configuration.	Friedrich Kupzog
SYNERGY	Spain	In response to the need for "end-to-end" coordination between the electricity sector stakeholders – not only in business terms but also in exchanging information between them – SYNERGY introduces a novel framework and references big data architecture that leverages data, primary or secondarily related to the electricity domain, coming from diverse sources (data APIs, historical data, statistics, sensor / IoT data, weather data, energy market data, and various other open data sources) to help the electricity value chain stakeholders to simultaneously enhance their data reach, improve their internal intelligence on electricity-related optimization functions while getting involved in novel sharing/trading models of data sources and intelligence, in order to gain better insights and shift individual decision-making at a collective intelligence level.	Tasos Tsitsanis
Session 4: Consumer involvement, citizen engagement and energy communities			
REINASSANCE	Belgium	Reinassance started in 2019 to deliver a community-driven scalable and replicable approach, to implement new business models and technologies supporting clean production and shared distribution of energy in local communities. The project will engage in the design of energy communities as business cases towards the development of the ReEnergise tool that will help identifying the optimal configuration for an integrated and decarbonised Local Energy System (LES). The tool aims to increase the share of energy that is produced locally, from renewable sources when available, with a clear market focus, making them widely replicable across Europe. The tool will be validated in real-life pilots in Belgium, Greece, Spain and the Netherlands, and followed by a financial viability assessment.	Thierry Coosemans
C/SELLS	Germany	C/sells is funded by the Federal Ministry for Economic Affairs and Energy within the framework of the programme "showcase project smart energy – digital agenda for the energy transition "(SINTEG). The project demonstrates the best practice solutions for a sustainable energy supply and illustrates the key attributes of energy transition: cellular, participative and diverse. The C/sells community consists of 57 partners from science, industry and grid operations. They test technical components and use cases in 35 demonstration cells, and social involvement is researched in 9 C/sells cities. The project is based on a cellular form energy infrastructure which allows to create autonomous regional cells that interact at the supra-regional level with cloud-based infrastructures information system that promotes a regionalised market for ancillary service.	Ole Langniss
TOP-UP	Netherlands	ERA-Net project TOP-UP studies how TOP-down initiated heat networks can play a central role in integrated regional energy systems, and investigates how these top-down actions can empower bottom-UP participation among local actors and sectors, as to achieve the regions ambitious energy targets. It focuses on the integration of heat and electricity networks, and identifies and fosters optimal levels of local actor/sector participation. TOP-UP benefits from a varied team of experts in modelling, automation, and social sciences to optimize regional energy systems. TOP-UP develops tailored solutions for the Groningen (NL) and Copenhagen (DK) energy systems and studies how these solutions can be scaled and customized to other regions, making best use of local renewables and reducing the dependency on fossil fuels.	Thijs Bouman

SOLAR	Germany	SoLAR is a demonstration project supported by the Ministry of Environmental and Energy of Baden-Wuerttenberg, in which a real estate with 22 households in Allensbach, Germany has been equipped with Easy Smart Grid technology. Local PV and a CHP generation are integrated with heat pumps, electric vehicle chargers and showcase household appliances to balance the volatility of renewables and minimize grid load. Easy Smart Grid technology creates a local energy market to maximize consumption of locally generated energy, while minimizing control and storage complexity and thus cost.	Thomas Walter
SONDER	Austria	The ERA-Net project SONDER aims to develop a scalable, multi-service, and multi-level approach aiding the implementation of local and regional energy communities. It builds on existing knowledge of national and regional projects to investigate the potential of aggregation services for generation, consumption, demand response, and energy storage in a pan-European setting, including data centres, residential and industrial users. The enabling technologies are the use of existing consumption models, application of novel artificial intelligence (AI) strategies to optimize local efficiency with the goal to increase the amount of flexibilities by prediction, and active prosumer participation in a cellular, pan-European approach.	Stefan Wilker

3.2.2 MAIN QUESTIONS FROM THE PROJECTS' Q&A SESSIONS

Each project presentation was followed by a session of questions and discussions. The main questions and comments are collected in the table below:

Table 3: Main questions and comments by project

Project	Country	Main Questions & comments
Session 1: Electromobility integration in the energy systems		
INCIT EV	France	**What are the lessons learnt from your demonstration project related to driver's behaviour and the acceptance of incentives? Which other incentives could be interesting?** *It has been observed that the range anxiety is not there anymore, there is now a level of maturity from customers who understand that there may be different mobility solutions for the future. Customers want very agile solutions, close to where they live.* **Please give as an overview of advanced charging technologies used in your demo site. What are the benefits of these technologies?** *The starting idea is to make EV charging completely invisible by getting rid of multiple charging points and stations. The goal of the project is not only to test technologies which allow the car to be charged while it is parked (inductive charging), but also test the possibility to charge the car while in movement. These technologies will be tested in two cases: urban areas (best scenario as the cars go particularly slow) and less populated areas (worst scenario).*
Smart Otaniemi	Finland	***Please explain the concept of Smart Hub?*** *The aim of the project is to create a national level testbed to address EV issues and accumulate the knowledge on best practices. Specifically, the goal is to create this testbed from a network of living labs and individual testbeds. At the moment there is absolutely a need for charging infrastructures for commercial vehicles. Starting from the assessment of local mobility needs, two use cases have been identified: shared passengers' vehicles and high-power battery back-up charging for commercial vehicles like taxis.* **How do you take into account in your EV management system the needs of the users, especially the drivers?** *A range of different aspects are taken into account by the project: availability and status of the available equipment, payment systems, usability of the charging station, reliability, location maintenance and linked services.*
CLUE	Austria	**You are using digital currency and block chain technology to manage the charging stations. What are the benefits of this technology in the charging management?** *The project tried to have in the background a system which is more efficient than traditional payment providers. The benefit of including digital currency and block chain technology is, from one side, to Make it economical to pay for it and, from the other, to make it simple and easy to integrate.* **You mentioned that you can easily create rewards for the drivers. Can you explain shortly how it works and how this functionality can be used (e.g. to manage congestion problems)?** *The rewards for drivers will be mostly two: adjust the market prices according to the current supply of renewable energy (so that users can decide when it would be more convenient to charge their cars), and also create token that work as vouchers which could be received when acting in a valuable way.*
EVA	Switzerland	**How will autonomous driving affect the charging policies (and the distribution grid)?** *The idea is that in the future autonomous driving vehicles could contribute to the stability of the grid. For this purpose, it is necessary to work on the interoperability of charging infrastructures as well as on algorithms' optimisation and general public policy approach.* **How can charging infrastructure evolve in the future?** *In the long term, infrastructures which have been installed now should be able to adapt to a range of new different technologies, such as shared-autonomous vehicles, in a way that limits rapid obsolescence.*

Session 2: Cooperation between energy system operators		
INTERRFACE	Luxembourg	**What are the grid services provided by each operator (DSO and TSO)?** *Both DSO and TSO needs to provide services to ensure the stability of the systems. The architecture that INTERRFACE is developing is scalable and can accommodate different services (European services as well as local). INTERRFACE has tried to standardised certain services to accommodate the market integration across countries. Short term and operational congestion management, mFRR, aFRR are the main services tested in the demo of INTERRFACE. The project is testing the provision of the services mentioned above in different environment in order to showcase the scalability and replicability.* **What are the market models (the theoretical and implemented in different countries)?** *INTERRFACE starting point were three different scenarios according to DSO and TSO coordination: separated DSO/TSO congestion management, combined DSO/TSO congestion management with separated balancing and combined DSO/TSO congestion management and balancing. In addition, INTERRFACE complemented these models by providing different options for the level of integration between DSO and TSO merit order list.* **What data and how is it exchanged between operators?** *INTERRFACE has created an architecture that allows the seamless exchange of data between all the actors. INTERRFACE takes into account applied standards such as the common information model. The project allows both operators to have an overview of available flexibility in both grids, and of the merit order list.*
COORDINET	Spain	**What are the grid services provided by each operator (DSO and TSO)?** *COORDINET is considering different services: balancing, congestion management (common congestion DSO/TSO interfaces, local congestion), interface between DSO/TSO.* **What are the market models (the theoretical and implemented in different countries)?** *COORDINET is following 6 market models: central, common, multi-level, fragmented, and distributed.*
POWER POTENTIAL	United Kingdom	**What are the grid services provided by each operator (DSO and TSO)?** *Power Potential offer the following services: stability path finder, voltage path finder, dynamic voltage control (static and dynamic are not competing!).* **What are the market models (the theoretical and implemented in different countries)?** *Power Potential is trialling one model: back-to-back (contract between ESO and DSO). There are other models that we are testing outside the project: ESO is procuring services directly for the DERs, DNO/DSO aggregated services of the interface points with transmission, DNO procure services for themselves.* **What data and how is it exchanged between operators?** *At the moment there is a limited amount of data shared between Power Potential and distribution companies. We share ICCP link between Power Potential and DNOs but if we want to have a further exchange of data code changes are required.* *How are planning tasks coordinated?* *What is the level of cooperation between different operators of multiple energy carriers (e.g., electricity and gas, electricity and heating/cooling, etc.)?*
SCCER FURIES REeL Demo	Switzerland	**What is the measurement infrastructure needed?** *The measurement infrastructure was mainly composed by Phasor Measurement Units (PMUs) specifically designed for distribution grids. These PMUs were placed in strategic points to send measurement to the software platform that is continuously estimating the distribution system in real time. The battery control system strategy is composed by two layers: a dispatch plan of presumption and a second layer where an optimal power flow tracks in real time the dispatch plan.* ***Who is running the software?*** *The software is running in the control room of the local distribution operator.* ***Who owns the battery?*** *The battery is owned and operated by the DSO. However, in the real context in Switzerland it should be operated by a third-party entity.* **Which are the future functionalities that can be integrated in this project?** *There are many other functionalities that in the future can be implemented such as the voltage control, secondary frequency control, …* ***Which is one innovative element of the project?*** *One of the innovative elements is that you can do closer loop control in less than 200 milliseconds using a public wireless telephone.*
TDX-ASSIST	United Kingdom	**What are the grid services provided by each operator (DSO and TSO)?** *The services provided by each operator depended on the participants.in the project. In general, it discussed coordination, reactive power management for voltage control in relation with DSO/TSO coordination. The project had 12 system business use cases.* *Now for TDX ASSIST, the challenge is to have at EU level have DSO involved at the level of NTSO-E.*

		What data and how is it exchanged between operators? Based on common information model. TDX-ASSIST will publish a report next year about DSO/TSO data exchanges. It will have to discuss with European standards organisation to see how to go further.
Session 3: Digitalisation: Managing energy data and Cyber security		
PLATONE	Germany	**How has your project dealt with privacy and cyber-security issues given that the focus of the project is platform-based?** *That is where the blockchain access layer plays a key-role. This is because this access layer facilitates the security element from the DSO perspective; data is certified through the blockchain access layer. On the other hand, from a data management perspective, everything concerning the client would be managed according under GDPR. There is a very clear intent from the DSOs that plan on using the architecture to take the corresponding action to guarantee data protection.*
PLATOON	France	**The project mentioned that data was coming from heterogenous sources and formatting – how is interoperability ensured on semantic level? Are standard ontologies such as SAREF used?** *Indeed, the PLATOON's project the common data models are based on standard ontologies because the use-cases cover from generation to smart grids and also end-of-use. One of the things that was found is that SAREF ontology was not enough to cover all our use-cases so the PLATOON data model is based on several ontologies (CIM, etc) and even extends the terms of some of these.*
EERA data	Norway	**It's hard to grasp the impact of this project on a EU goals level – could you elaborate on the scope and scale of these use-cases and if your project is a digital use-cases or an energy system use-case?** *The objective of the project is to review these use-cases to see which data is being used and what data is needed in order to identify the gaps from this data set to optimised future data usage. To give a concrete example; the building's efficiency. For this, there is a buildings efficiency passport. The objective of the project is to connect research data with data that's available from practical applications but also the data being produced by different groups (like the one living in houses). The idea is then to bring all these data points together to improve energy efficiency of buildings. So, the project discusses these issues and comes up with joint standards on how to harmonise data and enable the fair principles like interoperability, etc.* **The use-cases that the project is developing, are they targeting a specific audience?** *Each of the use-cases includes the performance of a stakeholder analysis to understand who is using the data. We find that many different entities use them: private sector, private households, even funding programs, funding agencies that finance research projects. The latter also have a strong interest in the results of the project and how they are communicated. So, there are many different stakeholders that all have different needs which we need to respond to. Fundamentally the objective is to breakdown the very general idea of fair principles and operationalise them within the projects in order to translate them to the ground application. The project aims to link different scales, different topics specifically for enabling integrated energy system data infrastructures.*
REDAP	Germany	**Your project has identified future integration potential - in terms of demonstration activities. How much has this already been taken into account and how has it been planned/approached?** *The technology type that REDAP is working on, are geographic information systems. Their data format is specifically used for planning purposes, strategic project planning, location of infrastructure. It is interoperable with SGAM data format and there are translators available to translate GIS data into different formats. Currently, the project is not focused on any other data-format at the moment – the idea is to make the data model more perfect. However, looking at the available other data-models, the project's data-model could serve as a backdrop data-set on energy demand which helps to add layers of contextual information.*
LARGO	Austria	**Do you intend to do testing on any type of smart-grid application from any type of 3rd party entity? How do you think your project will achieve this?** *The key is to start with the use-cases. When looking at the general question of deploying software for something like an alpha project, it was found that many of the issues in relation to software complexity will be relevant in 5 years but not yet today. However, the use-cases on which the project is mainly focused, consist of voltage control on the grid side and an update of energy-management systems including electromobility, flexibility. Today, these issues are critically important issues which are typically addressed by the grid operators individually. The goal of the project is to bring best-practices and a general vision for the operators in solving these issues.*

SYNERGY	Spain	*Despite its imperfections, the role of CIM will be extremely important in any sort of data exchange in the electricity domain because it covers almost all operations of the energy enterprise including markets and is the basis of the common grid model.*
Session 4: Consumer involvement, citizen engagement and energy communities		
C/SELLS	Germany	**Do you think that the financial factor influenced the drive of the people involved in the project to participate? What were the other drivers?** *When talking about commercial costumers the drive is the commercialisation and business opportunity that can derive from it. For private costumers, there is a drive of being part of the movement: the community plays and important role in ensuring engagement. The feeling of contributing to the energy transition has a significant positive impact in the communities' engagement.* **You have some experience both with the traditional and the new energy system. How the costumer has evolved and how is its involvement changed?** *Costumers are attracted by the positive incentives and benefits of participating in the project, as well as by the increased autonomy and decision power. In the case of C/sells, the implementation of an innovative technology has been both a key to the success and a driver for further innovation.*
TOP-UP	Netherlands	**What kind of insights can project like TOP-UP provide on the consumers' behaviours in energy communities?** *The experience of TOP-UP helps us understand how people responds to changes in the energy systems. The project allowed to increase knowledge on the communities' drivers (e.g. money, community, or social responsibility) and generate expectation on how people will respond to energy changes and help understand their energy behaviour. Projects like TOP-UP can help give insights on the consumers' behaviour in order to improve models and algorithms.* **To what degree is the sense of community play a role in the local energy systems?** *The identity and community factors play a very important role in the compliance to the initiatives and on the behaviour during the energy transition. This aspect also plays a role in setting up the environmental values and goals linked with this kind of initiatives. It should be noted that not everybody wants to have an active role: other forms of engagement should be considered in the future, for example through a bottom-up initiative to be then implemented at the top-down level.*
SOLAR	Germany	**What was the role of the municipality of Allensbach in the project start and implementation?** *It was the municipality itself that 10 years ago took actions against climate change by creating a local task force, in which the local community took part. Consequently, the citizens were directly involved in the project from the very beginning and were the main driving force of this initiative.* **How important is the bottom-up approach? How does this mean?** *This approach is vital because the citizens itself drive policies. If change is needed, the people need to be involved in the process. The approach of citizens' engagement should be increasingly involved also in the energy-related EC initiatives.*
SONDER	Austria	**Your project focusses on the involvement of businesses in the energy communities. Which strategies your project put in place to engage these actors? What drives companies in participating in these initiatives?** *In Austria there is a huge interest in these kinds of innovation, although some obstacles may be related to bureaucratic and legal issues. Social responsibility seems to be playing an important role, particularly in recent years. However, it can be denied that there is an increasingly strong interest from the organisations to show a "green image" and showcase their environmental responsibilities to their clients.* **How can we involve organisations more and move over the financial discussion?** *SONDER approached a local organisation that helped informed the people and involve the companies through workshops and information sharing on the concept of the energy system that the project aimed to put in place. Additionally, the municipalities' themselves had a strong role in driving the communities' engagement.*
Jan Roschek (ETIP SNET WG4)		**We assume that it is a good idea that more people are energetically independent. Is that desirable?** *Distributed renewable and mostly locally consumed energy supports energy transformation and CO2 reduction, as well as grid stabilisation. On the other hand, the accelerating number of individuals and organisations that become energetically independent caused the non-prosumers to pay all the grid costs. This creates a division between the people that cannot participate in the prosumer's scenario (e.g., they don't have a rooftop in which to install solar panel). We need more participation models for consumers to ensure broad inclusion.* **How can digitalisation empower the costumer?** *Digitalisation can empower the costumer with data and context and the resulting information. However, it is also important to think in more detail on the interaction between the costumer and the technology through the interfaces, which should be user friendly and intuitive to ensure costumer's empowerment and proactivity.*

3.2.4 SLIDO QUESTIONS

In most of the parallel sessions, the audience was polled using Slido. Here an overview of the main results:

Session 1: Electromobility integration in the energy systems

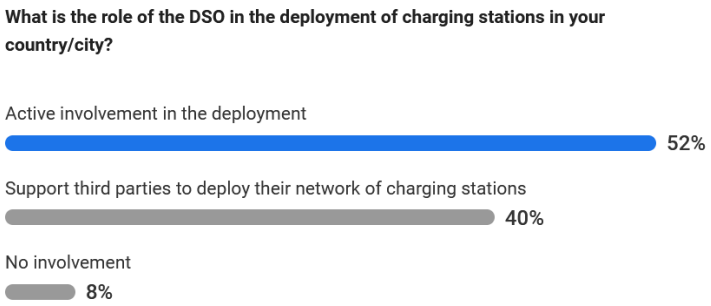

Figure 3: What is the role of the DSO in the deployment of charging stations in your country/city?

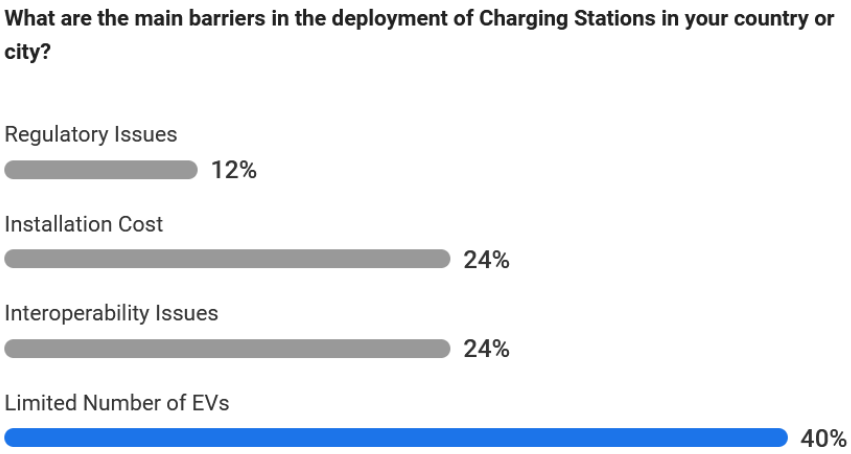

Figure 4: What are the main barriers in the deployment of charging stations in your country or city?

Figure 5: Express in one word the main gap in your country R&I agenda related to electromobility integration in the energy system

Session 2: Cooperation between energy system operators

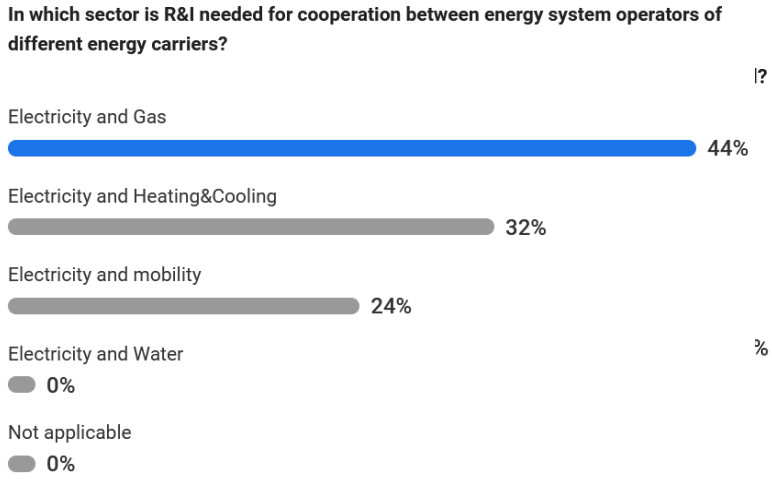

Figure 6: In which sector is R&I needed for cooperation between energy system operators of different energy carriers?

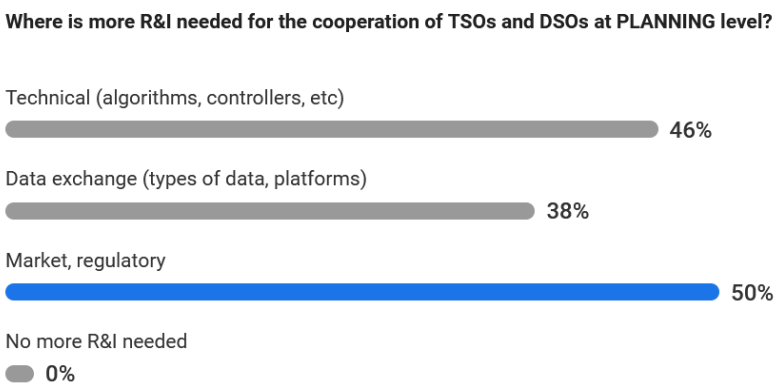

Figure 7: Where is more R&I needed for the cooperation of TSOs and DSOs at OPERATION level?

Session 4: Consumer involvement, citizen engagement and energy communities

Figure 8: Beside money, what drives people to actively promote the energy transition?

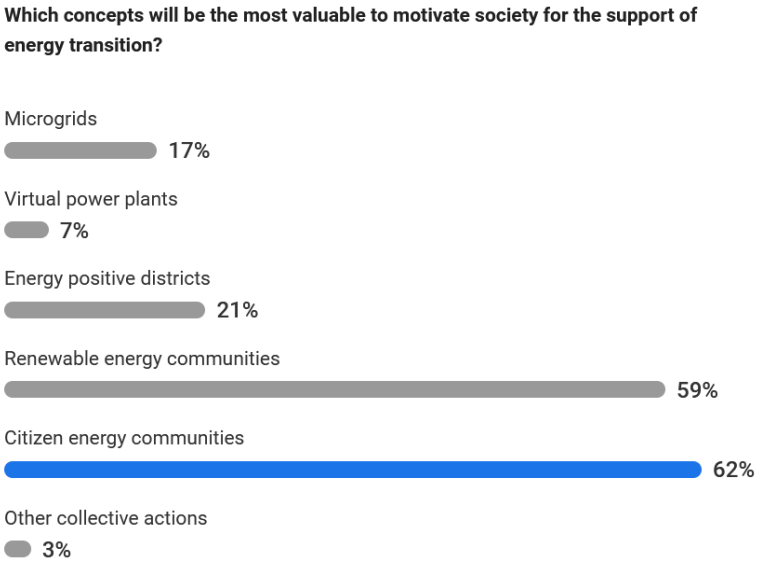

Figure 9: Which concepts will be the most valuable to motivate society for the support of energy transition?

Figure 10: Express in one/two words the main gap in your country R&I agenda related to consumer involvement, citizen engagement and energy communities

4. RECOMMENDATIONS AND CONCLUSIONS

4.1 KEY RECOMMENDATIONS FROM THE PARALLEL SESSIONS

The following key recommendations have been identified and discussed during the final wrap-up session of the workshop and are reported in the next paragraphs divided per parallel sessions.

4.1.2 PARALLEL SESSION 1: Electromobility integration in the energy systems

The focus of Parallel Session 1 was on electromobility and the impact in the grids. Four projects have presented their activities in this domain and many interesting aspects have been identified.

The first issue analysed was the needs of the end user, namely the driver. The project analysed different type of users (urban, commercial, etc) and identified that in several cases the battery capacity is no longer the main problem as there are sufficient number of charging stations and the average routes are not very long. Furthermore, the projects identified that the end user should manage lot of information (Charging station location, billing methods etc) and that the solutions cannot cover the needs of all users.

Next, the use of block chain technologies in the management of EVs has been discussed. Block chain technology could improve the challenge of coordinating many distributed, non-centrally coordinated EV. It can be used to manage charging stations as it can easily implement different types of rewards and furthermore, it is a cheap solution supporting different tariff schemes.

Moreover, wireless charging technologies are demonstrated in one the projects and the benefits both for the system and the end user are under analysis. This technology has some important advantages as it is less complicated for a significant part of the end users and requires less complicated management of the charging process.

Furthermore, the impact of autonomous driving in the distribution grid is under study in one of the projects. The focus of the study is how the optimisation of the driving route could create benefits for the system.

Finally, during the discussion some other topics have been mentioned:

- the collaboration between the charging process and the RES production is important.
- ENTSOe identified that the peak EV battery charging capacity (not on energy) on the grids must be considered.
- Currently, many (too many) stakeholders are involved in EV management and this requires new procedures and roles (business cases).

4.1.3 PARALLEL SESSION 2: Cooperation between energy system operators

The aim of parallel session 2 was to discuss the collaboration between TSOs and DSOs. This collaboration is very important in view of the wide penetration of distribution grids by Distributed Energy Resources and the need to exploit their flexibility for the operation of the power system with high share of Renewable Generation. In particular, the following points were discussed with panel participants:

- What are the grid services provided by each operator (DSO and TSO)?
- What are the market models (the theoretical and implemented in different countries)?
- What data and how is it exchanged between operators?

- How are planning tasks coordinated?
- What is the level of cooperation between different operators of multiple energy carriers (e.g., electricity and gas, electricity and heating/cooling, etc.)?

Interesting discussions have taken place regarding the activation and provision of services through various TSO-DSO coordination schemes, namely central, local and mixed. Standard products that provide services to the network operators were defined and tested. These services include balancing, controlled islanding, congestion management and voltage control. Other interesting outcomes of projects concern the development of a common architecture enabling the connection, data and information exchange for efficient coordination between the DSOs and TSOs optimizing operations and incorporating all energy value chain stakeholders. Different data are exchanged according to the requested services by the TSOs. An original, advanced demonstrated grid service was described by a DSO via a regional power market enabled day-ahead procurement of reactive power services from DER for dynamic voltage control with a Virtual Power Plant (VPP). Finally, in another demonstration, battery control setpoints are generated based on real-time knowledge of the grid state provided by Distribution System State Estimation (DSSE) using PMUs. The services provided are feeder dispatching, voltage control & line congestion management and primary frequency control. Moreover, the value of cross-sector energy coupling was presented based on the ETIP SNET White paper. Finally, the use of existing infrastructures like transmission lines and lignite coal power plant sites in future decarbonized system, where assets will have been withdrawn was suggested, e.g. for installation of hydrolysing units.

Overall, the feedback received from the discussions about the TSO/DSO collaboration underlines the high importance of the relevant topics for the efficient operation of the future power systems and the solid progress made in understanding the related needs and preparing the necessary market models and data infrastructures.

4.1.4 PARALLEL SESSION 3: Digitalisation as key enabler

The aim of this parallel session was to discuss the theme of "Digitalisation as a key enabler for integrated energy networks and systems", because of its high enabling relevance to almost all energy system integration aspects of all kinds of users with a view to analyse which solutions to R&I challenges and tasks / cooperation's / users have proven to be successful.

Questions were discussed with panel participants about what the attributes of "Use Cases" and what are the right "R&I-related TOPICs" to be further investigated in R&I projects.

The following outstanding remarks were made:

"Digitalisation is an enabler and is everywhere"

- How to select digitalisation UC from which we can truly learn in terms of digitalisation needs? What are the core digitalisation R&I issues? There are UC which talk about digitalisation but may not really contribute to the real issues which are strongly about data exchange, about scalability, about reuse, about gaps between who pays and who profits. R&I is needed which contributes to making Digitalisation-for-energy-system-integration more systematic, more reusable, and scalable.

"Digitalisation is more than data and numbers"

- A new R&I idea: Digitalisation may be about mapping compliance, legislation and regulation

"Digitalisation is about considering Data spaces beyond Energy-Data spaces"

- When making progress to the Energy Data space, R&I needs to consider that progress in many other Data spaces is ongoing at EU Level in Energy, Mobility, Health, Agriculture

- The Energy data space initiatives should consider the other Digitalisation-related European Initiatives: Horizon Europe, GAIA-X, Interreg all deal with digitalisation beyond energy.

"What makes Energy data special"?

- Digitalisation-related R&I needs to consider that Digitalisation for the specialised area Energy systems "may lose out": Digitalisation progress in other, non-energy system data spaces may "simply" be applied and be used in the energy data space
- The discussion covered many facets where no consensus could be reached yet: From "Energy customer / energy data owner must be the focus", "Grid make the energy system special", "real-time balancing needs makes the energy system special" to "there are and will be no boundaries, no or little speciality for energy data space"
- Remove borders of digitalisation
    - Become much more cross-sectorial, more interoperable, like done for EU Data Exchange Architectures, Link to Mobility, to manufacturing, to water sector
    - Needs of interconnect different sectors and see how and if data exchange architectures can be replicated also in other fields
- Gaps: Need to define benefits of digitalisation for DSO and consumers; create trust for digitalisation of energy
    - Privacy is one of the issues to be tackled especially in DSOs
    - Creating mutual platforms for sharing data

- Is energy data space more complex than other data spaces?
    - Masses of real-time data as justification for speciality of energy data space?
    - Distributed, decentralised energy system as special challenge, possibly not cloud based
    - Creating a Market Space not only for energy data, but ensuring also access to other data designing a kind of Data Library.

This feedback leads to the conclusion that not enough is known about what makes the "energy data space" special and distinctly different from the other "data spaces" such as mobility.

- More research and analysis is needed in this area.
- Discussion to be continued in upcoming ETIP SNET [Regional] Workshops

PARALLEL SESSION 4: Consumer involvement, citizen engagement and energy communities

The session title "Consumer involvement, citizen engagement and energy communities" had been chosen on purpose. Selected projects pointed to the fact that it is not enough to involve consumers as customers for new energy products. An ever-growing group of people want to contribute as "good citizens" to the energy transition process in their cities, regions and countries.

Representatives of EU-funded and transnational projects (from ERA-Net Smart Energy Systems) pointed some common findings:

- "Citizen" can mean persons in residential, business and public domains

Methods and tools for private homes and businesses need to match the needs of the different eco-systems. It seems that too many projects concentrate on residential end-consumers while potentials for reducing consumption and contributing to system stability are high(er) in businesses. It is necessary to understand that responsible functions in businesses are kept by people as well – which have besides economic success needs, expectations towards "normal" people.

- People are different

There is not one driver that fits all. Different groups follow different triggers. There seems to be a common understanding (at least with experts from the social sciences) that there are drivers other but reducing costs or

investing in measures with high return. Other drivers may be self-containment, independency and security of (self)supply or contributions to a carbon-neutral future.

- Communities can drive the customer and consumer participation

Peer pressure or joint engagement have been reported to be non-neglectable drivers – one reason why energy communities may make the difference when heading for a sustainable new energy system. Supplying, selling and sharing energy in groups of generators, prosumers and consumers, is a big driver for people to contribute to the change from a centralized and vulnerable to a stable and sustainable distributed energy system.

- Bottom-up and top-down approaches are needed

While it is important to create legal and regulatory frameworks on EU and national levels, there are good reasons to introduce new models and measures of energy supply into existing spatial and real estate planning, city and rural development. Involvement in local planning and decision making does not only unveil the needs of citizens but motivate them to participate in change processes.

- "Living labs" are key to get tangible and reliable solutions

Only when testing solutions in real live environment the soundness and sustainability of solutions can be guaranteed. But establishing such "living labs" is costly and takes time – often more than a single project can afford.

4.2 CONCLUSIONS FROM THE PANEL SESSIONS

The following key conclusions have been drafted by the Parallel sessions' moderators as key outcomes of the discussions.

They are reported in the next paragraphs divided per parallel sessions.

4.2.1 PARALLEL SESSION 1: Electromobility integration in the energy systems

The discussion with project representatives and panel participants identified some important issues. The main finding is that the solutions should be friendly for all type of users (urban, commercial, etc) reducing the amount of information that should be processed by them (location of charging station, payment method etc). Therefore, future design of the EV management systems should be more user centric.

The typical size of the battery capacity, currently and in the future, seems to be sufficient for the majority of the end users. This fact simplifies the management procedure as less optimisation is required.

Several technologies could provide advantages for the domain, such as wireless charging, block chain or autonomous driving. These technologies should be further developed and tested in demonstration sites.

As a final conclusion, the research in the domain is quite advanced and some of the solutions have sufficient maturity level. These technologies will be important in the near future as the number of EVs is expected to increase significantly.

4.2.2 PARALLEL SESSION 2: Cooperation between energy system operators

The feedback received from the projects during the panel discussion and via the project surveys confirms the primary importance of the topic of TSO/DSO collaboration for the efficient and secure operation of power systems with high levels of Renewable Generation.

The findings from the BRIDGE projects demonstrated clearly that several services have been tried between DSOs and TSOs and different market coordination models have been designed. The formulation of services as products with standardized characteristics is an excellent outcome. The development of a common architecture for the exchange of data and information between the DSOs and TSOs optimizing operations and incorporating all energy value chain stakeholders is another important development towards the implementation of the TSO/DSO collaboration.

The regional projects have provided advanced results and original applications regarding specific services at the DSO level, like dynamic voltage control, grid-aware control of battery storages, data exchange platforms and data models. These services were provided to the TSOs.

In conclusion, we believe that research in the topic of TSO/DSO collaboration has reached high TRL levels in several aspects, however there is a strong need for more innovation focused, applied projects in order to test further the efficiency of the various coordination schemes, data exchange and more advanced services.

4.2.3 PARALLEL SESSION 3: Digitalisation as key enabler

Based on the feedback received from the project pitches, the short questions and answers after these project pitches, the opinions of the panellist experts during the panel discussion as well as the interactive surveys, the following R&I and Use Case-related aspects shall be refined for the theme "Digitalisation as key enabler" in the next versions of ETIP SNET R&I Implementation Plans and ETIP SNET R&I Roadmap.

From "Digitalisation is an enabler and is everywhere", "Digitalisation is more than data and numbers", "Digitalisation is about considering Data spaces beyond Energy-Data spaces", "What makes Energy data special", invite in the next ETIP SNET regional workshops ongoing R&I projects and discuss with their project experts and their experience gained in the projects, and with ETIP SNET WGs and BRIDGE experts

- on creating trust for digitalisation of energy, including related to privacy
- on defining digitalisation benefits for DSOs and consumers
- on creating mutual platforms for sharing data
- on approaches, methodologies, technologies and use(r)s to be able distinguish better between generic higher-level digitalisation enablers
    - such as needs for generic API, standardisation, interoperability, data exchange architectures generic Use Case description methodologies applied in multiple areas such as Energy, Mobility, Health, Agriculture

  and energy-integration related specific digitalisation enablers
    - such as SGAM, CIM, Energy-related cross-sectorial issues, masses of real-time data for real-time aggregation needs, decentralised subsidiarity-related energy reliability, security and market needs
- on understanding Digitalisation-related differences between European initiatives such as Horizon Europe, GAIA-X, Interreg (intend to) contribute in the area of Digitalisation
- on dependencies between "generic" digitalisation-enabling solution needs ((including the time when needed within between 2020 and 2050) as prerequisites for specific energy system integration digitalisation enablers and needs
- on core digitalisation R&I priorities, when they are needed, how R&I solution shall be used in what types of Use Cases - by going through the digitalisation-related TOPICs and Tasks defined in the recent ETIP SNET IP (Research Area 3, TOPICs 3.1-3.5 and related FUNCTIONALITIES / Use Cases)
- on (high-Level) Use Case needs to realize higher TRLs for R&I Tasks related to "digitalisation as enabler of integrated energy systems"
- on truly new R&I TOPICs and tasks, not yet specified.

4.2.4 PARALLEL SESSION 4: Consumer involvement, citizen engagement and energy communities

Based on the inputs from projects on the panel and polls with the audience the following should be considered when developing future roadmaps and implementation plans:

- Research, development and innovation (RDI) projects should more often and better involve consumers, contributors and potential customers into development process. To get to reliable results, diverse teams with technological, social and communication experts should be formed. RDI programmes should allow for and foster such multiform approaches.

- We should concentrate more on smart energy topics in existing development processes on municipal and rural level (spatial planning, SDG implementation programmes) and involve citizens into such processes. Research is needed to better understand how existing development and planning tools could be enriched with smart energy approaches.

- We need to investigate potentials of more participation in (existing) business entities. To that end, we need more technologies, methods and tools and more research to unveil the needs of small and medium sized businesses in different eco-systems.

- Since developing "living labs" to assess and test innovation in real life is time-consuming and costly, existing test environment should be maintained and motivated to support further research and development. In any case: we need more real live projects.

- We should better understand the relation of governance and people's expectations towards the future energy system. More insights are necessary on acceptance and effects of more democratic models in energy systems. Energy communities point to the right direction, but we need a better understanding on how they could be connected to establish a real "system of systems".

4.3 RECOMMENDATIONS FROM ETIP SNET WORKING GROUP 5 IN TERMS OF "INNOVATION, IMPLEMENTATION IN THE BUSINESS ENVIRONMENT"

The objective of ETIP SNET Working Group 5 is to mobilise experts in support of R&I work in EU to reach the market. It works closely with all WGs of ETIP SNET to utilize projects' results in support of R&I needs for the years to come.
In order to reach this aim, it is essential to have a homogeneity of technology classification and a universal approach that allows to coherently structure and analyse all data coming from projects.

WG5 has identified a list of technologies and systems in order to capture the smart grids systems from end to end. As a result, 5 groups of systems and 33 technologies and sub-systems have been detected. This classification has been first evaluated by WG5 (top-down approach) and then by researchers of the R&I community (bottom up). All the projects can self-classify themselves within this categorisation.

Following this adapted approach, WG5 experts have selected six projects (time was not available to send the prepared questionnaire to all the selected projects for the regional workshop) to which a tailored questionnaire was sent for classifying the research areas of their projects under the universal list of 33 technologies and give their verdict on this universality. The responses received were very positive giving evidence that ETIP SNET is making positive steps forward. This was reported at the regional workshop with positive remarks for those that have contributed to complete this cycle of validation.

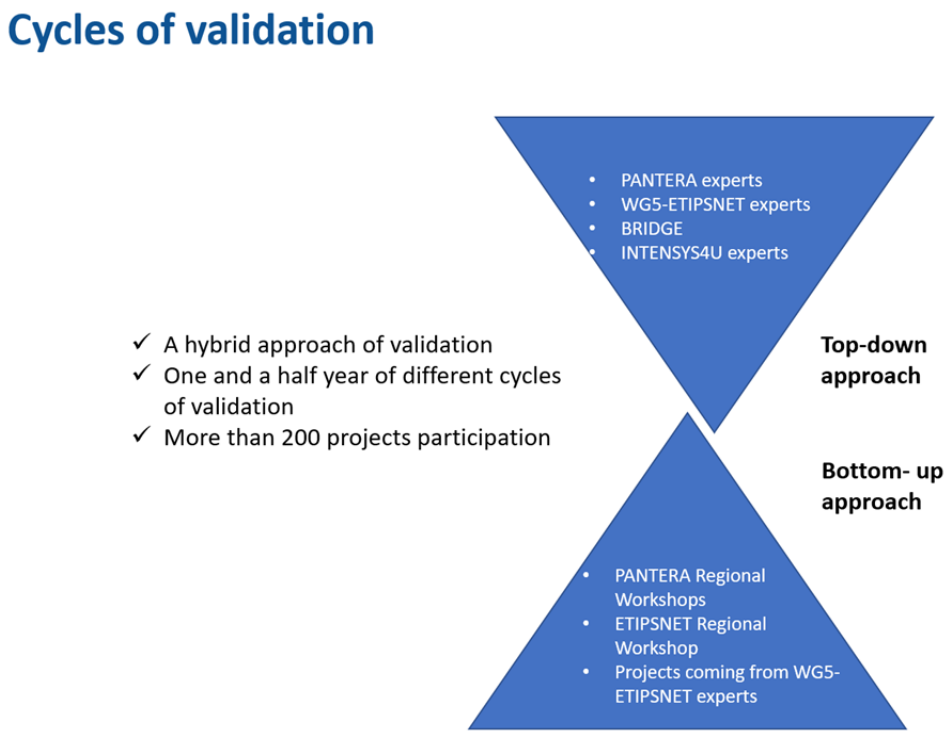

Figure 11: Cycles of validation

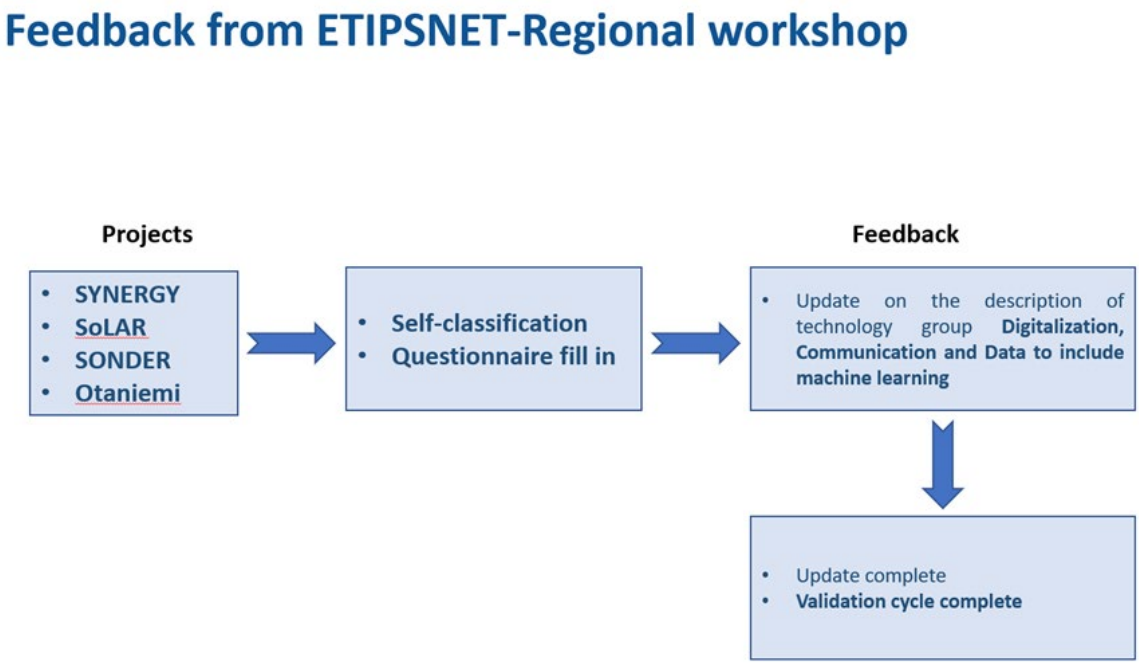

Figure 12: Feedback fro ETIP SNET Regional Workshop

A second questionnaire has been shared with all the projects presented during this 11th Regional Workshop. It is based on three pillars: innovation management, innovation readiness and market potential. The aim is to provide practical advice to projects with a focus on go to market strategy. It will also help the formulation of the Roadmap and Implementation Plan.

The questionnaire consists of 36 questions organised into six main areas covering the innovation facilitation:

1. Technical Description
2. Exploitation
3. Business Planning & Market Competition
4. Context & Ecosystems
5. Investors & Finance
6. Management

All the projects presented during this 11th Regional Workshop have been evaluated according to these six areas and each of them has received a specific score. Results are presented in the visualisations that follow.

4.3.1 FEEDBACK VISUALISATION: SESSION 1

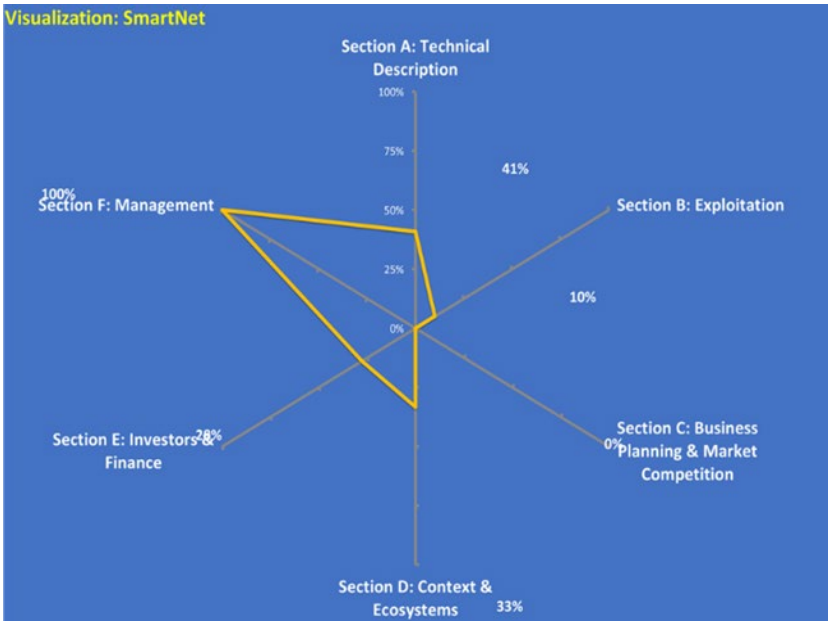

Figure 13: Visualisation SmartNET

Figure 14: Visualisation EVA

4.3.2 FEEDBACK VISUALISATION: SESSION 2

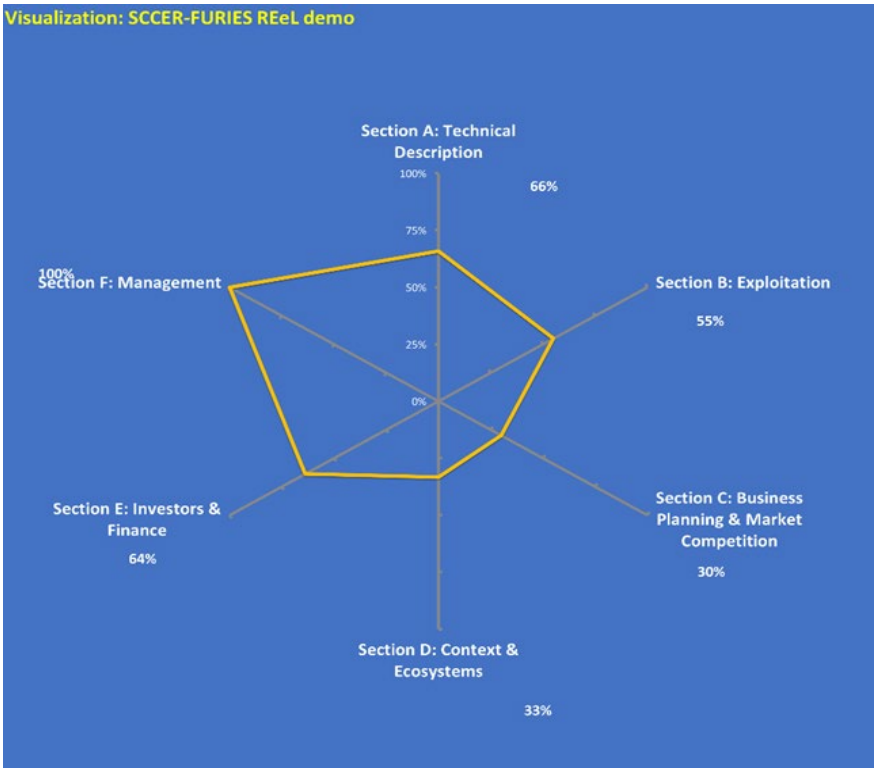

Figure 15: Visualisation SCCER-FURIES REel demo

Figure 16: Visualisation TDX ASSIST

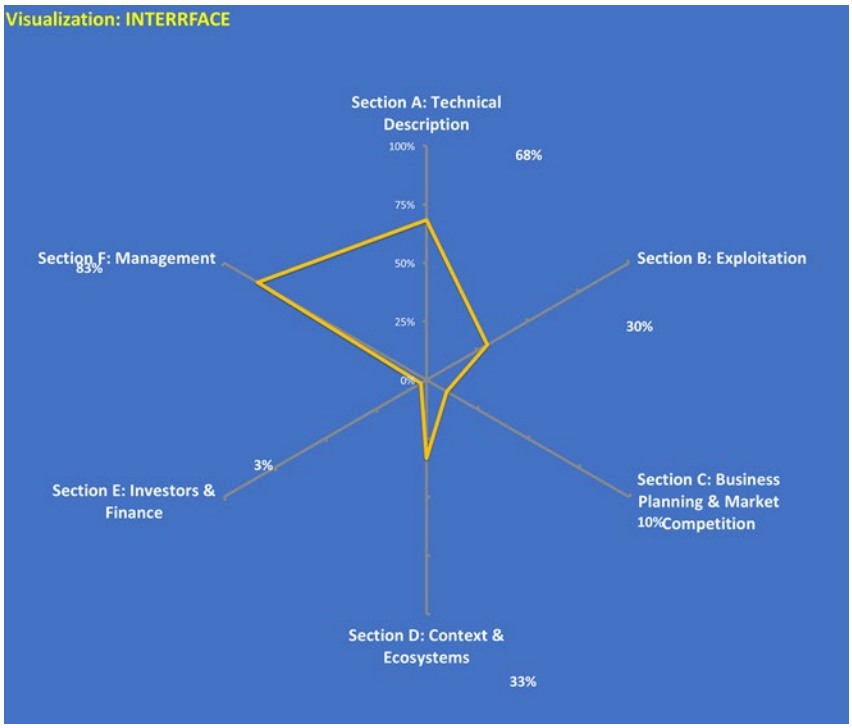

Figure 17: Visualisation INTERRFACE

4.3.3 FEEDBACK VISUALISATION: SESSION 3

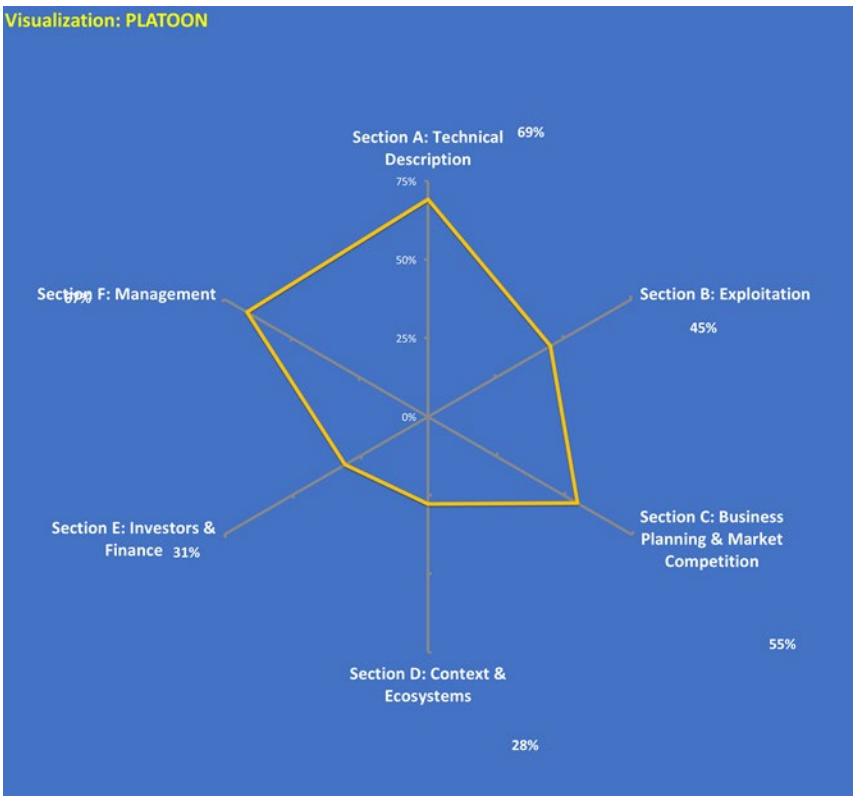

Figure 18: Visualisation PLATOON

Figure 19: Visualisation PLATONE

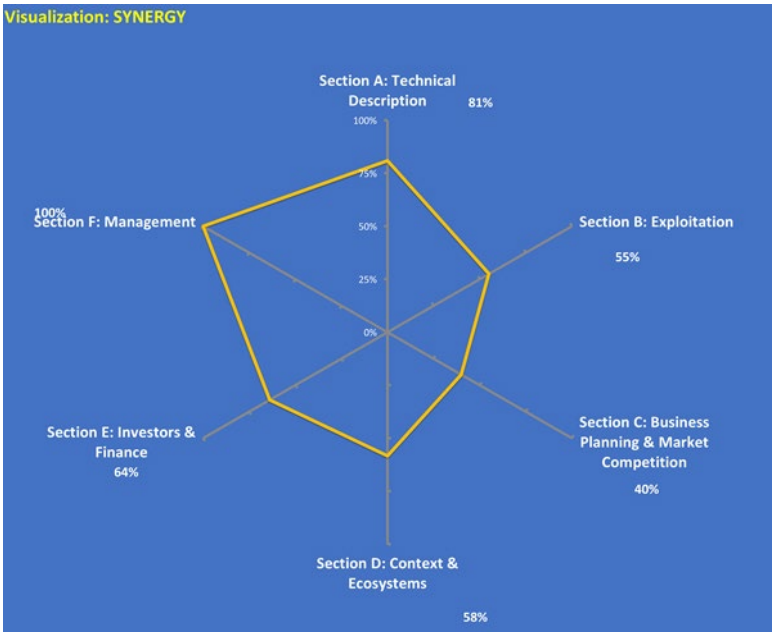

Figure 20: Visualisation SYNERGY

Figure 21: Visualisation REDAP

4.3.4 FEEDBACK VISUALISATION: SESSION 4

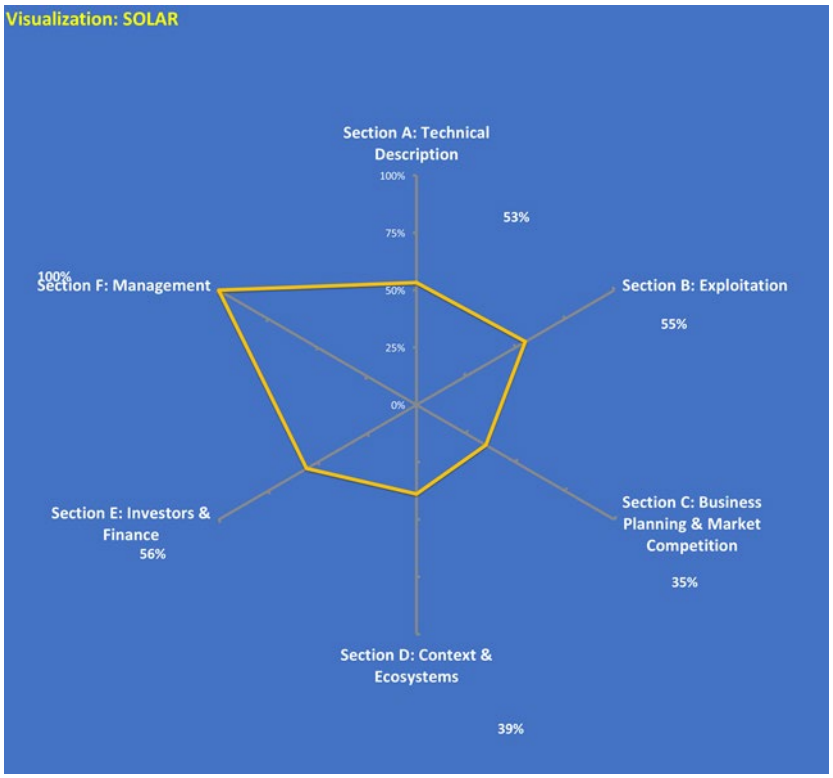

Figure 22: Visualisation SOLAR

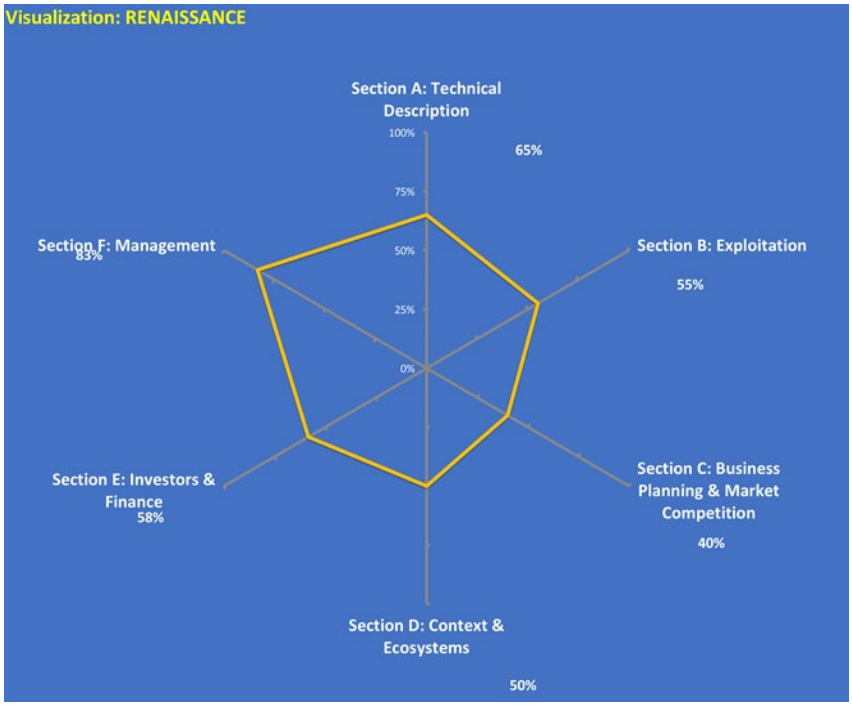

Figure 23: Visualisation RENAISSANCE

5. FEEDBACK FROM ATTENDEES

Participants to the 11th ETIP SNET Regional Workshop received after the event an evaluation form, where they could express their appreciation for the event. In total, 28 responses were received.

Overall, respondents judged the event positively:

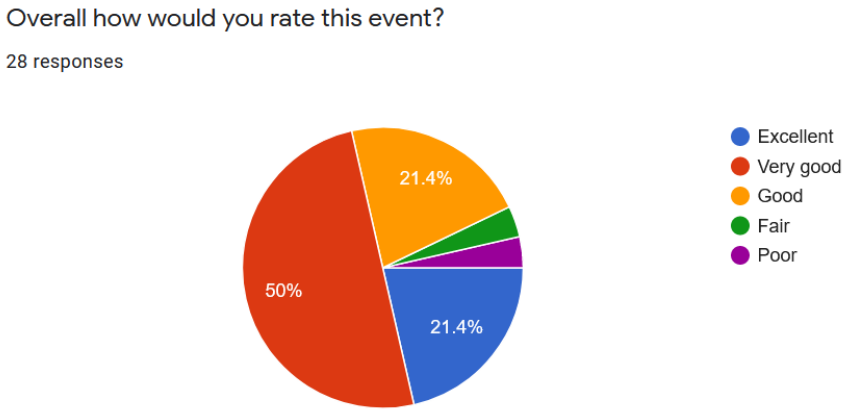

Figure 24: Overall how would you rate this event?

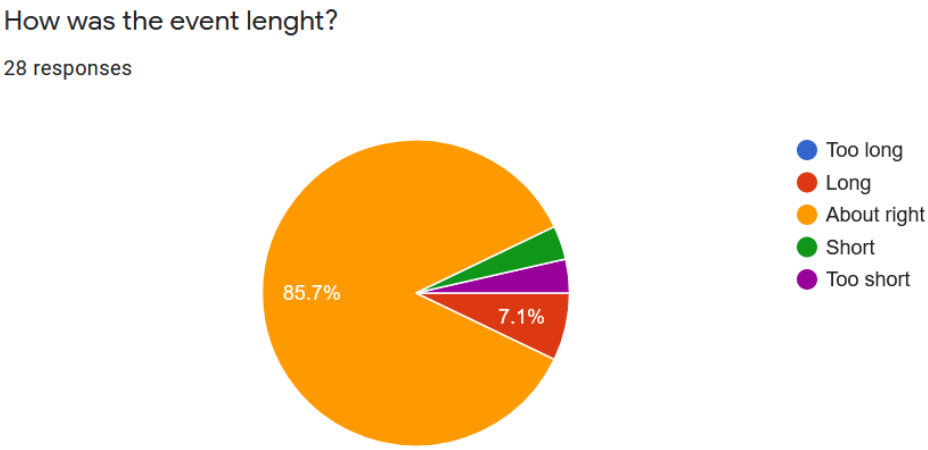

Figure 25: How was the event length?

Participants were also asked to express their opinion on the different sessions of the event. All sessions have been evaluated positively.

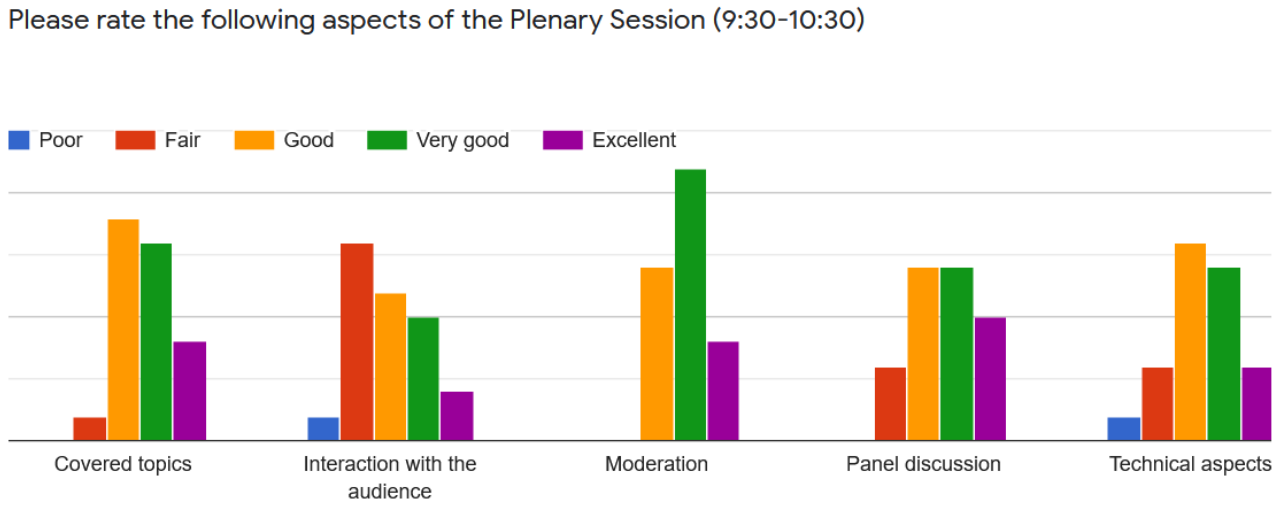

Figure 26: Please rate the following aspects of the Plenary Session

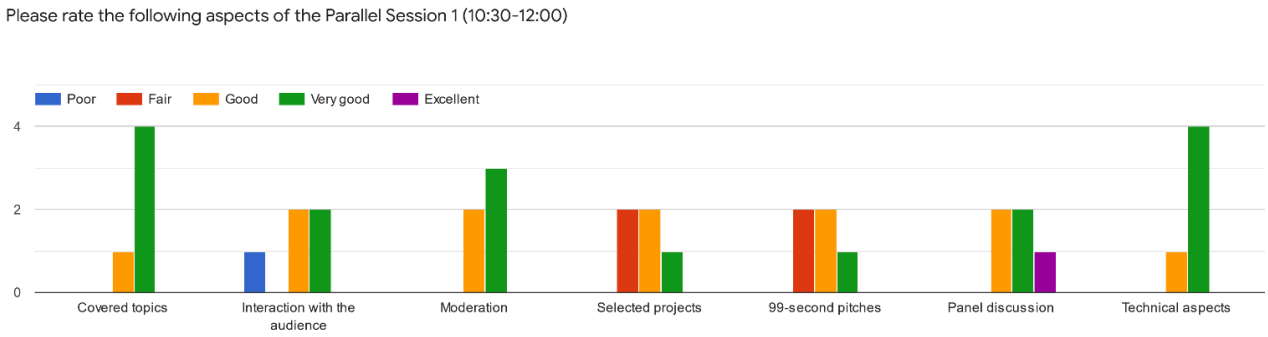

Figure 27: Please rate the following aspects of the Parallel Session 1

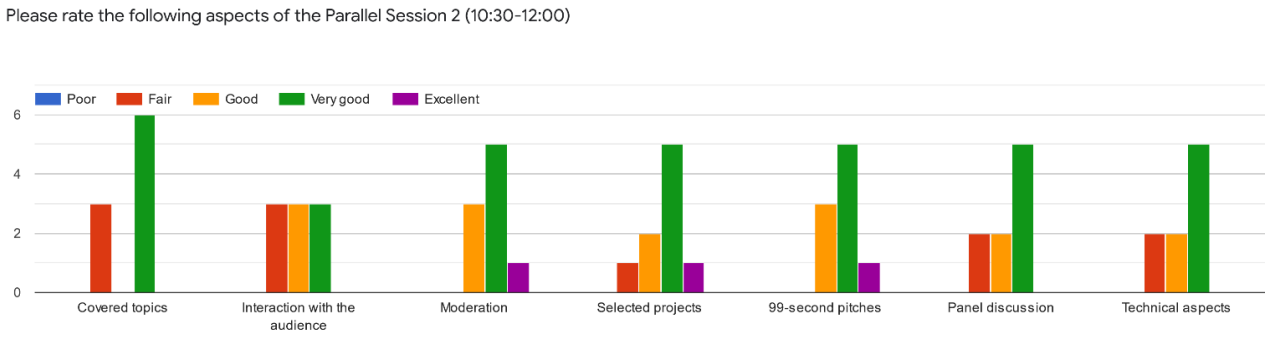

Figure 28: Please rate the following apsects of the Parallel Session 2

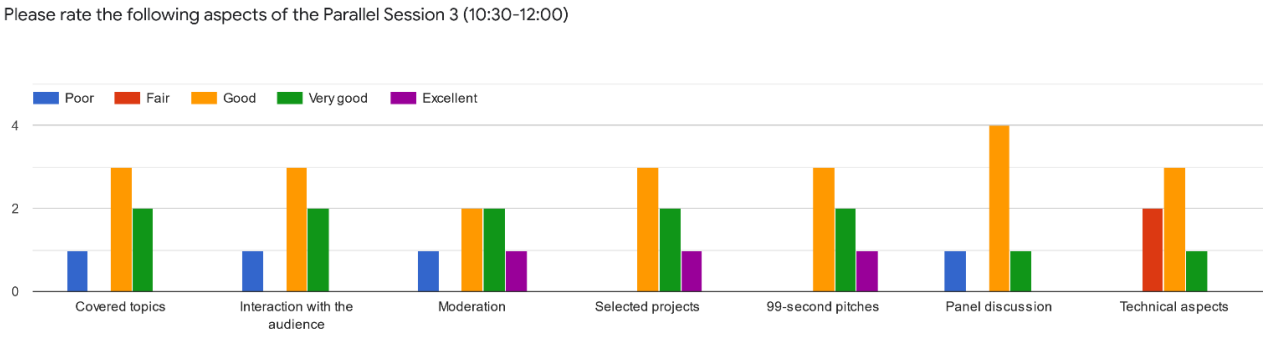

Figure 29: Please rate the following aspects of the Parallel Session 3

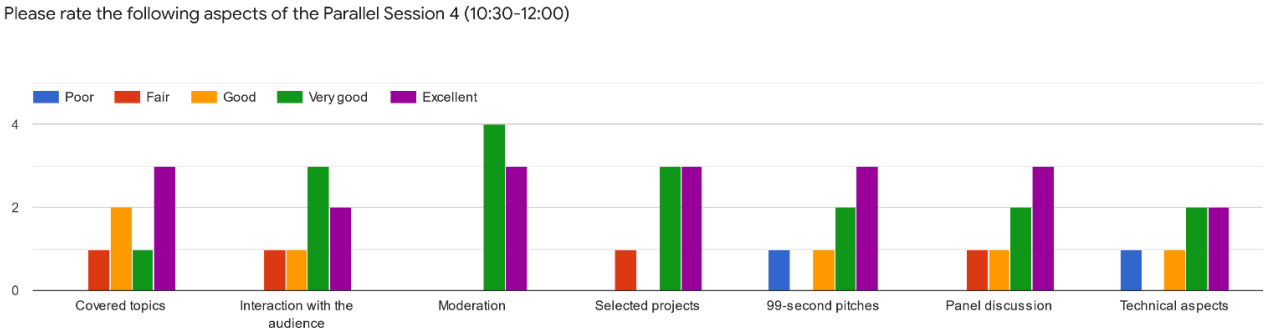

Figure 30: Please rate the following aspects of the Parallel Session 4

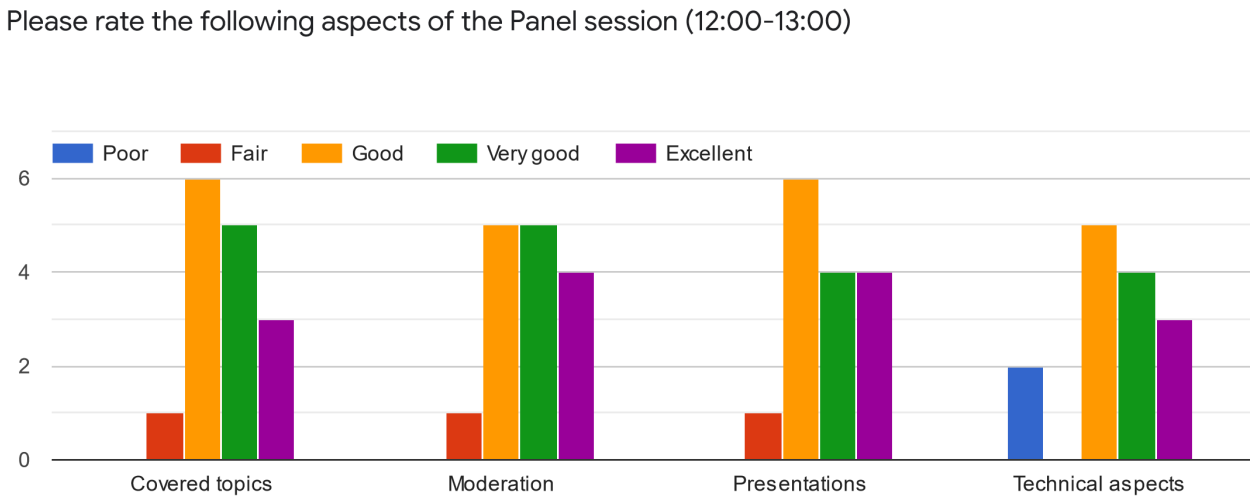

Figure 31: Please rate the following aspects of the Panel session

Among the suggestions, respondents included the necessity of leaving more space for interaction with the audience and Q&A among panellists