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SMAGRINET

POWERING SMART GRID
EXPERTISE IN EUROPE

his project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement no. 837626

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TAL TECH

Univerza v Ljubljani

TECHNISCHE UNIVERSITÄT DRESDEN

LOBA®

CIVITTA

ktu kaunas university of technology 1922

Technische Universität Berlin

ETL ESTONIAN ELECTRICITY INDUSTRIES

UNIVERSITÉ DE LORRAINE

DELIVERABLE 1.4.

MINUTES OF THE FIRST ADVISORY BOARD WORKSHOP

DELIVERABLE TYPE
Report

MONTH AND DATE OF DELVERY
Month 9 | December 2019

WORK PACKAGE
WP 1

LEADER
TalTech

DISSEMINATION LEVEL
Report | public

AUTRHORS
Ivo Palu
Karl Kull

PROGRAMME
H2020

CONTRACT NUMBER
837626

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START
April 2019

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Contributors

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Peer Review

Name	Organisation
Merylin Pill	TalTech
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Revision History

Version	Date	Reviewer	Modifications
1.0	20/12/2019		First draft
1.1	18/03/2020		Final version

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1. Executive Summary

During the first official Advisory Board meeting it was expected from the Board to provide recommendations on the networking and content of the current results of the the capacity building activities WP3 modules development and WP 4 short-term programmes. No binding decisions and votes were required from the meeting.

The meeting took place online in a WebEx environment in order to guarantee the maximum amount of participants at the advisory board meeting.
Workpackages 2 and 3 were covered in a more detailed manner. Each of the managing partners of the respective workpackage or task presented the information.

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2. Agenda of the Advisory Board meeting

EVENT: First SMAGRINET Advisory Board meeting

2.1. Agenda list

1) AB Introduction
2) SMAGRINET project overview (TalTech)
3) WP2 results (TUD,TalTech)
   - Overview of Workshops
   - Pooling list and the pooling of the needs survey – results
   - Evaluation or recommendations on WP2
4) WP3 results (TUB, KTU)
   - Overview of modules
   - University programmes for 2020 .
   - Evaluation or recommendations on modules development
5) WP4 workplans
6) SMAGRINET conference
7) End of meeting

2.2. Registered people

Anneli Roose	Civitta, Estonia
Boštjan Blažič	ULJUB, Slovenia (Online participation)
Catarina Pereira	LOBA, Portugal (Online participation)
Christine Michalek	TUB, Germany (Online participation)
Ivo Palu	TalTech, Estonia
Karl Kull	TalTech, Estonia
Kevin Berger	ULOR, France (Online participation)
Laurent Dupont	ULOR, France (Online participation)
Olga Kyselova	Dresden (TUD), Germany (Online participation
Tõnis Vare	ETL, Estonia
Marek Tull	VKG Energia distribution network
Jaanus Tiisvend	Eesti Energia distribution network
Karla Agan	Empower network construction
Kalle Kilk	Elering transmission network
Marko Karjus	AS Estonian Cell
Leho Kuusk	ABB AS
Jaanus Tiisvend	Elektrilevi OÜ distribution network
Timo Raimla	W.E.G Eesti

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3. WP2 2 results

3.1. Mapping of the stakeholders

This section was presented by Karl Kull from TalTech

Information covered:

The objective of this deliverable is to prepare the ground for the capacity building programmes by mapping the stakeholders from engineering, both academia and industry as well as SSH, public administration, policy makers and key societal stakeholders.

The concrete types of stakeholders in the mapped list are:

1. Distribution system operators
2. Ministries
3. Municipality bodies of larger cities
4. Production of Electricity
5. Trade of Electricity and Energy
6. Transmission of electricity
7. Universities

The consortium members provided the task leader information and suggestions on involving stakeholders. Many of the stakeholders provided were known associates and personal contacts of the partners.
Most of the initial information such as websites and addresses were physically gathered from national or international databases and worked through by the team members. Translation and information process were the biggest challenges during the task.

In order to guarantee a comprehensive list - 2123 entities from 27 countries are represented in the final edition. The list is basis for D2.2 pooling of needs, as online questionnaires are a part of getting feedback on the stakeholders specific needs.

The biggest group of entities are companies who deal with the production, distribution and trade of electricity. The result is logical as most countries have more than a few electricity producers, retailers or distributors.
The list also includes 150 universities who will be contacted by the SMAGRINET leaders in order to involve them in the SMAGRINET programs at a later stage of the project

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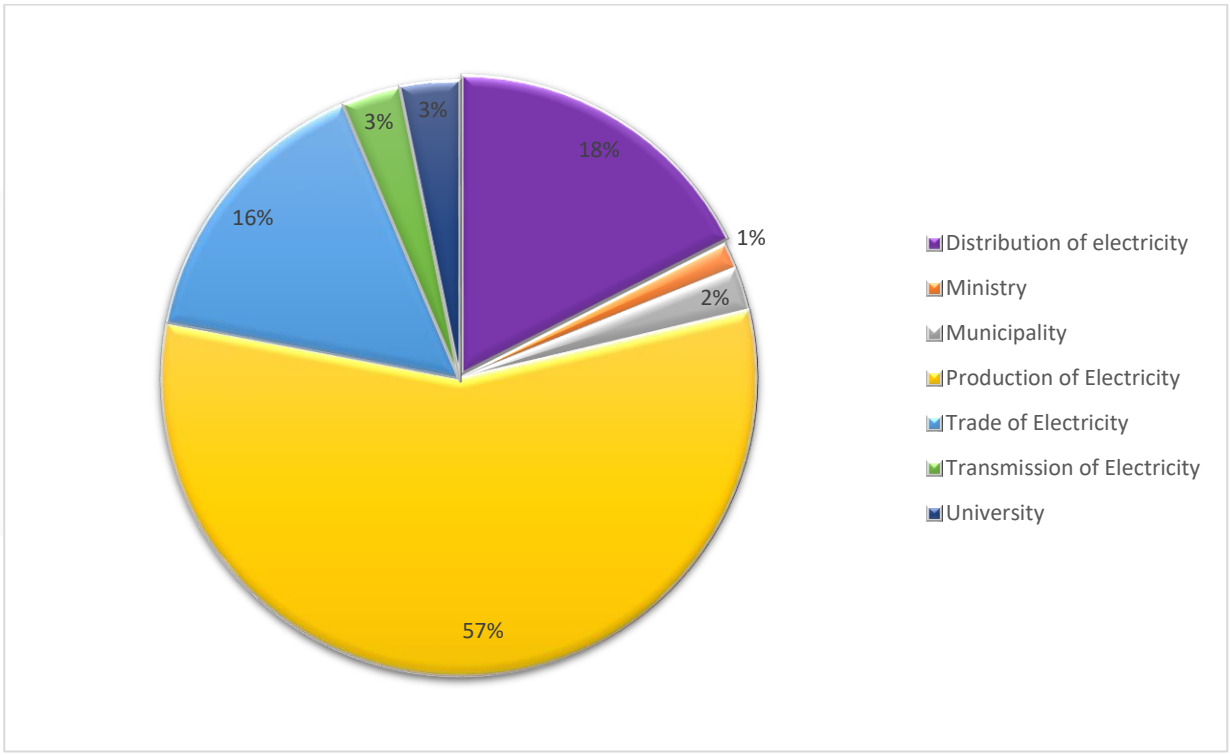

Figure 1: Distribution of entities

Germany, France, Finland, Sweden and Poland entities represent the biggest shares of mapped stakeholders in the SMAGRINET mapped list.
GDPR legislation has been taken into account in the respective EU Member States and the entities in the list have been mapped accordingly. This fact has hindered the result to some effect as personalised approaches cannot be used but a result of 2123 stakeholders has been created and it is more than enough for the sustainability of the project.

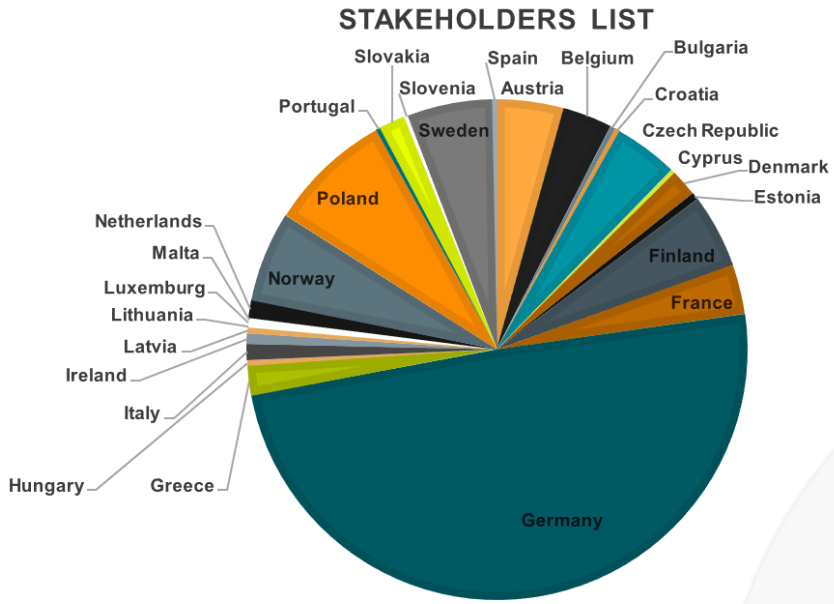

Figure 2: Distribution among countries

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3.2. Valdiating the skills, competences and reasearch and innovation needs for the energy transition

This section was presented by Olga Kyselova from TUD

The main goals of pooling the needs is **networking and knowledge sharing within academia and between academia and business** and **to identify and validate urgent and emerging knowledge, skills and competencies needs, pool capacities and allow rapid and wide replication.**

3.2.1. Activities which have been performed

On-line questionnaire "Smart Grid engineers – mapping and validating the needs" was distributed among the SMAGRINET mapped stakeholders between October and November 2019. Only 60 responders. From the feedback it was clear that people were not willing to provide personal details in the questionnaire.

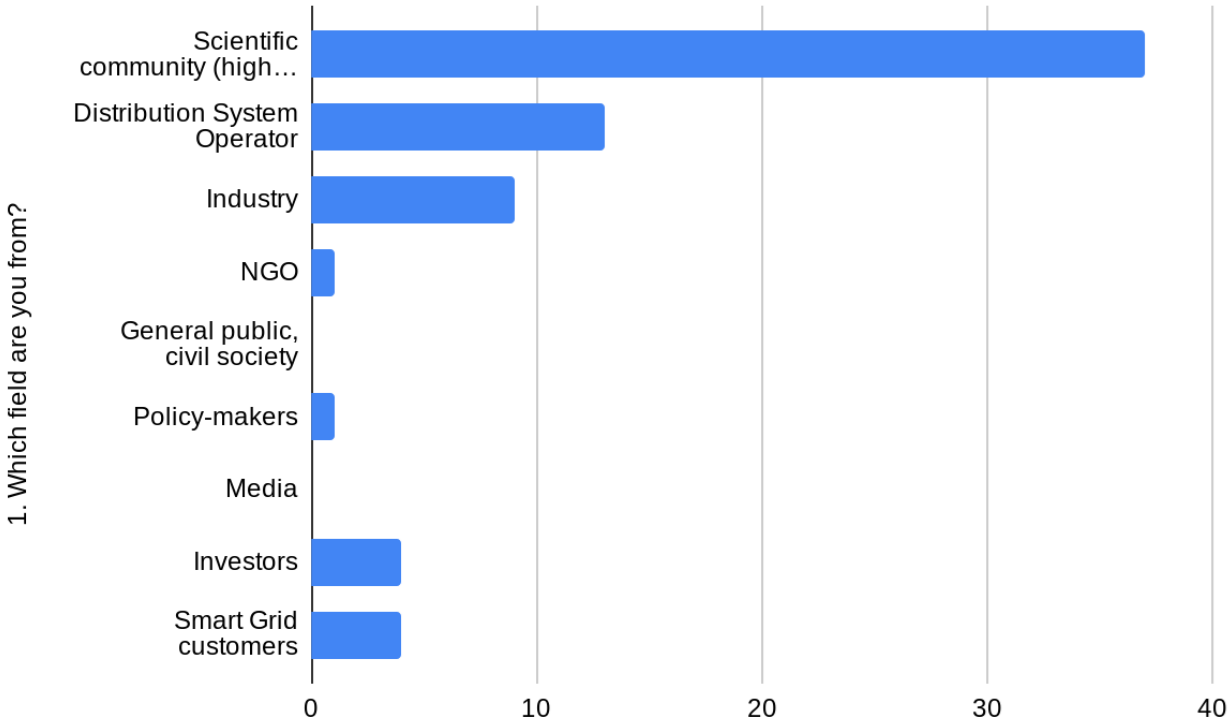

Figure 3: Participants of the questionnaire

Workshops "Electrical Engineers for Smart Grid – needs mapping and experience exchange"

- 2019 IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe), Bucharest, Romania, 02 October 2019

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- 16th European Energy Market Conference, International Conference, Slovakia, 18th to 20th September 2019
- International Conference “Power Electronics and Energy Efficiency”, Kharkiv, Ukraine, 12 September 2019
- 2019 IEEE 2nd Ukraine Conference on Electrical and Computer Engineering (UKRCON), Lviv, Ukraine, 04 July 2019

3.2.2. General results of the questionnaire

The stakeholders answered that the main barrier for implementing Smart Grid Solutions or Technologies is the availability of sufficiently qualified specialists. In order to prepare the future workforce it was foreseen that smart grid specific education should start at the electrical and power engineering masters’ level, validating one of the SMAGRINET program approaches of teaching the aforementioned level of students.
The stakeholders were indifferent on the matter of the subjects being taught as a specialty or just as a module.

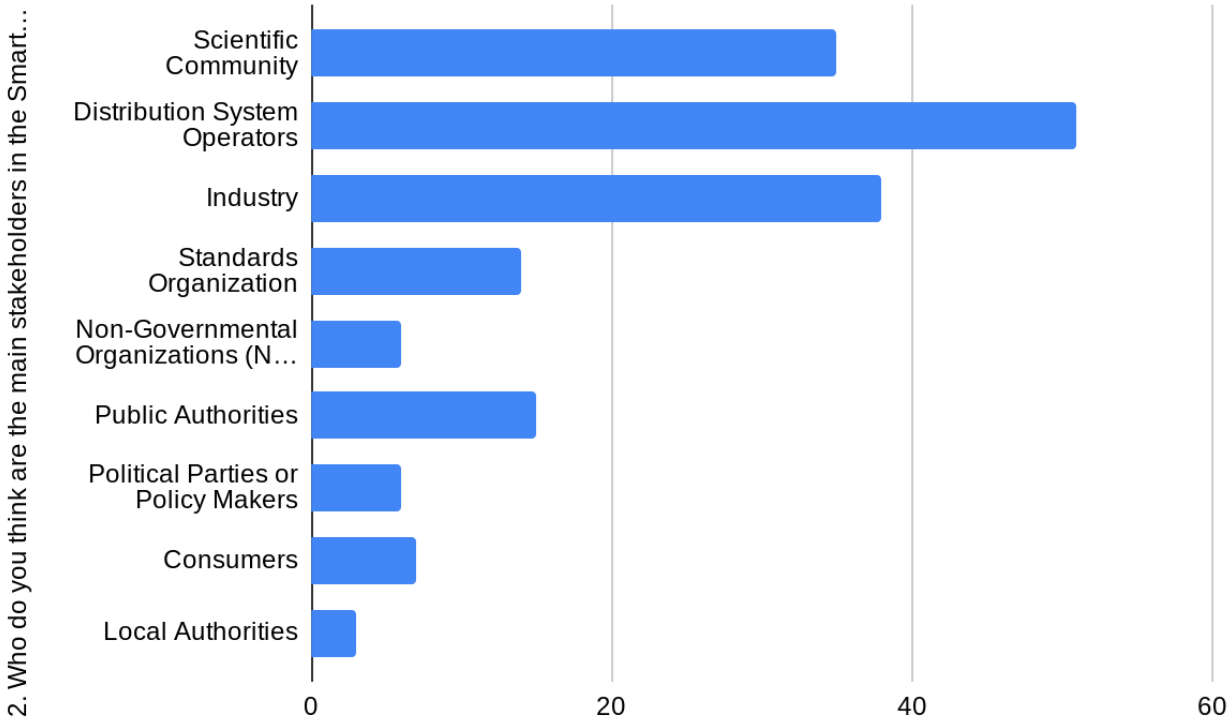

Figure 4: Who the stakeholders saw as the most important stakeholders regarding the Smart Grid subject

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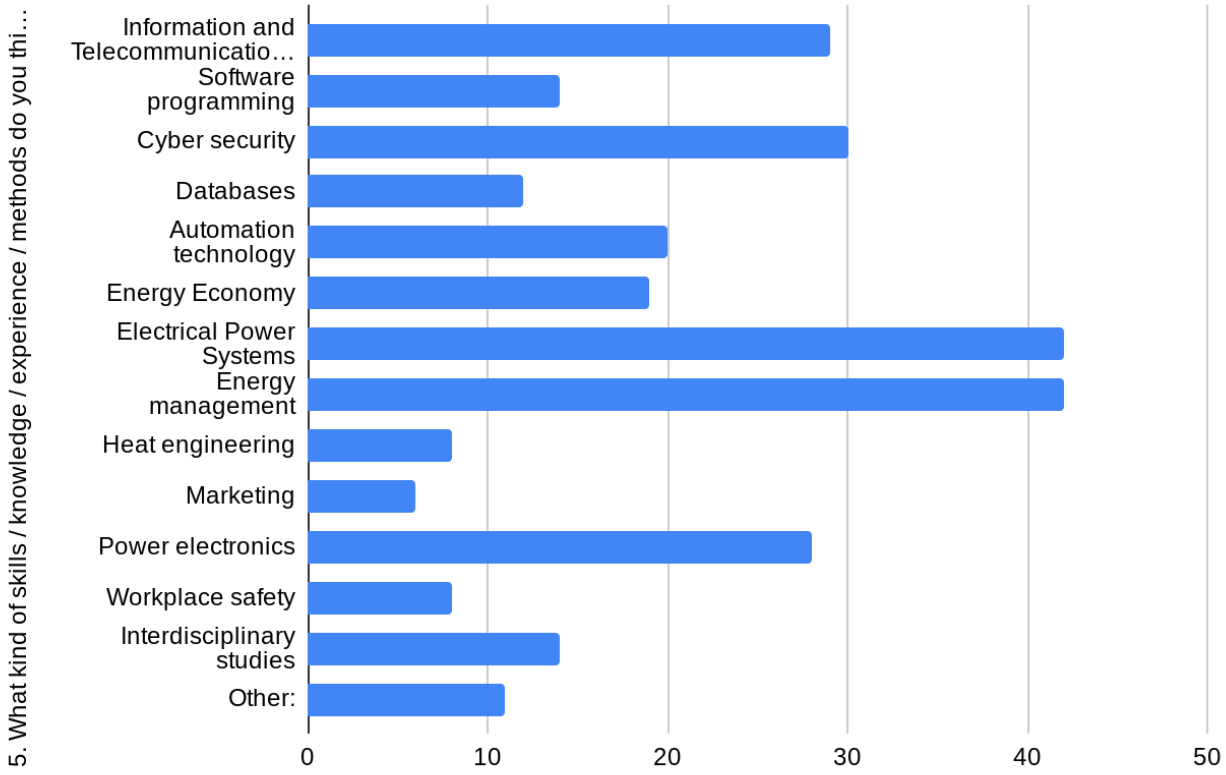

Figure 5: Skills needed for future smart grid experts

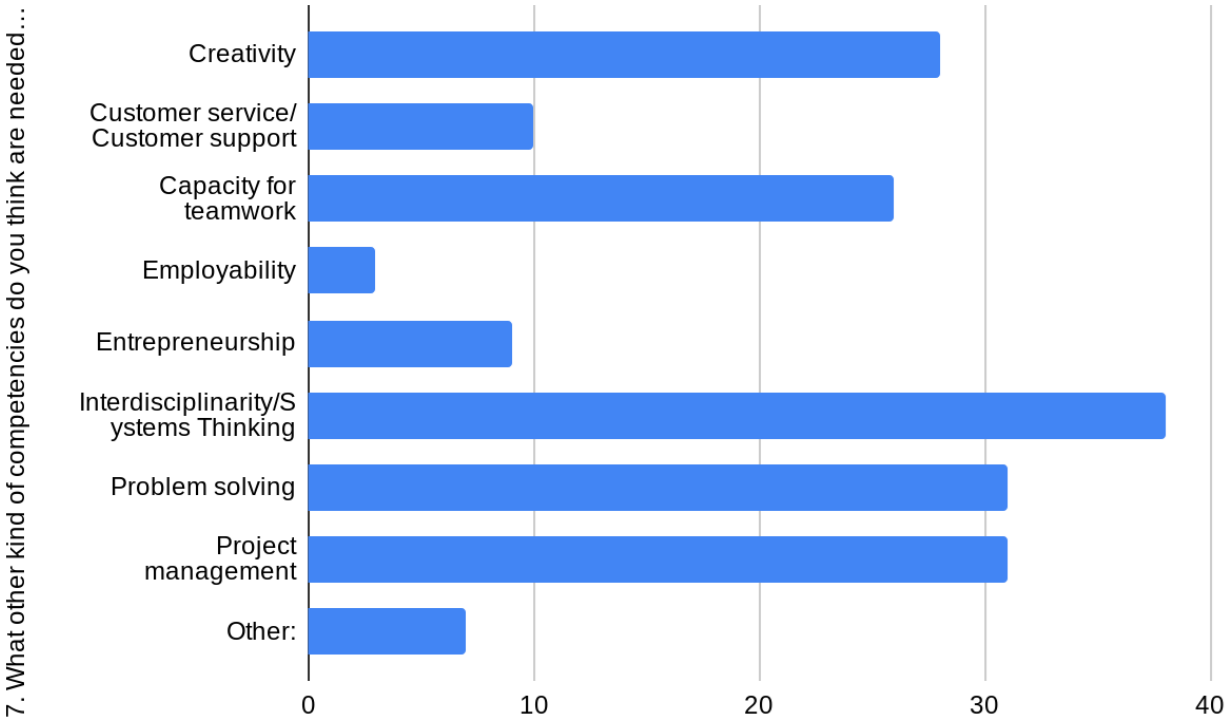

Figure 6: “Soft Skills” needed for future smart grid expersts

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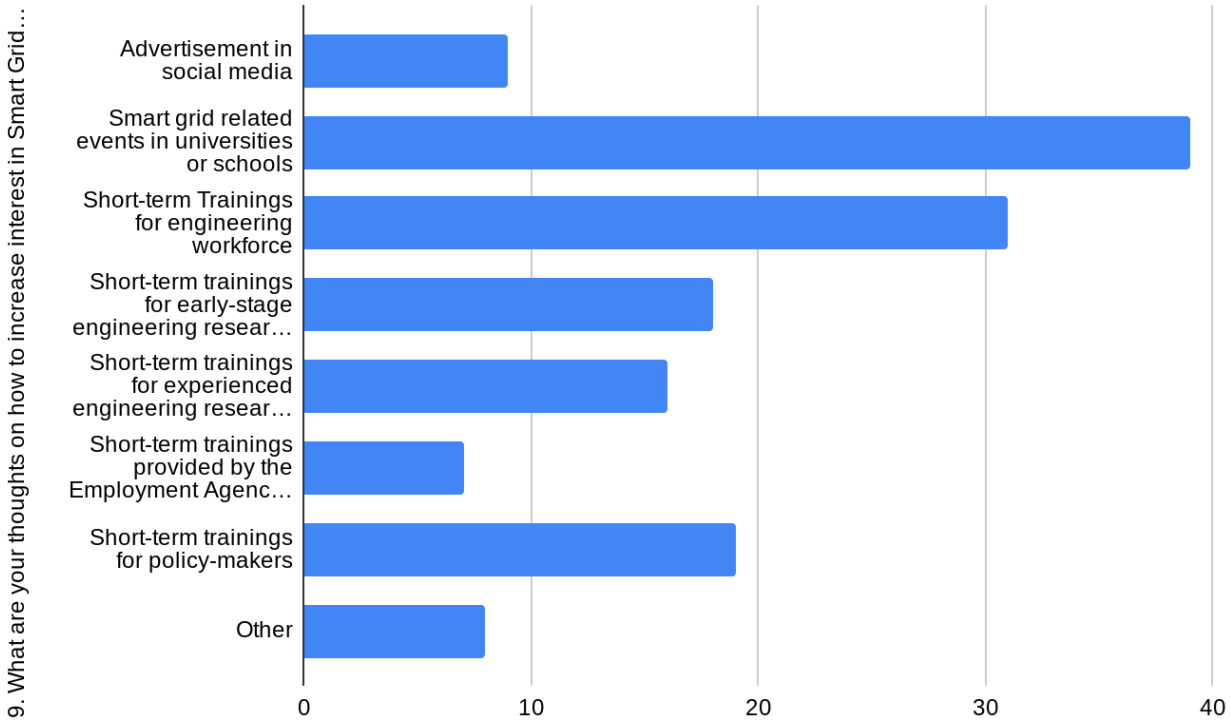

Figure 7: What methods should be used in order to increase interest in Smart Grids

3.2.3. SMAGRINET workshops

Main problems that were identified during the workshops:

- There is a lack of collaboration between industry and universities, resulting also in students lacking practical skills
- Students' knowledge is usually focused in one particular domain. For smart grids wide-area knowledge is required, specialization can come afterwards
- Students often lack soft skills and have a hard time understanding technical documentation
- There are differences between programming and simulation tools used by the industry and faculties

It was understood that companies could provide their experts to act as guest speakers and give lectures about their ongoing projects and challenges they are facing.
From there it was identified that university courses should be continuously updated and modernized and educational educational institutes must be in constant dialogue with the government and the industry. Furthermore, the stakeholders should be more involved in the observation of what kind of specific specialists are currently needed and where they are allocated.

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3.3. Suggestions for WP2 from the AB

- **It is most important that the engineers and societal players are able to understand the data that is being created by the smart grid itself.**
  The industry representatives in the AB stated that engineers and stakeholders today know the laws of physics and are more than capable with their hands but are sometimes unable to create added value from the millions to billions of digits of data that is created by sensors instaled in the grid.
  This aspect must be taken into account when creating the materials -data and information processing must be covered in the educational materials.
- **Run the questionnaire with the anonymous approach.**
  Regarding the fact that the share of respondents was low, it was suggested by TUD that the online questionnaire should be run one more time but this time the questions regarding personalised information should be made voluntary rather than compulsory and the inclusion of respondents should be better the second time around. The Advisory Board approved the idea.
- **Regarding the progress of WP2**
  Although the respondents share was low, the answers seemed to validate the core principles and ideas of SMAGRINET.

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4. WP3 results: Building Capacities for responding to emerging operational problems

This section was presented by Christine Michalek, M.Sc from TUB

4.1. Identifying Needs

Challenge and case-based modules are prepared for the next generation of researchers and engineers with interdisciplinary operational problem-oriented skills and mind-set for solving the ongoing and emerging challenges in energy transition.

Challenges that have risen:

- Amount of work neede to be done at a given university (ECTS)
- Number of lectures
- Time of implementation

Fortunately Kickoff Workshop and survey provided necessary information to tackle them.

4.2. Development of Modules

The lead of development is headed by Emilia Zimikute from KTU who is compiling the the lectures and tasks which are to be performed by students in 2020.

Three modules regarding the smart grid material have been created:

- **AI Role in a Smart Grid with Prosumers** covering:
  - AI data
  - Deep learning
  - Generalization
  - Unsupervised learning
  - Market participation
  - SCADA and EMS security

- **Economic Operation and Societal Challenges** covering:
  - Power sector regulation
  - Electricity market pricing
  - Congestion management
  - Electricity financial markets
  - Cost and benefit analysis
  - Environmental issues and societal challenges

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- **Connection Planning in Smart Grids** covering:
  - Demand characteristics, consumers, prosumers
  - Load and distributed generation forecasting
  - Allocation of distributed generation
  - Power quality in distribution networks
  - Integration of energy storage technologies
  - Planning of distributed network expansion

4.3. 1st round of implementation of modules in 2020

The first round of modules will be implemented at partnering universities in 2020. Each module will be implemented once in a different format at two universities in 2020.

Timeline of the 1st implementation:

KTU: beginning January 2020
ULJUB: one week in June 2020
TalTech: beginning January 2020
TUB: one week in January 2020
TUD: beginning in April 2020
ULOR: January/February 2020

After the 1st round an evaluation round will be performed in order to better the materials and fit the modules for diferent systems.
2nd round of implementation will take place in the first half of 2021.

4.4. Next steps in WP3

- Piloting the modules during the first half of 2020
- Evaluation and adjustments
- 2nd round of implementation at partner universities in first half of 2021
- International Mobility ·
  - Lead: ETL
  - Internship for up to 5 students per university

4.5. Evaluation for WP3 from the AB

Continue and keep on working on the course of the objective to finish the modules.
The information provided on WP3 cleared up a question raised during the WP2 discussion regarding the data processing educational aspect.

The Advisory Board recognised the hard work that has been put into creating the materials so far and is looking forward to the results of the evaluation report.

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5. Short-term blended learning programs

This section was presented by Laurent Dupont Senior Researcher from ULOR

ULOR had just finished with the first version of their deliverable and all of the elements will be shared with the consortium soon. In general different approaches have been suggested regarding the short-term programs and the idea should be presented for the EU.

WP4 is still anticipating on some results from previous WPs regarding the needs of different stakeholders.
It has been important and challenging to figure out which kind of methods should be used for approaching different stakeholders. In order to tackle this challenge a number of workshops have been done with different stakeholders being involved.

As the suggestions results had not yet been distributed among the participants before the Advisory Board meeting, a further discussion did not follow at the meeting and the subject will be cover at an upcoming meeting. The material will be sent to the members of the Advisory Board.

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6. SMAGRINET conference in 2020

This section was presented by Anneli Roose from CIVITTA

- The conference is a bigger event than a workshop.
- It will take place in April 2020 in Tallinn.
- Expected at least 100 participants.
- Is going to be a 1 day event
- Vision is to have key speakers and two panels
    - One topic is the digitalisation of the grid
    - Second topic would be industry and education/research collaboration (modules and curricula)
- Key speakers that have been approached for presentations and panel discussions:
    - Ms. Kadri Simson, European Commissioner for Energy
    - Mr. Kristian Ruby, Secretary General of Eurelectric
    - Mr. Hando Sutter, CEO of Estonian Energy
- LOBA will help to promote it EU-wide.

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7. Main results of the AB meeting

- **It is most important that the engineers and societal players are able to understand the data that is being created by the smart grid itself.**
  The industry representatives in the AB stated that engineers and stakeholders today know the laws of physics and are more than capable with their hands but are sometimes unable to create added value from the millions to billions of digits of data that is created by sensors instaled in the grid.
  This aspect must be taken into account when creating the materials -data and information processing must be covered in the educational materials.
- **Run the questionnaire on an anonymous approach.**
  Regarding the fact that the share of respondents was low, it was suggested by TUD that the online questionnaire should be run one more time but this time the questions regarding personalised information should be made voluntary rather than compulsory and the inclusion of respondents should be better the second time around. The Advisory Board approved the idea.
- **Regarding the progress of WP2**
  Although the respondents share was low, the answers seemed to validate the core principles and ideas of SMAGRINET.
- **Continue and keep on working on the course of the objective to finish the modules.**
  The information provided on WP3 cleared up a question raised during the WP2 discussion regarding the data processing educational aspect. The Advisory Board recognised the hard work that has been put into creating the materials so far and is looking forward to the results of the evaluation report.
- **The AB is looking forward to the outcome of the short-term learning programs** as some of the board members are industry representatives and might be interested in implementing them. Maybe a collaboration can come out of it during the 1st phase of implementation.
- **AB will attend the SMAGRINET conference.**
- **Shortcomings in deliverables must be eliminated.**

End of the first Advisory Board meeting

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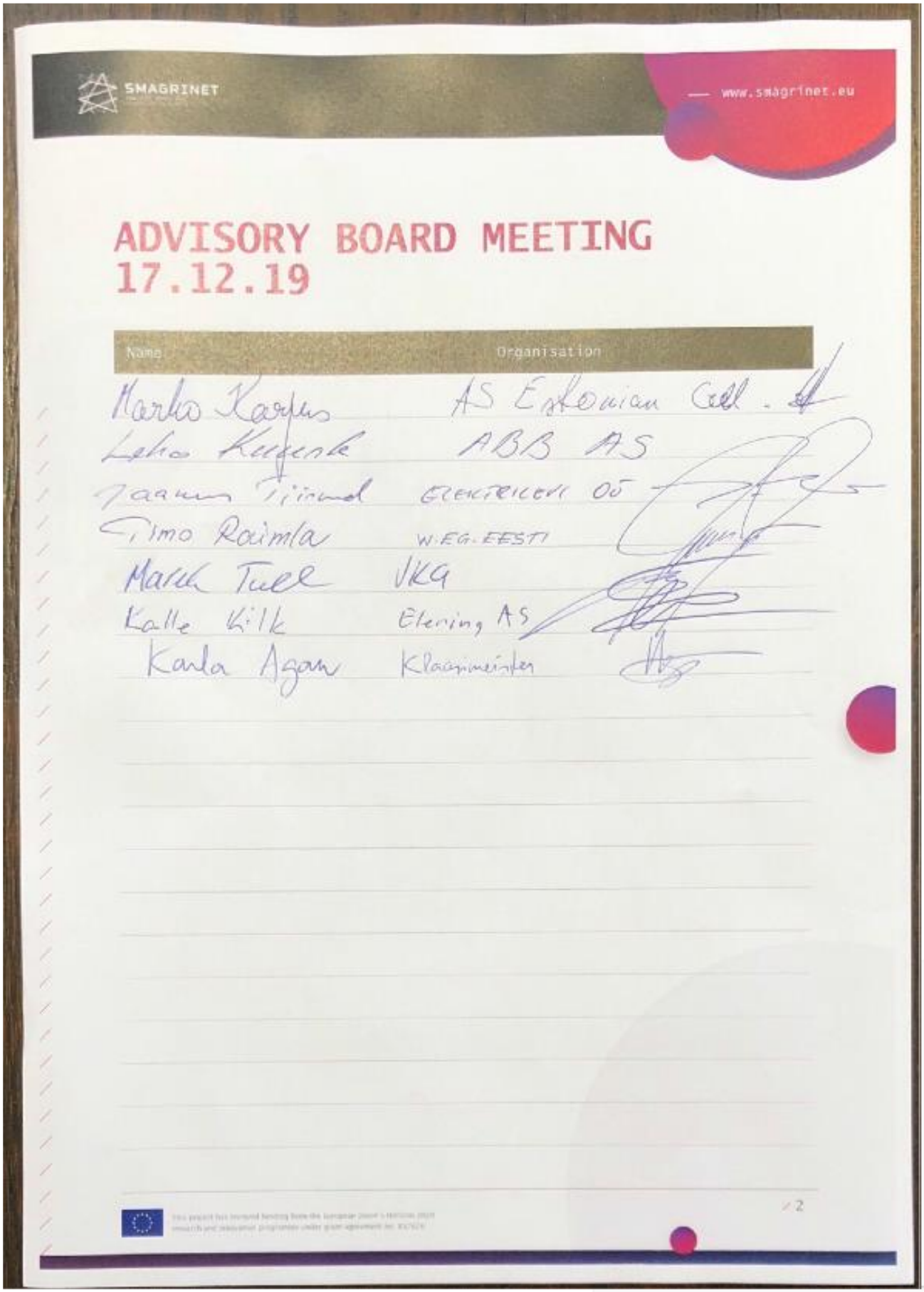

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ADVISORY BOARD MEETING
17.12.19

Name	Organisation
Karla Kaarus	AS Estonian Cell
Lehe Kuljenk	ABB AS
Jaanus Tiirind	Elektrilevi OÜ
Timo Raimla	W.E.G. EESTI
Mark Tuel	VKG
Kalle Kilk	Elering AS
Karla Agan	Klaasmeister

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