SOGNO

D7.3 v1.0

Report on events

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Abstract
SOGNO successfully established a continuous dialog with its different stakeholders through event organization and participation. The consortium members got important feedback on their results and disseminated the advantages of the SOGNO solution to the energy community. The project results were introduced into academic teaching and research. Special emphasis was put on creating synergies with other H2020 funded actions. Efforts to convince the main customer group DSOs of the SOGNO services need to be continued. An active dialogue with regulatory bodies and policy makers resulted in comprehensive proposals on policy, regulations and standardization.

Keyword list
Energy industry events, academic courses, H2020 projects synergies, stakeholder consultations, regulatory changes, SOGNO innovation events

Disclaimer
All information provided reflects the status of the SOGNO project at the time of writing and may be subject to change.

Executive Summary

The consortium members successfully presented SOGNO concepts and solutions at a high number of events throughout the runtime of the project. Different conferences, meetings and workshops were seized to explain the progress and results to stakeholders of the energy domain. Exhibition booths were organized at the mayor energy industry events European Sustainable Energy Week, Innogrid, European Utility Week and E-world. The feedback obtained served to improve the project's work and exploitation of the results. SOGNO results were also introduced into academic teaching and research via summer schools, graduate trainings and a new university course at RWTH. To create synergies with other H2020 smart grids and storage projects, joint events were organized wherever possible. A continuous dialogue with regulatory bodies and policy makers was maintained through several workshops, special sessions and stakeholder consultations. The consortium also managed to find new fields of impact and connect areas usually not linked with each by organizing SOGNO innovation events.

From the feedback obtained at these events it became clear that distribution system officers (DSOs) have to invest in better grid monitoring and control systems to prepare their networks for the upcoming challenges caused by on the rising share of variable renewable energies and e-vehicles charging. However, since they are not having problems with the grid stability yet, they do not see the need to do anything right now. More information and promotion hast to be done to raise awareness for the problem, highlight the advantages of the SOGNO online services and promote 5G to DSOs.

Recurring questions asked by stakeholders did address potential difficulties in a change of hardware and/or software provider and security concerns regarding cloud services where the data is stored on external servers. These doubts could all be resolved by the open system architecture of the SOGNO solution and the possibility to store the data on local servers.

Smaller DSOs were identified as of special interest within the SOGNO customer group since they don't have the resources to set up highly automated and AI enhanced grid monitoring and control services on their own.

The conclusion drawn from an active dialogue with regulatory bodies and policy makers via numerous stakeholder consultations were fed in comprehensive proposals on policy, regulations and standardization.

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1. Introduction

Over the duration of the project, SOGNO participated in and organized a high number of events to promote the project and its findings in the energy sector and academia as well as to engage in discussions with important stakeholders. The consortium partners presented SOGNO concepts and solutions at twenty-five different conferences, meetings and workshops and nine mayor energy industry events. The feedback obtained was used to improve the work conducted and to draw conclusions regarding the exploitation of the project results.

To introduce SOGNO results in academic teaching and research and make it available for future DSOs, four spring and summer schools as well as three graduate trainings for with ESB Networks trainees were organized. A new university course at RWTH on advanced monitoring of power system was implemented.

Special emphasis was put on the collaboration with other H2020 projects in a big number of joint events as well as the active participation in the BRIDGE initiative.

CRE organized several workshops, special sessions and stakeholder consultations with regulatory bodies and policy makers and successfully fostered support for SOGNO results and concepts.

To find new fields of impact and connect areas usually not linked with each, two SOGNO innovation events were organized resulting in a plan for a project to increase attractiveness of rural areas in the Germany.

2. Representing SOGNO and engaging with stakeholders at events

2.1 Presenting SOGNO and getting feedback of the energy industry

To disseminate the project's concepts and findings within the wider energy communities as well as to collect and channel feedback from the energy industry to the project members, a wide range of event participations targeting these stakeholder groups was organized. SOGNO was represented at several major fairs and exhibitions. The project's concepts and findings were also explained at numerous invited presentations, meetings and workshops.

2.1.1 Fairs & exhibitions

Booths and representations were organized at several major industry events:

- Stand at E-world 2020
- Booth & presentation at EU Projects Zone at European Utility Week 2019
- Stand at Irish Power & Energy Expo 2019
- Stand at European Sustainable Energy Week 2019
- Stand at E-world 2019
- Booth & presentation at EU Projects Zone at European Utility Week 2018
- Stand at European Sustainable Energy Week 2018

Figure 1 – SOGNO booth at EU Projects Zone, European Utility Week 2018

Figure 2 - Antonello Monti presenting SOGNO at the H2020 theatre, European Utility Week 2019

Being the main target group for the SOGNO solutions, reaching DSOs was of special interest. Therefore, the stands and presentations were organised at the EDSO conference Innogrid 2020+ in 2018 and 2019.

Figure 3 – Marco Pau presenting SOGNO at Innogrid 2020+ 2019

Figure 4 – Christoph Gieseke explaining SOGNO at Innogrid 2020+ 2019

To draw attention to the SOGNO stands and enable the consortium members to show the project at a glance and demonstrate the services and its benefits in a simplified way, showing components and use cases, the SOGNO model was developed at the beginning of 2019. It was upgraded with a USB-port at the model and a software package By TSSG to control the model by computer. It was used successfully at all following major events and drew a lot of visitors to the SOGNO stands at exhibitions, workshops and conferences.

Figure 5 – The SOGNO model at E-world 2019

2.1.2 Invited presentations, meetings and workshops

The project partners presented and discussed SOGNO concepts and results at a total of twenty-two invited presentations:

- National Power Summit 2018
- E-world 2018
- EON Innovation Day 2018
- IntelliSUB 2018
- Smart Grid Entech Meet-up at Impact Hub Ruhr organised by E.ON Agil (Start-up Accelerator) 2018
- Podium discussion "Life needs Power" 2018
- Digital Utility Transformation
- EuCNC conference
- SUCCESS Romanian Field Trial Open Day / EUSEW Energy Days Event
- ADMS Project Final Event
- European Utilities Telecom Council (EUTC) 2018 Annual Conference
- H2020 Low TRL Smart Grids and Storage projects clustering event
- 2018 annual meeting of FVEE Renewable Energy Research Association
- IEC 61850 conference
- IECON 2018
- 2nd IEEE int. Forum Smart Grids for Smart Cities
- Smart Grid Tech 2019
- CIRED - The 25th International Conference and Exhibition on Electricity Distribution
- RESERVE final event 2019
- RES event Bucharest 2019
- Event on digital substations
- Digital Grid Virtual Workshop: Integrating Customer Resources hosted by EPRI and Stanford University

Antonello Monti of RWTH presented and discussed SOGNO at several meetings of the *Flexible Electrical Networks (FEN) Research Campus*, an association of institutes of RWTH Aachen University and industrial partners. He also introduced the SOGNO approach of software as a service in a workshop on Digitisation Energy Value Chain by DG CONNECT.

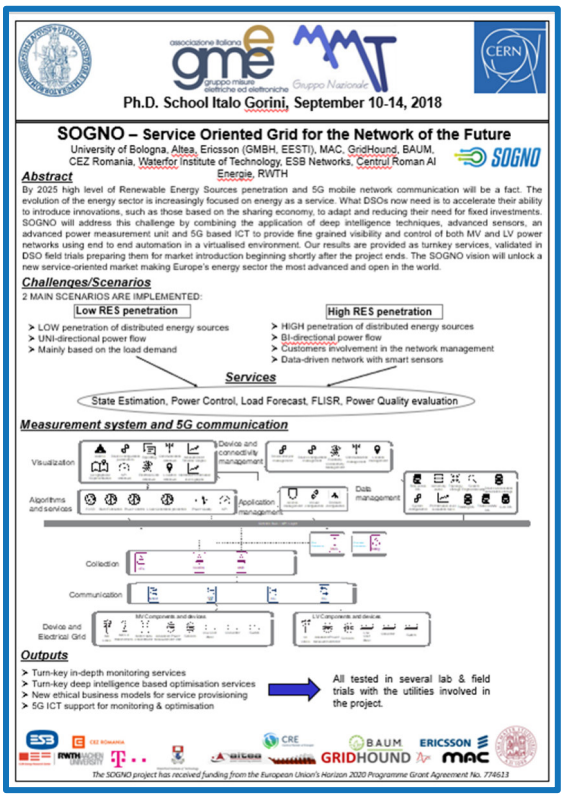
In 2018, the workshop “Managing smart grids” has been hold in Bologna. Several SOGNO partners presented all the peculiarities of the project to an audience of invited students, professors, and experts from the industry. In conjunction with SOGNO, the workshop hosted other European projects (like ADMS), which led to an open discussion about the lessons learnt from the two projects.

Figure 6 – Fiona Williams presenting SOGNO at the H2020 clustering event 2018

2.2 Academic courses: training the new generation

Another dissemination goal of the consortium was to introduce SOGNO concepts in academic lecturing and research. Besides publishing a total of nineteen scientific contributions to conference proceedings and journals, the academic consortium partners RWTH and UniBo organized and participated in several events to promote academia to develop the project's results further.

SOGNO content was introduced to four Summer Schools. The Italo Gorini Summer School is dedicated to PhD students which are studying electric and electronic measurements. Within the measurements scenario, those concerning power systems and smart grids are quite popular and of interest for the academic and industry communities. Therefore, the UniBo members presented the SOGNO project at the Summer Schools in 2018 (CERN – Switzerland) and 2019 (Naples - Italy) to all PhD students as well as to an audience of experts (both from industry and academia). The project attracted major interest by the participants which could be seen by a high number of questions asked by them.


Ph.D. School Italo Gorini, September 10-14, 2018

SOGNO – Service Oriented Grid for the Network of the Future

Abstract

Challenges/Scenarios

Low RES penetration

High RES penetration

Services

State Estimation, Power Control, Load Forecast, FLISR, Power Quality evaluation

Measurement system and 5G communication

Outputs

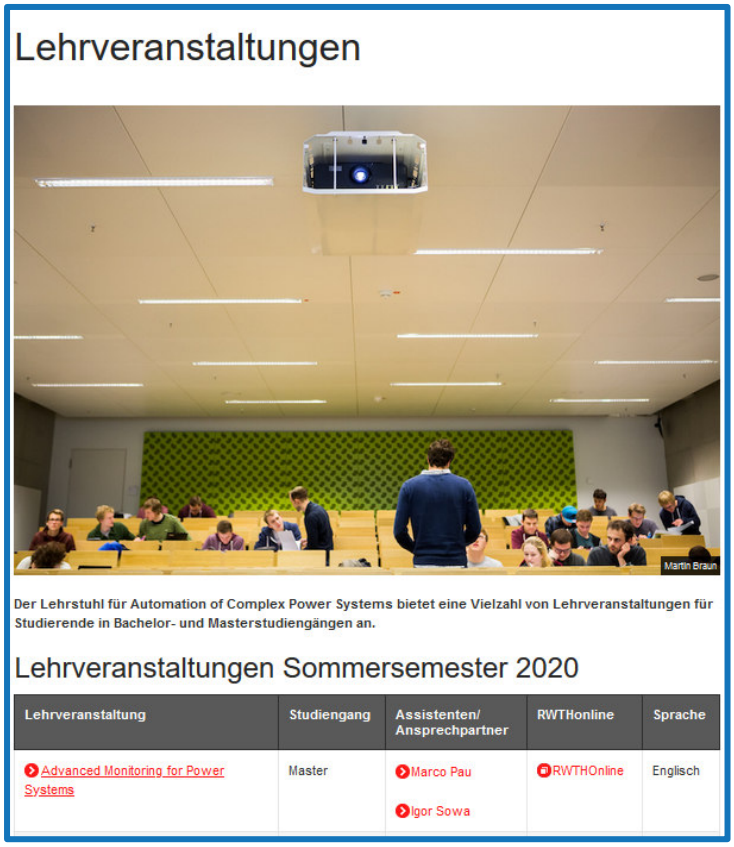
All tested in several lab & field trials with the utilities involved in the project.

RWTH introduced SOGNO concepts into two summer schools on "Smart Electric Power Systems" in 2018 and 2019. The Summer Schools provided students with an overview of current challenges and new technologies with regards to future electric grids. It covers topics such as measurement techniques and distributed intelligence for power systems, electrical grids today and tomorrow, microgrids as well as real time simulations of power

systems. As a result, students acquired a better understanding of the key challenges of future power systems.

ESB Networks introduced SOGNO concepts at three graduate trainings with their trainees held in January and February 2019. A total of ninety future DSOs were familiarized with the concepts of SOGNO.

The “smartization” of the power grids requires professionals to acquire different skills than they needed before to manage RES-based energy networks. The profiles of the positions to be filled in energy companies are changing, with power providers focusing more on recruiting graduates with ICT skills rather than graduates that understand power production. Therefore, SOGNO developed jointly with the H2020 project RESERVE the interdisciplinary training course “Challenges and solutions in Future Power Network”. It took place in March 2019 at the RWTH Aachen University. Target audience of the course were energy system and business professionals, as well as power system engineers and doctoral students in the field of power engineering, automation, control for energy system or ICT for energy systems.



The work done in SOGNO and the findings were introduced in the new university course at RWTH in summer semester 2020. The course presents state of the art and recent developments on state estimation techniques adopted for the monitoring of power systems, giving an insight also on current research challenges and innovative approaches for the monitoring of distribution systems. Being one of the services developed in SOGNO, the experience and developments done during the project have been used as input for the lessons and, in particular, last generation approaches based on machine learning have been integrated in the course material. Moreover, the SOGNO platform developed by RWTH has been used to organize practice sessions to allow the students getting hands-on experience.

Figure 7 – RWTH university course “Advanced Monitoring for Power Systems” featuring SOGNO results

2.3 Joint events with other H2020 projects: creating synergies

The SOGNO consortium managed to create multiple synergies with other H2020 projects. Wherever possible, the project partners organized joint events or participated in existing events.

The project was represented with a booth at the EU Projects Zone at EUW 2018 and 2019 and organized joint stands at the following conferences and fairs:

- With GOFLEX at E-world 2019 & E-world 2020
- With RESERVE at EUSEW Networking Village 2019

- With RESERVE at Innogrid 2019With SUCCESS & RESERVE at EUSEW Networking Village 2018
- With GOFLEX at Innogrid 2018

Figure 8 – Joint stand with RESERVE and SUCCESS at EUSEW Networking Village 2018

Figure 9 – Joint stand with GOFLEX at E-world 2020

Several joint workshops were organised with other H2020 projects

- Joint special session with RESERVE at EUSEW Policy Conference 2019
- Joint special session with RESERVE at Innogrid 2019

- Joint workshop with ADMS, June 2018
- Joint workshop with RESERVE on network codes & regulatory aspects, June 2018

SOGNO presented its findings at the following events:

- RESERVE final event, October 2019
- H2020 Low TRL Smart Grids and Storage projects clustering event, October 2018, INEA Brussel
- SUCCESS Romanian Field Trial Open Day, June 2018

Together with RESERVE, the consortium organised the course described above in 2.2 in March 2019.

SOGNO members were also very active in all four BRIDGE working groups and participated in all BRIDGE meetings

The last cooperation was the online stakeholder consultation event with WiseGRID, PHOENIX and CROSSBOW in April 2020, which was entirely held online due to the COVID-19 restrictions in place.

2.4 Stakeholder consultations with regulatory bodies and policy makers

A permanent dialogue with stakeholders such as DSOs, policy makers and regulatory authorities has been maintained throughout the project via the organisation of and participation in a series of different workshops and special sessions. The consultations covered all categories of DSOs (large, small and medium-sized), regulators and representatives of the European Commission as well as of sector and regulatory organizations operating at European level. The goal was to validate the usefulness of the SOGNO services for the target segment and to create synergies at European and regional level from a political and regulatory perspective in support of the adoption and implementation of the SOGNO services.

At a first stage of these consultations, DSOs in general and regulatory authorities were targeted, in order to better understand current needs and trends. In this context, the following events were organised:

- Joint workshop with SUCCESS with Romanian regulatory bodies at SUCCESS field trial Open Day, June 2018 in Bucharest
- Workshop and consultations with ANRE (Romanian National Regulatory Authority), July 2018 in Bucharest
- SOGNO European workshop on network codes & regulatory aspects with representatives of international organisations activities related to regulatory aspects, DG Energy, European Commission, November 2018 in Brussels (joint activity with the RESERVE project)
- Workshop and consultations with Council of European Energy Regulators (ACER), December 2018 in Vienna

The input obtained in the first stage of the consultations contributed to the definition of the SOGNO services and the necessary functionalities from the perspective of the target segment.

At a later stage, as the SOGNO services were defined in detail and put into tests, a series of proposals regarding the regulatory framework were outlined to support adoption of the services by DSOs. These proposals were discussed within the framework of the following events:

- Workshop and consultations with Council of European Energy Regulators (CEER), November 2019 in Brussels

- RESERVE final event at European Parliament October 2019
- Workshop and consultations with small and medium-size DSOs at FNN Kongress December 2019, Nuremberg, Germany
- Online stakeholder consultation event on the preliminary results on T&D grid operation, April 2020

All activities were carried out jointly with the participation of WPs 6 and 7 in the project. A detailed description of the events and its impact can be found in deliverable 7.2: Report on fostering support for SOGNO codes and ancillary services.

Figure 10 – Mihai Paun presenting SOGNO during the online stakeholder consultation event 2020

2.5 SOGNO innovation events: finding new fields of impact

To find new fields of impact, two SOGNO innovation events were organized. The first one with the SOGNO partners was held at the consortium meeting in Craiova in June 2019. Following another project meeting in Berlin in October 2019, a two-day innovation event with consortium member and external experts was organized by B.A.U.M. in collaboration with EIT Digital Node Berlin. Fiona Williams explained the SOGNO concepts to the external participants followed by a short introduction on 5G and its most important features for new applications by Steffen Bretzke from Ericsson. To increase creativity and connect areas usually not linked with each other, novel methods were used. To trigger a co-creation process, two “wheels of innovation” had been prepared. By spinning both of them, participants got new and uncommon combinations of usage areas and enablers.

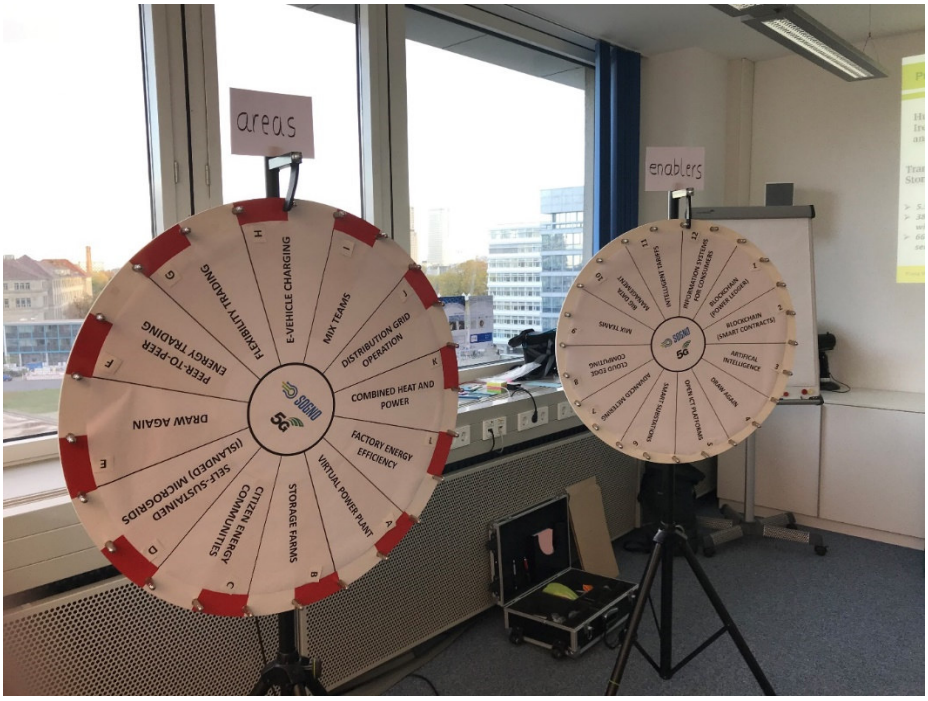


Figure 11 – ”wheels of fortune” to combine usage areas and enablers

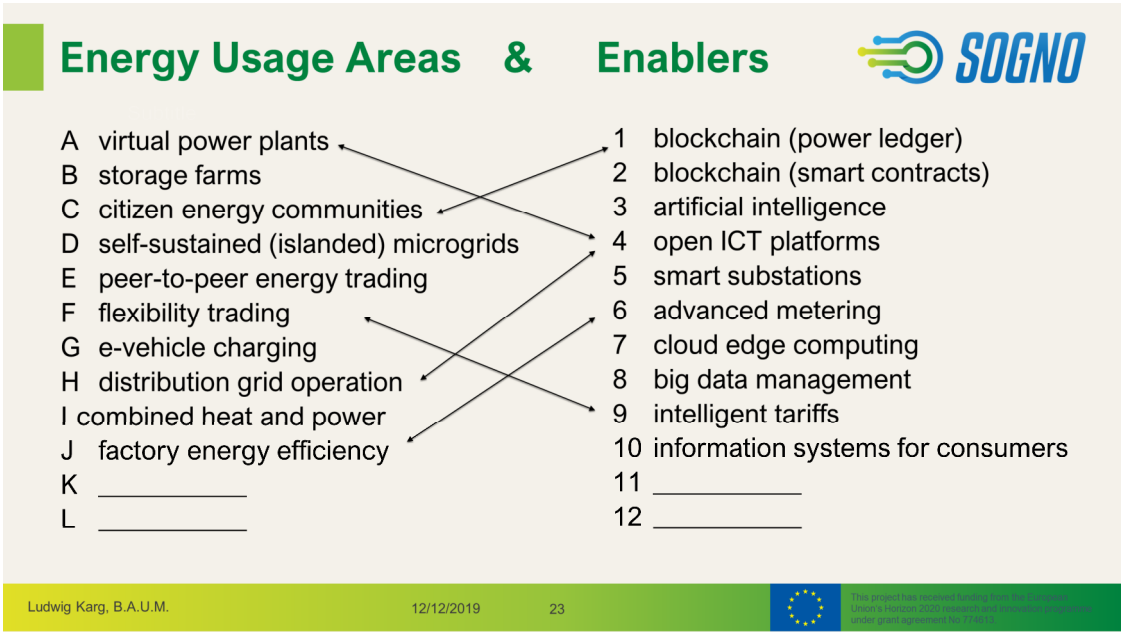


Figure 12 – usage areas and enablers that could be combined

Participants were asked to discuss a new service emerging from the combinations they drew and write down the following:

- A 5G related non-energy usage area it can be linked to in order to enable or boost the success of the new service
- A technical characteristic or service of 5G that will be key for the implementation
- What could be developed that supports the “need owner” or “opportunity taker”? (Name and short description of hardware, software, orgware).

- Why is it considered? Which existing or future problem will be solved? Who will be a "need owner", i.e. have the problem and who will have to solve it? What can be benefits for an "opportunity taker"?
- A sounding name of the new service that motivates people to follow-up

The innovation process was guided by the following task:

When we assume there will be a broad rollout of 5G, including devices and services in many non-energy usage areas, we could support <energy usage area> by combining <enabler> and 5G to…

Several creative ideas and new fields of research were discussed. A direct outcome is the project plan "Energy-plus-data in Brandenburg" to increase attractiveness of rural areas: provide broadband, edge-cloud, 5G and better network coverage and using it to install an intelligent energy system. It is currently under discussion by the relevant partners.

3. Conclusion and recommendations regarding the future exploitation of project results

The events organized within the project's runtime successfully disseminated the concepts and results of SOGNO to the wider energy community and especially the industry dealing with the "smartization" of distribution grids. The events also served to monitor recent developments and trends in the energy sector and get feedback from important stakeholders on the project's progress and findings.

The project partners participated in a high number of events targeting the energy industry. Consortium members discussed SOGNO with visitors at the project's booths and with stakeholders at exhibitions, conferences and workshops.

It became clear that a basic problem DSOs are facing today is their "blindness" in the medium and low voltage grid. With rising numbers of local rooftop PV and private EV charging, especially suburban residential areas will be the challenge of the future. The SOGNO services are meeting these needs and the potential in the market demand could be seen at E-world 2020 where online grid automation and monitoring services offers started to pop up. The market potential of grid monitoring and control services was also reflected in other parties of the SOGNO value-chain, e.g. hardware manufacturers and software developers, coming to our stands and asking about the feasibility of integrating their product in the SOGNO architecture. The huge variety in nationalities of the visitors ranging from China, India and even Singapore showed that grid monitoring and control services are becoming a global issue.

SOGNO's main target group DSOs have a customer profile of being rather conservative and slow movers than high-innovative first movers. Most of the DSOs are aware, that at some point in the future they need to react on the rising share of variable renewable energies and e-vehicles, but since they are not having problems with the grid stability yet, they do not see the need to do anything right now. The challenge will be to nudge them towards a foresighted invest in grid monitoring and control to be prepared. The method of choice is the sensitization of the advantages of an automated grid monitoring and control like the gain of knowledge about the power flows preventing grid extension and for a more efficient grid asset management e.g. substations. With such a development, they will evolve from a plain grid operator to a provider of system services, a so called "DSO 2.0". In the future, investments will primarily be in tools, staff and new infrastructure and not, as in the past, on plain grid extension and new grid assets. This will require a new cultural mindset and partnership models e.g. with ICT companies to meet the challenges of the energy transition.

5G always drew interest and visitors to our exhibition stands, also some companies of the IoT sector looking for new business cases in the energy sector. Although it is recognized as an emerging technology, most stakeholder in the energy industry, and especially DSOs, do not see applications and use cases for it yet. This means that a lot more needs to be done to promote 5G to DSOs, explaining explaining the potential of features like network slicing and mass connectivity of devices for modern distribution grids.

Many DSOs asked if there would be difficulties in a potential change of hardware and/or software provider. One of the main assets of the SOGNO solution is the fact that it is having an open system with open interfaces. This should be emphasised in the future exploitation of the project. Platforms for many different kinds of applications were a big topic at the last major energy events, so having an open system will be a competitive edge.

A recurring topic at events was security concerns regarding cloud services where the data is stored on external servers. DSOs emphasized that the size and reputation of the provider company was important for them. The SOGNO solution should therefore be exploited via a known partner and stress the fact that the data can also be stored on local servers.

Smaller DSOs were identified as of special interest within the SOGNO customer group. Most of them not be able to develop or even implement and run highly automated and AI enhanced grid monitoring and control services on their own since this requires an R&D and IT department with highly skilled power engineers and IT experts.

The project partners also engaged in an active dialogue with regulatory bodies and policy makers via the organisation of and participation in numerous stakeholder consultations (see section 2.4). The conclusions drawn from the stakeholder events (see section 2.4) were fed in comprehensive proposals on policy, regulations and standardization. A detailed description can be found in deliverable 6.1: Analysis of SOGNO results regarding standards and regulations.

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ANNEX 1 Complete event list

No.	Type and name of activity		Main leader	Title of contribution	Date	Place	Type of audience	Size of audience	Countries addressed	Status
1	Presentation	National Power Summit 2018	ESB Networks(Jonathan Sandham)	Conference	30.01.2018	Dublin, Ireland	Industry	100	Ireland	presented
2	Presentation	e-world 2018	Gridhound (Artur Löwen)	"[R]Evolution bei der Überwachung von Stromverteilern"	5.2.-8.2.2018	Essen, Germany	Energy & water industry	30	EU	presented
3	Presentation	Digitisation Energy Value Chain	RWTH (Antonello Monti)	Link between Energy and 5G	26.02.2018	Brussels, Belgium	European Commission, science and industry	50	EU	presented
4	Presentation	EON Innovation Day	RWTH (Anton Monti)	"Grid digitalization: advancing to the next level"	26.03.2018	Essen, Germany	Energy and telecom industry, EON Customers and Suppliers	100	EU	presented
5	Presentation	IntelliSUB	Gridhound (Artur Löwen)	"Moving to the cloud - a new approach: automation as a service"	10.4.-12.4.2018	Düsseldorf, Germany	DSOs, Industry	50	EU	presented

6	Presentation	Smart Grid Entech Meet-up at Impact Hub Ruhr organised by E.ON Agil (Start-up Accelerator)	Gridhound (Artur Löwen)	Applying AI to the Energy Sector: Focus on Power Distribution Grids	24.04.2018	Essen, Germany	Start-ups	45	EU	presented
7	Presentation	Podium discussion "Life needs Power"	RWTH (Anto Monti)	Value of Sogno services to grid operators	24.04.2018	Hannover, gErmany	Energy industry	30	EU	presented
8	Exhibition	Innogrid 2020+	BAUM (Christoph Giesecke, Alexander von Jagwitz)	Conference	15.5.-16.5.2018	Brussels, Belgium	DSOs	40	EU	presented
9	Exhibition	EUSEW Networking Village	B.A.U.M., CRE	"Stability, Security and Automation Towards 100% Renewables – RESERVE, SUCCESS & SOGNO"	05.06.2018	Brussels, Belgium	Energy industry	40	EU	presented
10	Workshop	Romanian Energy Day 2018 / EUSEW Energy Days Event	CRE (Mihai Paun)		5.6.-6.6.2018	Brussels, Belgium	Industry, European lobbyists, Commission	100	EU	presented
11	Workshop	Workshop / EUSEW Energy Days Event	UNIBO (Alessandro Mingotti)	“Managing Smart Grids”	04.06.2018	University of Bologna, Italy	DSOs	60	EU	presented

12	Presentation	FEN Consortium Meeting	RWTH (Anton Monti)	"Research activities at ACS"	12.06.2018	Aachen, Germany	FEN industry consortium	30	EU	presented
13	Presentation	Digital Utility Transformation	Gridhound (Artur Löwen)	Applying AI to the Energy Sector: Focus on Power Distribution Grids	12.6.-13.6.2018	Amsterdam	DSOs	50	EU	presented
14	Presentation	EuCNC conference	RWTH (Gianluca Lipari)	“Unlocking the 5G potential for smart energy grids”, topic: “How Smart Energy grids may gain benefits from 5G: SUCCESS, RESERVE and SOGNO projects”.	19.06.2018	Ljubljana, Slovenia	research projects, especially from successive European R&D programmes	50	EU	presented
15	Presentation	SUCCESS Romanian Field Trial Open Day / EUSEW Energy Days Event	EDD (Fiona), CRE	“Securing the Smart Grid towards up to 100% Renewables”	28.6.-29.6.2018	Bucharest, Romania	Energy industry	60	Romania	presented
16	Workshop	SOGNO workshop regulatory bodies	CRE	SOGNO regulation proposals	28.6.-29.6.2018		Roman Regulatory bodies	15	EU	presented
17	Presentation	FEN Consortium Meeting	RWTH	SOGNO progress report	11.9.2018	Aachen, Germany	FEN industry consortium	30	EU	presented
18	Presentation	ADMS Project Final Event	RWTH (Anton	SOGNO project presentation	4.9.2018	Duesseldorf, Germany	Science and Industry	40	EU	presented

			Monti, Marco Pau)							
19	Presentation	European Utilities Telecom Council (EUTC) 2018 Annual Conference	EDD (Marcus Toernqvist)	SOGNO project presentation	25.9.-26.9.2018	Malmö, Sweden	telecommunications and technology executives from Europe's utilities and their technology partners	200	EU	presented
20	Presentation	H2020 Low TRL Smart Grids and Storage projects clustering event	RWTH (Anton Monti, Marco Pau)	SOGNO project presentation	2.10.2018	INEA, Brussels	Science and Industry	50	EU	presented
21	Presentation	2018 annual meeting of FVEE Renewable Energy Research Association	EDD (Fiona Williams)	"Die Energiewende – smart und digital"	17.10.2018	Berlin	research, industry and politics	500	Germany	presented
22	Conference	IEC 61850 conference	ESB (Paul Heyes)	"Grid Edge Trials: Planning and conducting IEC 61850 trials as part of a long-term strategy for the roll out for smart grid model management and communications across the grid"	17.10,2018	Berlin	Energy industry	200	EU	presented

23	Conference	IECON 2018	RWTH	SOGNO project presentation	21.10.-23.10.2018	Washington DC, USA	Energy industry and power electronics researcher	30	Global	presented
24	Exhibition	EUW 2018	BAUM EDD UNIBO	SOGNO project presentation	6.11.-8.11.2018	Vienna, Austria	Energy industry	100	EU	presented
25	Workshop	Workshop on network codes, regulatory aspects / stakeholder consultation	CRE	Workshop on network codes, regulatory aspects / stakeholder consultation	21.11.-22.11.2018	Brussels, Belgium	representatives international organisations activities related to regulatory aspects, DG Energy, European Commission	40	EU	presented
26	Presentation	FEN Consortium Meeting	RWTH	SOGNO project presentation	27.11.-28.11.2018	Aachen, Germany	FEN industry consortium	20	EU	presented
27	Presentation	2nd IEEE int. Forum Smart Grids for Smart Cities	RWTH	Distributed monitoring and advanced measurements in smart cities	28.11.2018	Grenk, Belgium	Science and Industry	30	EU	presented
28	Presentation	Meeting with international association of European regulators (ACER)	CRE	Stakeholders consultation	05.12.2018	Vienna, Austria	Regulators, industry	20	EU	presented

29	exhibition	E-world	B.A.U.M.	Automation in distribution grids	5th-7th February, 2019	Essen, Germany	Energy industry	50	EU	presented
30	SOGNO event	1st Advisory Board Meeting	EDD		20.02.2019	Aachen, Germany	AB members	3	EU	presented
31	presentation	Irish Power & Energy Expo	MAC (John Flaherty)	Service Oriented Smart Grids – the Networks of the Future	14.03.2019	Dublin, Ireland	Energy industry	200	EU	presented
32	presentation	Smart Grid Tech 2019	RWTH (Marco Pau or Gianluca Lipari)	"Examining how 5G networks and network slicing will enable real-time, highly reliable and efficient communication networks to support smart grid operations"	March 26th-27th, 2019	Amsterdam	Energy systems professionals, power system engineers, ICT professionals, business professionals	150	EU	presented
33	exhibition	Innogrid 2020+	B.A.U.M. (Christoph Gieseke), RWTH (Marco Pau)	Stand & project presentation by Marco	13.-14.05.2019	Brussels, Belgium	DSOs	45	EU	presented
34	workshop	EUSEW Policy Conference	B.A.U.M.	Special session on policy aspects with ENTSO-E and IRENA	18.-20.07.2019	Brussels, Belgium	Public authorities, energy agencies, industry associations,	100	EU	presented

							businesses, civil society organisations			
35	exhibition	EUSEW Networking Village	B.A.U.M. (Anna Maass)	Stand at the Energy Fair	17.-20.07.2019	Brussels, Belgium	Energy industry	20	EU	presented
36	presentation	CIRED - The 25th International Conference and Exhibition on Electricity Distribution	CEZ (Laurentia Predescu)	"Online Monitoring Leads to Improve the Reliability and Sustainability of Power Grids"	June 3rd-6th, 2019	Madrid	Energy industry	100, conference of 1500	EU	presented
37	presentation	RESERVE final event	CRE		October 2019	European Parliament (Brussels)	Energy experts, utilities, public policy experts, regulators, European Commission staff and Members of the European Parliament	200	EU	presented
38	exhibition	Amplitude	TSSG (Fergal)		06.11.2019	Kilkenny, Ireland	General public, energy experts	150	Irish	presented
39	presentation	WIND organised event on RES implementation in Romania	EDD (Fiona Williams)		07.11.2019	Bucharest, Romania	Energy experts, utilities,	400	High level participants from EU countries	presented

							regulators and researchers			
40	exhibition	EUW 2019	B.A.U.M.	SOGNO project presentation	12.-14.11.2019	Paris, France	Energy industry	100	EU	presented
41	workshop	Council of European Regulators	CRE	Presentation with 4 other projects	22.11.2019	Brussels, Belgium	Regulators	200	EU	presented
42	presentation	Event on digital substations	RWTH (colleague Marco Pau)		26.11.2019	Berlin	Energy experts from industry and academia	100	Germany	presented
43	workshop	FNN-Kongress Netze	CRE	FNN-Kongress Netze 2019	05.12.2019	Nürnberg, Germany	DSOs	70	Germany and EU	presented
44	exhibition	E-world	B.A.U.M.	Automation in distribution grids	11.-13-02.2020	Essen, Germany	Energy industry	50	Germany	presented
45	SOGNO event	Online stakeholder consultation	CRE	Integrated Approach in the Management and the Operation of the Electricity Transmission and Distribution Networks	30.04.2020	Online	Energy experts, utilities, public policy experts, regulators, European Commission staff and Members of the European Parliament	200	EU	presented
46	SOGNO event	Open Day Romanian field trial (online)	CEZ	SOGNO project presentation	26.05.2020	Online	Energy industry, academia	55	Romania	presented

47	presentation	Digital Grid Virtual Workshop: Integrating Customer Resources hosted by EPRI and Stanford University	WIT	SOGNO project presentation	10.06.2020	Online	Energy industry	55	US and Canada	presented
48	Summer school	Event course with professionals	RWTH	Smart Electric Power Systems	2.7.-13.7.2018	Aachen, Germany	Science	20	EU	presented
49	Summer school	ITALO GORIN Summer School	UNIBO (Alessandro)	SOGNO project presentation	18.9.-14.9.18	CERN, Geneva, Switzerland	Science	30	EU	presented
50	workshop	"Challenges and Solutions in Future Power Networks"	RWTH (Marco Pau), RESERVE (Marina)	Joint course SOGNO/RESERVE, 2-days event with presentations from experts in the sector	11.-12-03.2019	RWTH, Aachen, Germany	Energy systems professionals, power system engineers and business professionals	25	EU	presented
51	Spring school	"Challenges and Solutions in Future Power Networks"	RWTH (Marco Pau), RESERVE (Marina)	Joint course SOGNO/RESERVE, 3-days event with presentations and laboratory sessions	13.-15.03.2019	RWTH, Aachen, Germany	PhD candidates in the field of power engineering, automation, control for energy systems, ICT	EU	presented	13.-15.03.2019

							for energy systems			
52	Graduate training		ESB (Paul Hayes)	SOGNO project presentation	14.01.2019	ESB Headquarter, Dublin, Ireland	ESB trainees (future DSOs)	Ireland	presented	Graduate training
53	Graduate training		ESB (Paul Hayes)	SOGNO project presentation	28.01.2019	ESB Headquarter, Dublin, Ireland	ESB trainees (future DSOs)	Ireland	presented	Graduate training
54	Graduate training		ESB (Paul Hayes)	SOGNO project presentation	25.02.2019	ESB Headquarter, Dublin, Ireland	ESB trainees (future DSOs)	90 graduates in three groups	Ireland	presented
55	Training course	RESERVE/SOGNO Summer School	EDD (Marina)	SOGNO project presentation	March 2019	Aachen, Germany	Science	15	Germany	presented
56	Summer school	Ph.D. School "Italo Gorini 2019"	UNIBO (Alessandro)	SOGNO project presentation	2.-6-9.2019	Naples, Italy	students, professors, researcher	100	Italy	presented
57	Summer school	"Smart Electric Power Systems"	RWTH	SOGNO project presentation	July 2019	Aachen, Germany	students	20	EU	presented
58	University class	“Advanced Monitoring for Power Systems”	RWTH (Marco Pau)	university class	summer semester 2020	RWTH, Aachen, Germany	students		Germany	ongoing