Digitalization increasingly drives the ongoing transformation of the energy sector and will change it tremendously

Digital technologies become more and more important in the transformation of the energy system. They heavily influence the integration of an increasing share of distributed generation and significantly impact business models and processes. In consequence, existing strategies, approaches and business models need to be revised, changed or be complemented with new business models built from scratch.

Siemens has leveraged its worldwide experience in the planning and operation of electrical grids and in the development of leading digital technologies and designed a workshop concept to support utilities like Enel in developing and evaluating new value propositions and business models through digitalization in the area of low-voltage networks.

The workshop has enabled Enel to develop and describe new business models in a structured approach and to see the ongoing digital transformation as a business opportunity rather than a threat. It helped to answer important questions for companies in the energy sector, such as:

- What is digitalization and how does it change my everyday (business) life and the activities in low-voltage grid operation?
- Which capabilities can I develop through specific data collection and analysis, and which problems can I solve using them?
- How does digitalization "behind the meter" change my customers’ behaviors and needs?
- Which savings and/or additional revenues can be generated due to a certain new or improved measure, service, or product?
- Which processes can be optimized through digitalization, and what would be the effect on my business?
- Which new value propositions can be developed, and are there new markets to be conquered by my company?
The business model innovation project of Enel and Siemens had the aim of identifying potential new value propositions and business models that become possible through digitalization in the area of low voltage networks. Together they identified 83 value propositions and developed four ideas into fully described business models. These business models have also been quantitatively modeled to evaluate their economic potential:

The **Social Surplus Program (SSP)** is a social business idea: The SSP creates value for the deserving poor, the municipality, the distribution system operator and distributed generation operators by offering a platform to donate surplus energy in times when not needed by the electricity-generating entity. Even though the SSP business model does not result in a positive net present value in the base case scenario, it could potentially be turned into a viable social business.

The project **Shared Storage System (S3)** combines the operation of existing electric storage systems with the operation of new storage systems, using the concept of shared resources. The S3 business model addresses the growing need for well coordinated storage capacity for handling an increasing share of intermittent and non-controllable power generation from renewable sources. It creates value for the storage owners through an intelligent energy storage management service, for the electrical grid operator by increasing system reliability through bundling distributed storage systems to offer balancing power, and for the operator of the business model through its positive net present value.

The business idea **Equipment Advisory** is a service to raise the customers’ energy consciousness in order to increase their energy efficiency by upgrading their devices - without the need to change their behavior. It also helps end-users and (small) industries to choose the best set up (equipment, processes) for their consumption. The Energy Advisory is a potentially very profitable business idea that addresses the huge potential of energy efficiency improvements by replacing old devices with state-of-the-art energy-efficient devices. It creates value for households and business customers through sensor-based advice for an optimization of the utilized devices.

The business model **Energy Box** is built around the offering of a service to support customers in optimizing the operation of their devices to achieve their individual objectives. By intelligently controlling smart devices, Energy Box can help users in saving energy and money or in increasing their comfort. At the same time it helps the utility offering the service to improve customer relationships and benefit from an increased control over total consumption of electricity and an overall positive economic result. The business model Energy Box could be well combined with the business model Equipment Advisory.

**Understand, develop and evaluate ideas – and then drive them**

Through quantitative financial modeling of the business models, their potential can be revealed and evaluated. Business models “at the customers’ meter” as well as “behind the meter” in less regulated areas, seem promising. The existing customer relationships and large customer base of Enel and the high level of trust that customers put into Enel are important strengths that Enel can build upon to realize new business models through leveraging digital technologies and data. Siemens is confident that the jointly envisioned value propositions and designed business models can be turned into reality and developed into viable businesses for Enel.

Siemens PTI can support utilities via business innovation workshops and combined evaluation studies as described above, but also via deep dive studies, project and program planning, and by accompanying pilots and implementations.
New approach for collaboration between manufacturers and utilities empowers the utility of the future

While the described transformation will not be the first predictable revolution, the concrete value of digitalization is something which has to be identified, specified and evaluated by every actor in the sector himself. The outcome of the workshop does not only reflect the knowledge of all involved partners, but also fills the gap between the fictive description of a value proposition and the concrete impact on your company’s performance.

- Connect competencies to face disruptive opportunities and risks
- Create future-oriented projects through business innovation workshops
- Develop new ideas in a creative, but structured and transparent way
- Identify and evaluate key drivers and hurdles

“Together with Siemens, we developed new, innovative business ideas based on our long-standing experience in the field of network operation and digital technologies. With their technical economic knowledge and methodological competence Siemens supported us to achieve a transparent view on possible business opportunities.

I appreciate the very well structured approach, which guided us through this innovation project. We are looking forward to drive our ideas and play an active role in the digitalization of the energy sector.”

Giorgio Di Lembo
Head of Remote Control and Protection Solutions, Enel Global Infrastructures & Network