JAUNTY

SIDROCO

Excellent solutions for excellent customers

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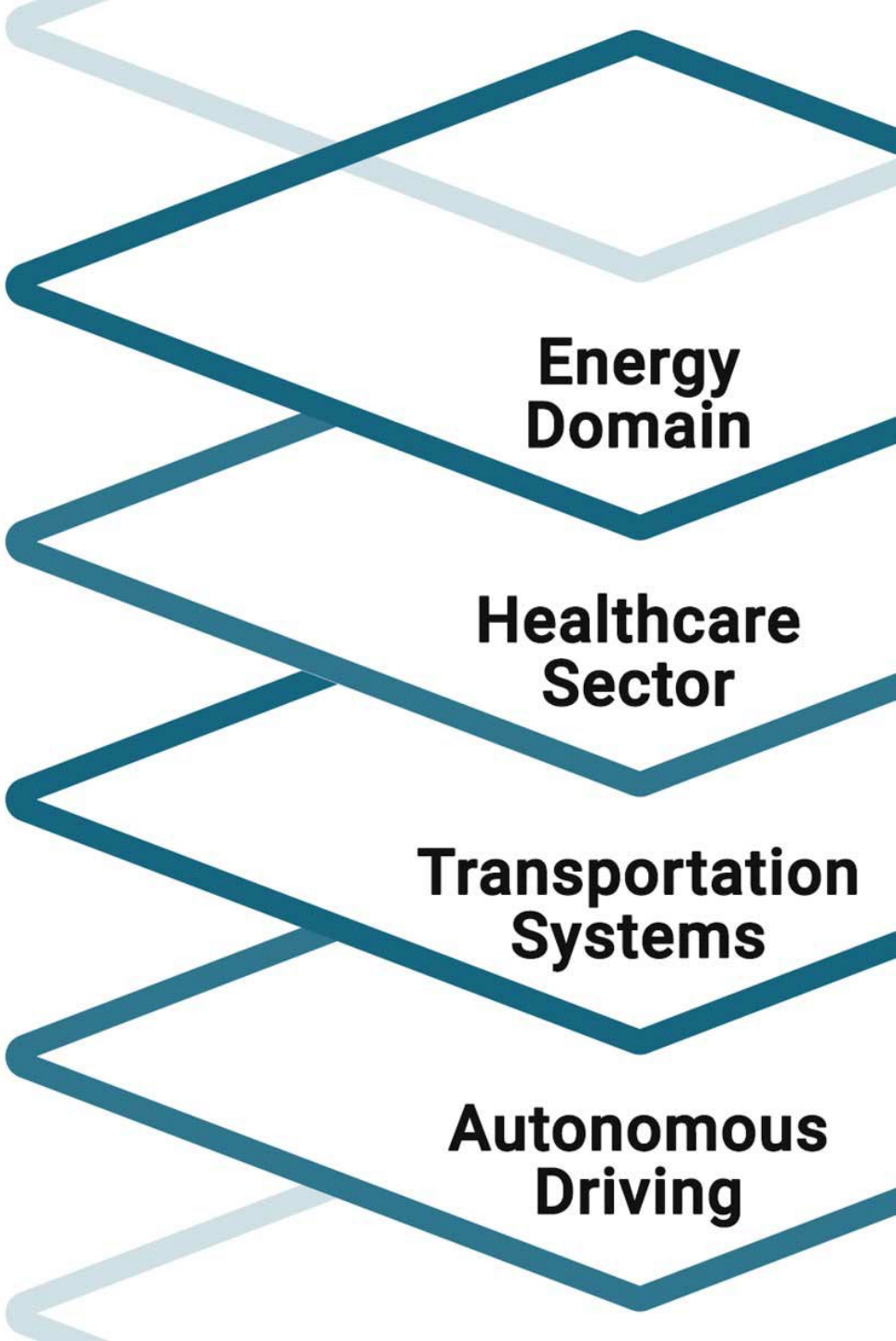
Company Vision

- SIDROCO Holdings (https://sidroco.com/) is a creative SME based in Nicosia, in Cyprus.
- We are focusing on **New Generation Internet of Things** (NG-IoT) activities.
- We provide efficient and secure Next Generation-IoT solutions for heterogeneous environments, including Critical Infrastructures like Energy, Healthcare, and Autonomous Driving.
- SIDROCO is involved in a number of **EU Research Projects** under Horizon2020 and Erasmus+ program



Skills and Trends for Smart Energy Management Systems

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(1) What are the required **skills** that need to be developed in the Smart Grid & Smart Energy Management domain and how should they be related with training/educational programmes?

IoT-based Energy Management

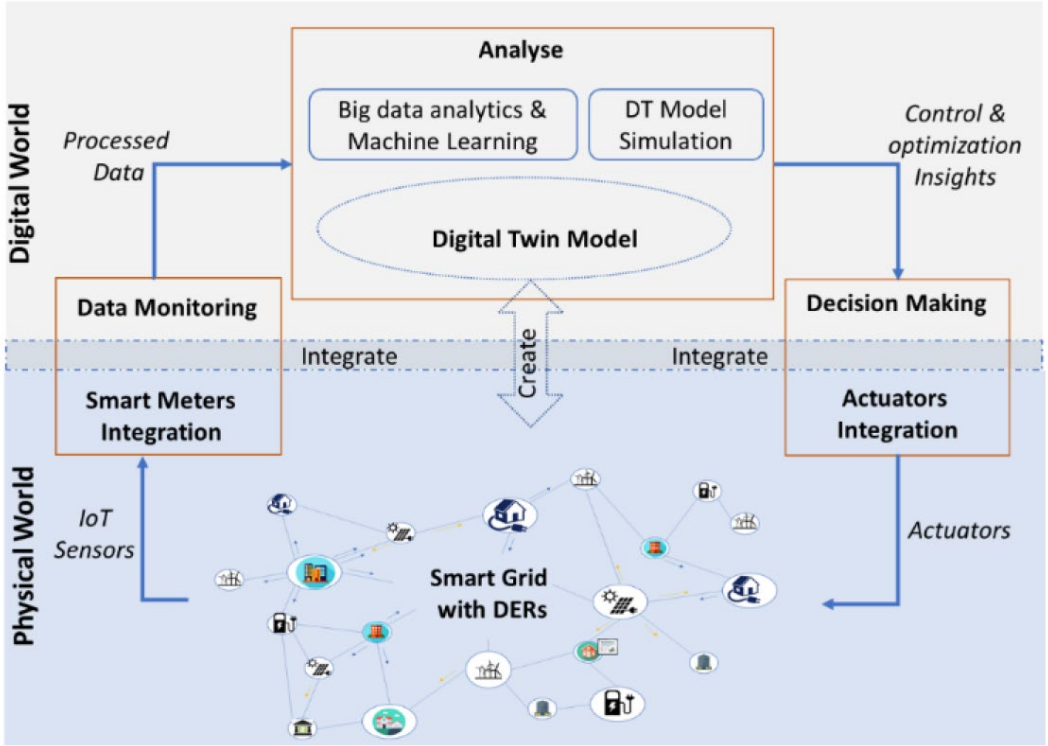
- **Future need:** An overall system that connects many devices (analytics tools, applications, controls, meters and sensors, prediction, maintenance) to help individual users, businesses, and communities connect connections to control processes, assets, resources and optimize performance.
- Realization of smart farms, green hydrogen using natural, renewable energy sources

New Roles – New activities – New Skills

Data analysis
Distributed energy blockchain-based development

Digital Twins

The Digital Twins allow the development of new energy services and more decentralized business models where citizens and energy resources are becoming key active players acting as prosumers and contributing to grid sustainability goals



Digital design and construction companies, which perform data integration, management and analysis.

New Roles – New activities – New Skills

Digital Architecture
Digital Architects
Design scripting

Smart Energy Management System - Skills

- Engineering skills are needed:
  - Software engineering,
  - mechanical engineering,
  - power systems engineering,
  - network engineering

- Energy domain Skills are needed
  - Energy audit skills
  - Understanding of the localisation of Renewable technologies

- Financial skills
  - Financial modelling
  - Understanding and developing a Business model

- Legal Skills
  - Legal registration process
  - Understand the Legal Framework
  - Read and interpret Contracts

- Managerial Skills

- Risk management

Roles and Skills

Renewable Energy Industry

- **Role: Architectural and Engineering Manager**
- **Skills:**
  - Architectural and engineering **managers plan, direct, and coordinate** all activities related to the development of an energy project.
  - The engineering manager is in charge of the **budget** and is leading the workforce toward the **completion of the project** in compliance with high **safety and quality standards**.

Electricity Distribution and Smart Energy Technologies

- **Role: Energy Data Scientist**
- **Skills**:
  - Development of tools and techniques to **collect raw data and transform them into useful information** thanks to data mining, modeling, and machine learning. In the energy industry, the type of data is related to weather patterns, energy consumption habits, energy flow, and consumer behavior.
  - Receives the **customer requirements and database** and delivers graphs, charts, or other visualizations in a comprehensive way.
  - Development of dynamic prediction models.

Smart Energy Management System (SEM) Expert

A SEM expert

- Has basic knowledge about energy transformation, energy storage, energy distribution and energy consumption units
- Can understand the function of SEMS (hardware/software) through the interaction of sensors, actuators, controllers, communication technologies, user interfaces and user behaviours.
- Develop strategies to save energy
- Has knowledge on data protection legislation, energy legislation and sustainability regulation at regional, national, European and international level.

- **Skills of an SEM expert**
- (1) Analyse energy production, distribution and storage, energy consumption units and user behaviours by documentations, visits and on-site interviews.
- (2) Develop new energy-saving solutions based on an analysis carried out with consideration of costs and benefits or to optimise an existing SEM
- (3) Implement, document, maintain and hand over, also for people non experts in technology, SEM.

Education/Training programs on SEM

- Training will help in learning how to implement the **best practices** and understand the **latest technology**
- Lead the need for investing by **making a business case** for energy efficient practices and system.
- Training and acquiring the required skills is an important step towards developing **smarter and more efficient ways to use energy**.
- Commitment and planning
- Think and act differently in **energy–efficient ways**.

(2) What are the forecasts about the transformation of the market around the developments in Smart Energy Management Systems?

Global Smart Energy Market

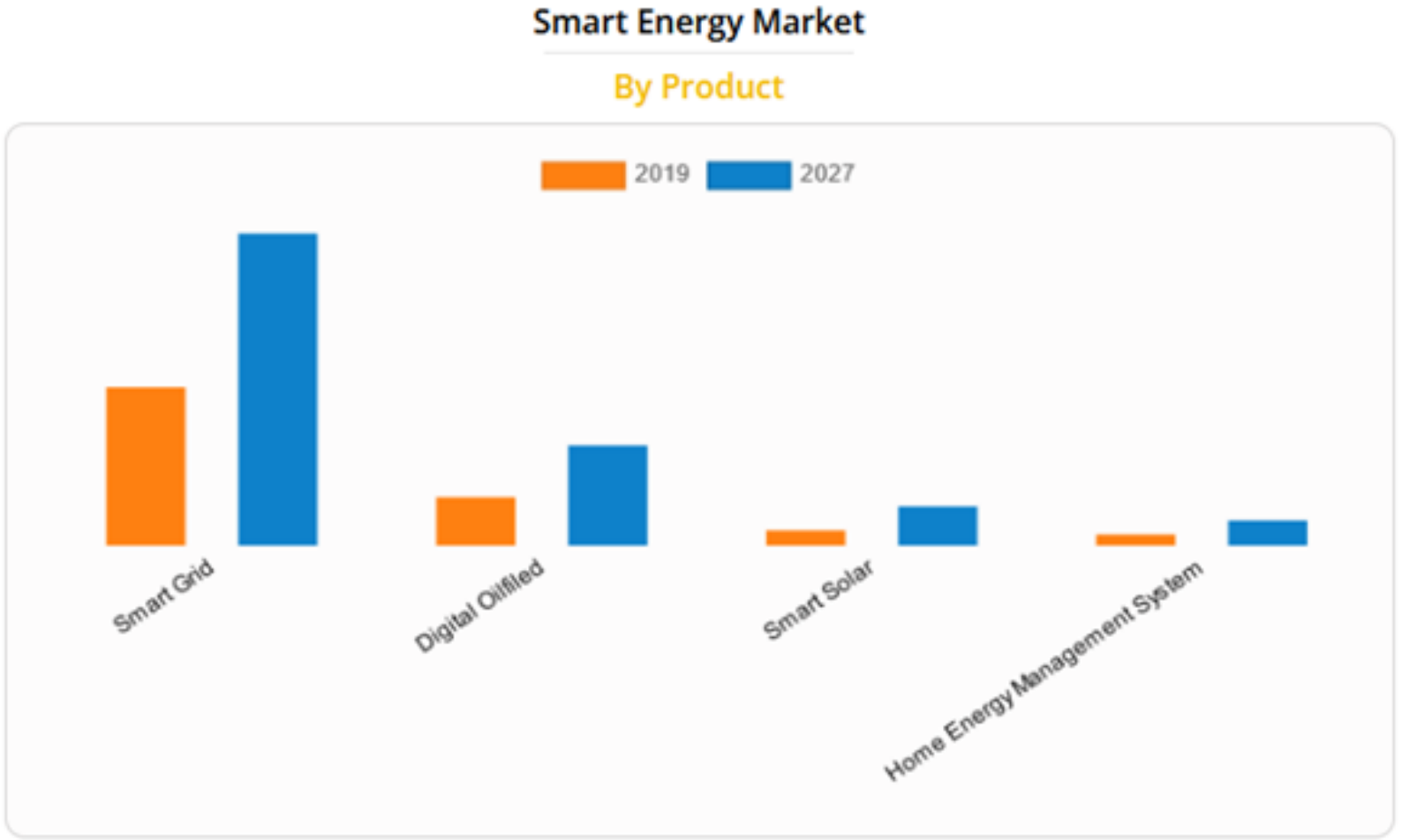
OPPORTUNITIES AND FORECASTS, 2020-2027

Global Smart Energy Market is expected to reach **$253.1 billion** by 2027

Growing at a **CAGR of 9.6%** (2020-2027)

https://www.alliedmarketresearch.com/smart-energy-market-A09434

Global Smart Energy Market



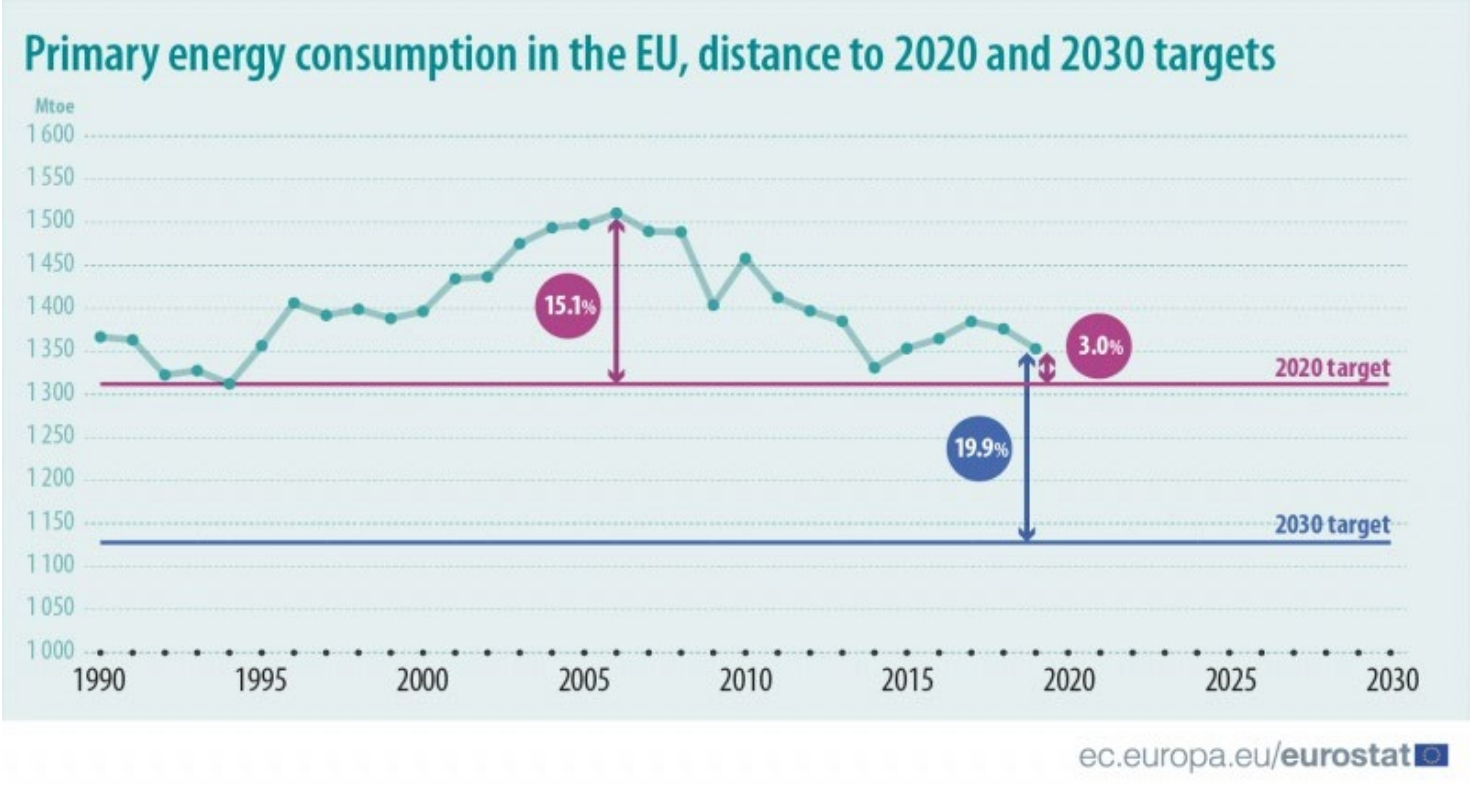
Smart Solar is projected as the most lucrative segment.

https://www.alliedmarketresearch.com/smart-energy-market-A09434

Internet-of-Things (IoT)

IoT will significantly help industries to achieve its goal

It leads to vast resource savings and global environment improvements throughout the world.

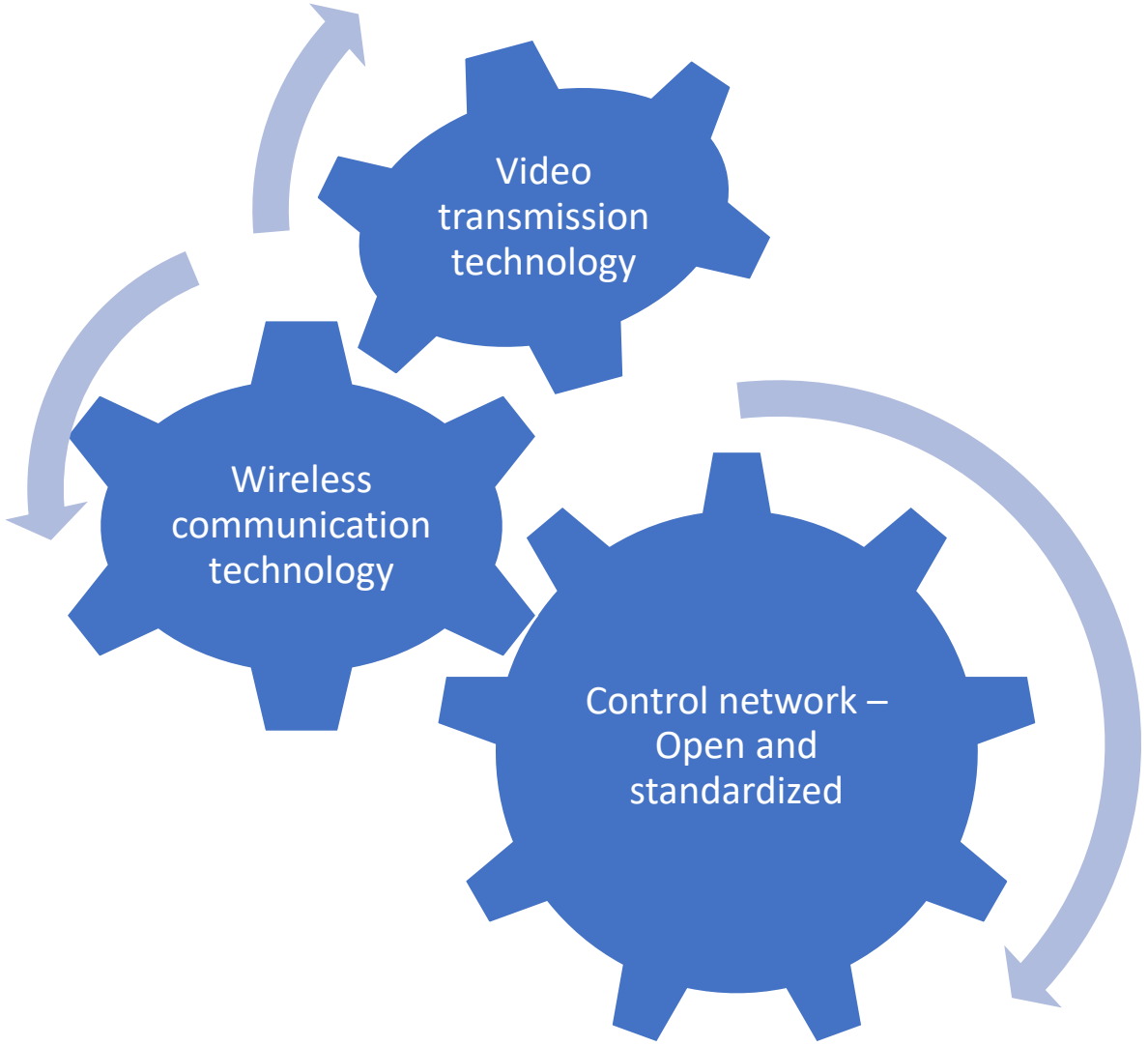


Smart City

It is vital to include **renewable energy sources**

To safeguard the viability of city operations and to address scarcity issues for non-renewable energy sources.

Smart Building



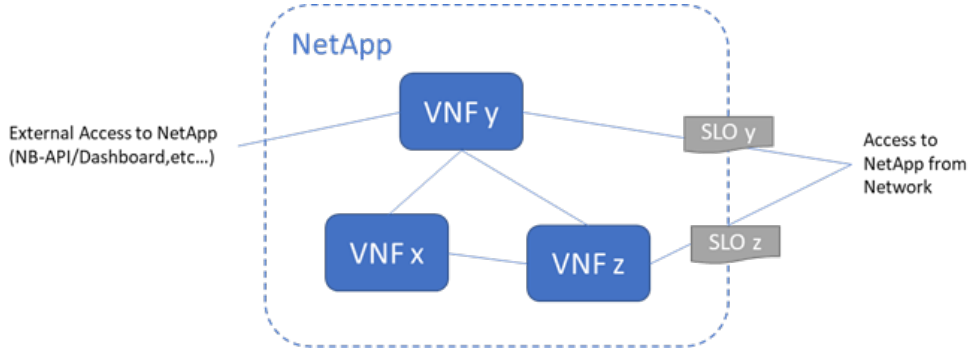
Smart Energy Community Test beds

- The **smart community test bed** *serves as a template for system level solutions of multiple interactive "smart components" that will demonstrate clear infrastructural cost-benefit enabling multiple stakeholders to participate, gain knowledge, experience and prove the Smart Green Cities concept.*
- Commercialization
- Consumers engagement
- Maximize energy cost savings

Smart5Grid

Demonstration of 5G solutions for SMART energy GRIDs of the future

- Aims to provide a friendly environment that, abstracting the complexity of the underlying 5G network, facilitates the development of applications for the smart grid.
- NetApp Concept



Market transformation by Smart5Grid

- Smart5Grid will support smart grid's functionalities offering dedicated services not only for the energy system operators, but also for DERs providers and aggregators, the new emerging actors of the energy industry ecosystem:
  - An advanced active grid management system
  - A real-time monitoring and control of DERs

Thank you for your kind attention

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