

# Implementing and Monetizing Solar & Storage Applications

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December 5, 2017





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# Disruption of the energy value chain





# Energy transitions, digital revolution and customers empowerment are key challenges for the industry

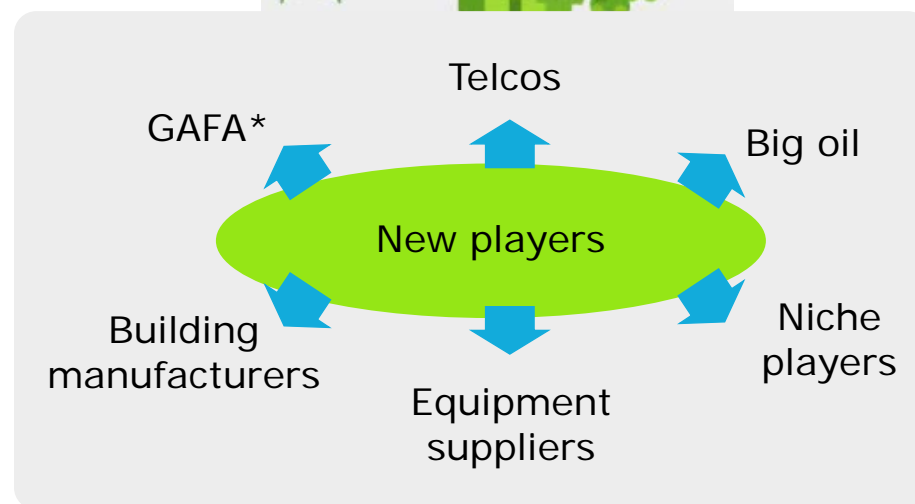
Energy transitions

VALUE CHAIN  
DECONSTRUCTION  
NEW ENERGY MIX  
DECENTRALIZED GENERATION  
ENERGY EFFICIENCY  
SOLAR PRICES DECREASE  
DEMAND SIDE MANAGEMENT  
CONSUMPTION DECREASE  
BATTERIES  
E-VEHICLES

Smart grids



Digital Revolution



Utilities 'uberisation'?

Customers Empowerment



# Traditional utilities and OEMs must seize the opportunities that the solar-plus-storage couple offer before the competition does

## Selected Opportunities on Solar and Storage

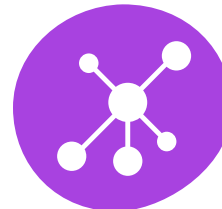
### Behind-the-Meter



### Front-of-the-Meter



Retailers



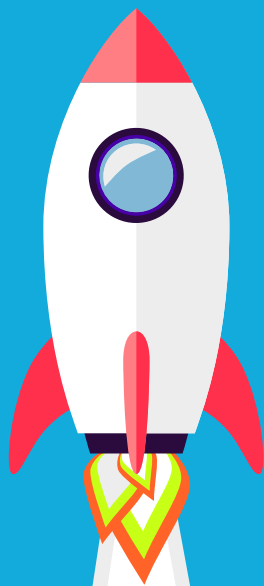
Network Operators



Power Producers



## Examples of barriers



Industry players face tough barriers to accelerate digitalization

- Skills and Jobs:
  - Skills shortage
  - Major social change threatening jobs and slowing down digital deployment

- New entrants:
  - Start-ups are disrupting the value chain
  - Telecom are entering the retail sector

- Utilities regulation:
  - Utilities face huge grid investment requirement but faces restrictions (i.e. storage ownership)



Shortage of Data Scientist



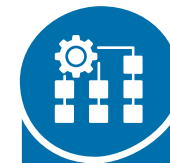
Evolving technology



New entrants



Regulation

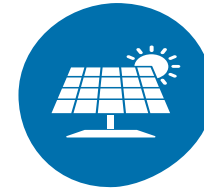


Complex internal procedures



Resistance to change

# Digital start-ups at every stage of the solar value chain



## Business Dev.

### Online Solar Calculators



### Pricing & Trading



## Finance

### Financing



### Crowdfunding Digital Platform



## EPC



## O&M

### Drone Maintenance



### Smart Cooling & Cleaning



### Hybrid System Optimization



## Payment & Billing

### Aggregation



### «Peer-to-Peer», Blockchain



### virtual Net Metering



### Pay-as-You-Go Solar



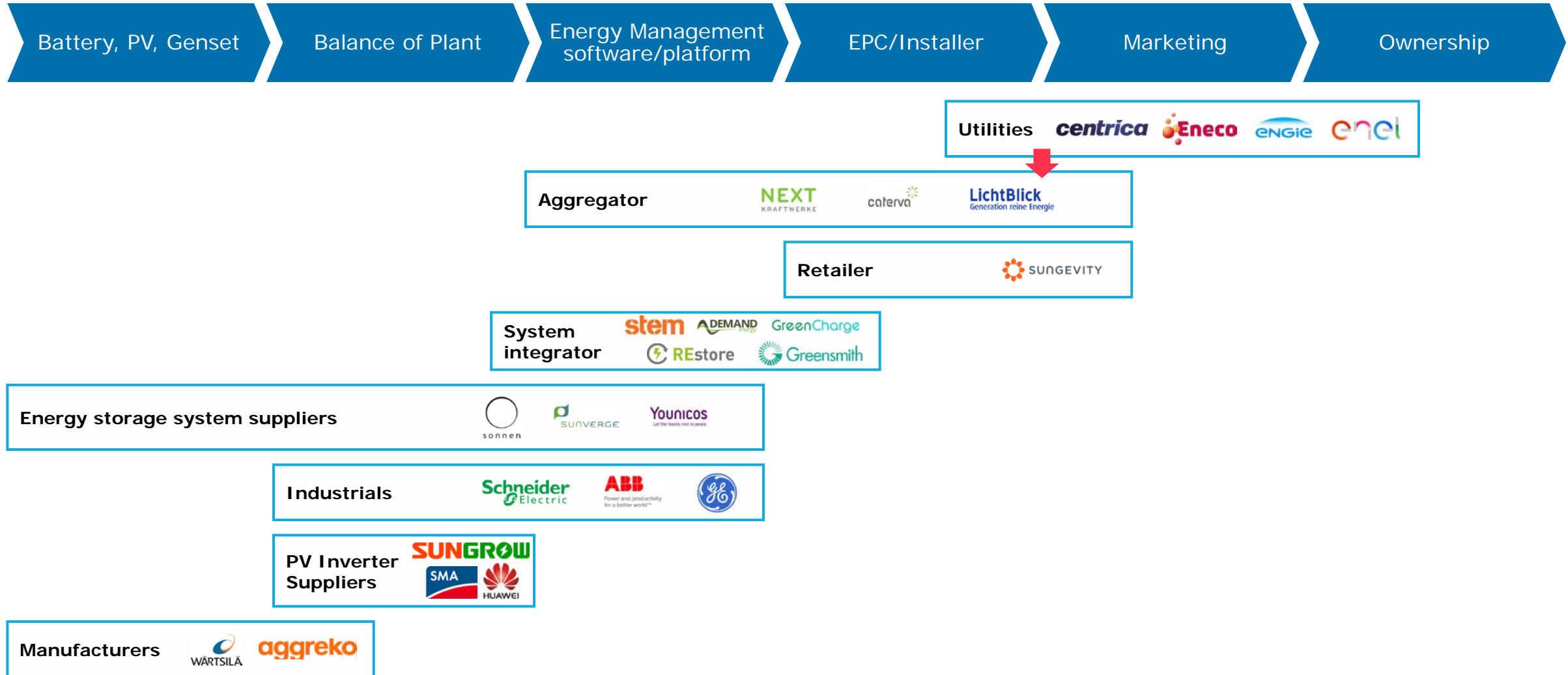


# Accelerating the Digital Transformation



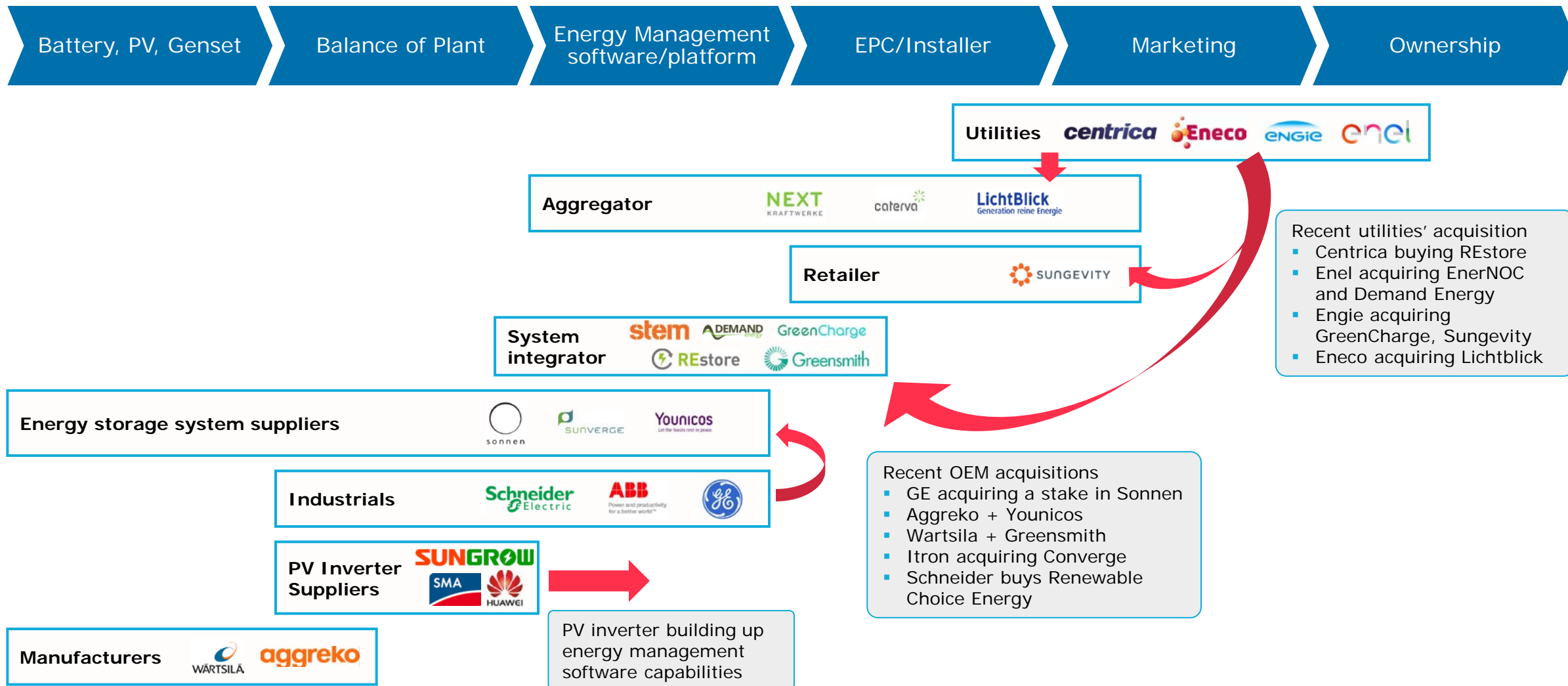


# Make or Buy? How far should you become involved in the software value chain





# Make or Buy? How far should you become involved in the software value chain



# Example of in-house development: Eneco Smart Home IoT Hub



Dutch utility Eneco has developed a Smart Hub platform, called Toon. This platform is central to Eneco's **transformation** from **Utility to Energy services provider**.

As a smart home solution, Toon integrates a smart thermostat, energy insight and smart home hub into one single to use product.

- This creates a daily customer interaction which results in increased **customer satisfaction**, better **customer retention** and higher **NPS score**.
- Other utilities joining **Engie Belgium**, **Viesgo Spain**

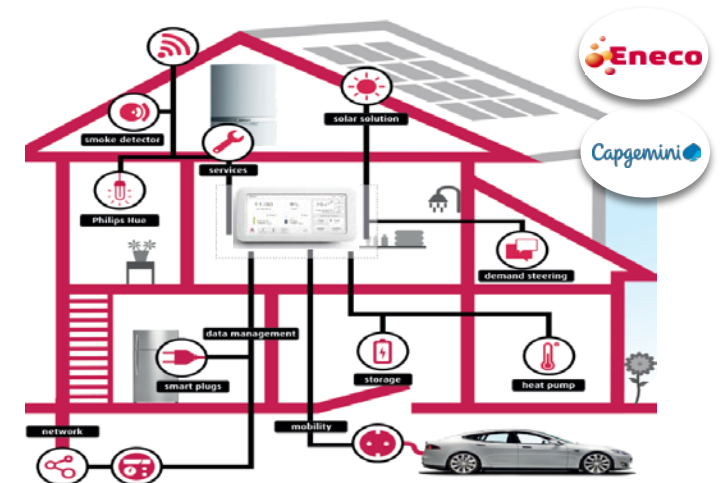
Eneco has created an open API for the Toon platform. Thus 3<sup>rd</sup> party developers can develop extra apps and integrate new services with device.

Eneco creates with Toon an **energy services ecosystem** and becomes a **platform provider** for other parties to build services upon.



Market shares are old school thinking, what counts is how innovative you are"

Christophe Degrez,  
CEO Eneco Belgium



The business case for solar + storage is weak in the Netherlands because of net metering, additional revenues are needed

- Eneco uses crowd of home batteries for frequency reserves to increase revenue, now payback time is less than 10 years
- Homeowners get a battery with a discount and can use it for self-consumption
- Contract for 5 years
- Partnership with a mix of OEMs and start-ups: Tesla, LG Chem, Ampard, Zonneplan

From ideation to live in the market in less than 4 months



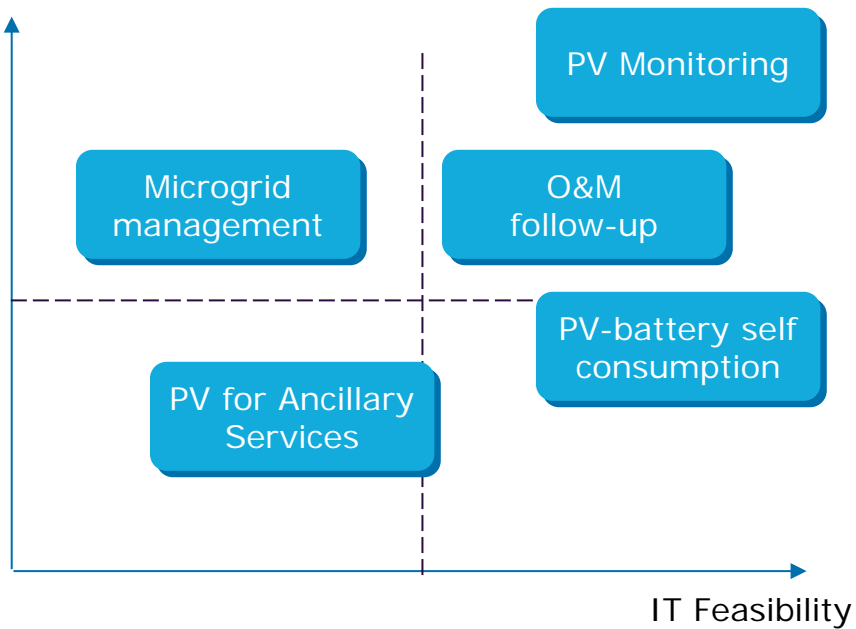


# Build a Digital Solar platform – How to implement it?

## 1 Select priority use cases

Matrix of use cases attractiveness (examples)

Business stakes

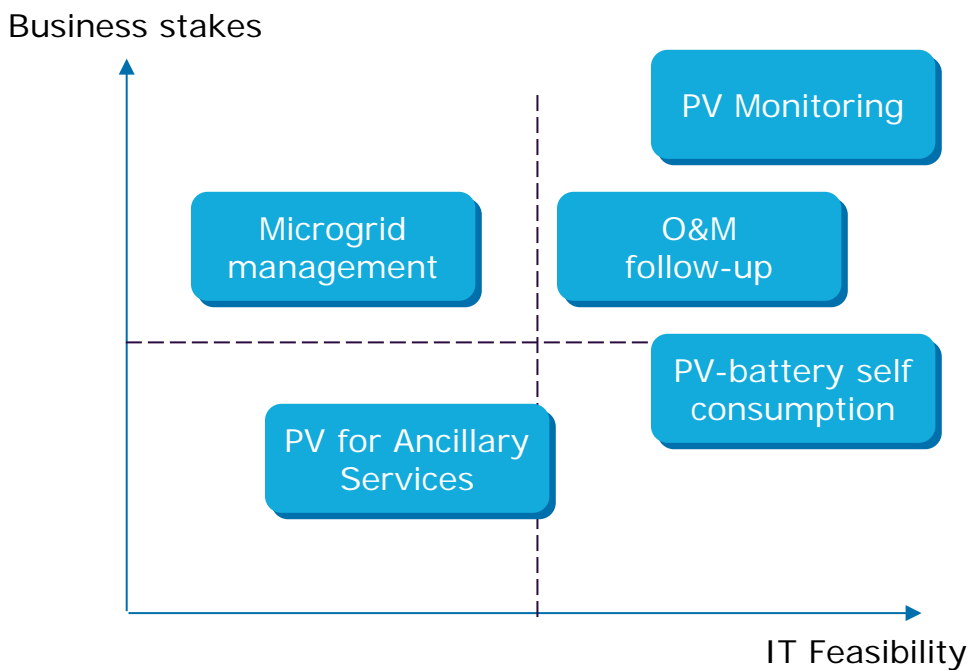




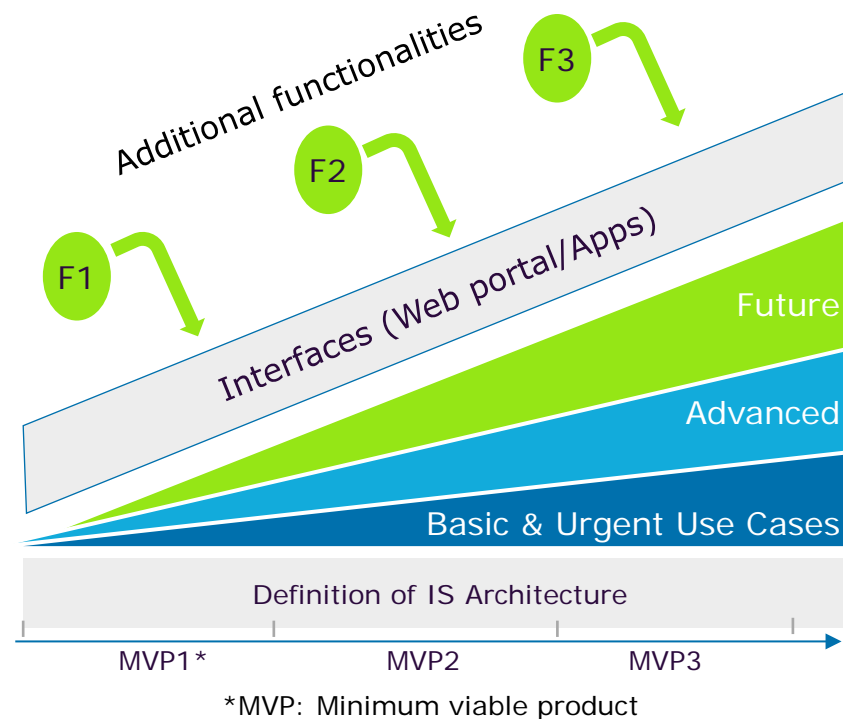
# Build a Digital Solar platform – How to implement it?

## 1 Select priority use cases

Matrix of use cases attractiveness (examples)



## 2 Design an evolutive architecture



## 3 Adopt agile approach, be incremental and collect customer feedback

# Food for thought



Digital is a strong lever to increase marketing and operations efficiency



Think beyond the hardware, bear in mind that you don't know all the use cases yet



Include your data strategy at every step of the process of your project to inform your decisions



Adopt a "Test and Learn" approach, be pragmatic. Kill some initiatives, accelerate others





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