Topics

Smart Consumer, Smart Customer, Smart Citizen – the Project
My Family, my car, my energy system
Storage is key
Sharing is a trend
Utilities are developing new services
The contribution of S3C
2 Internal energy market

Energy should flow freely across the EU – without any technical or regulatory barriers

This means connecting markets through interconnections and implementing and upgrading the internal market's software while enhancing regional cooperation and empowering consumers.

Oslo, 3.6.2015

SET-Plan Integrated Road-Map:
Organised around 5 'Integrated Challenges' and themes

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It’s about people ...
Core Idea

Support energy utilities of the future to effectively cooperate with ...

The S3C Family of Projects

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The energy policy tetraeder

- Participation
- Security of supply
- Economic efficiency
- Environmental standards

Framing the process

- End user interaction
- Activation
- Continuation
The Smart End User

- Using renewable energies...
- Switching retailer on the internet ...
- Being rewarded for my flexibility ...
- Generating energy at home ...
- Saving energy ...

What people actively do ....

- I'm hungry. I will prepare a meal.
- I need some good talks. I'll go visit my friend.
- I am tired. I sit down on this chair.
- I am .... I will use some energy!
Levels of Personal Needs (Maslow)

- **Physiological Needs**
  - air, food, water, light, warmth
- **Security Needs**
  - housing, work, security
- **Social Needs**
  - closeness, love, mobility
- **Individual Needs**
  - success, spontaneity
- **Individual Fulfillment**
  - creativity, transcendence

*Flexibility is not a need!*

Developing People-Centred Products

- **Health and Security**
- **Commodities**
- **Prosumer Management**
- **Energy Consulting**
People are different

Expectations of our „customer“

- contribution to European Smart Grid discussion > consumer involvement (DOW)
- practical guidance that translates common knowledge and new findings to action in utilities (de Nigris, Sanchez, Krause)
- target group specific presentation, e.g. training seminars (ADB)
Work Packages and their interlinkage

WP 1: Framing
- Provides selection criteria
- Defines scope of research

WP 2: Investigation
- Engages test partners
- Provides empirical evidence

WP 3: Assessment
- Delivers good practice
- Ensures practicability

WP 4: Guidance
- Provides guidelines
- Ensures trust
- Delivers proven means

WP 5: Test

WP 6: Rollout

WP 7: Management

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The contribution of S3C
My Home is my Castle
My Home is my Energy System

Foto: eza
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Autarky
Autonomy

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Energy Pathways and Storage

http://www.alpstore.info/
The Power-Wall: a powerful start into the markets

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Making Business with Sharing

What we share … … and what we don’t

A Trend towards Sharing Economy

Oslo, 3.6.2015 Ludwig Karg, B.A.U.M. Consult

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A Trend towards Sharing Economy

What we share ... and what we don’t

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Quelle: Vortrag von Dr. Robert Thomann, MVV Energie AG
The Wall?

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The Network!

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2nd Life Batteries for Intelligent Solutions

image: Renault

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Crowd Funding: Sharing the financial burden

source: Crowdfunding for IndieWatt, the transportable battery for the Swiss Alps (www.indiewatt.ch)

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Oslo, 3.6.2015
Cooperatives for energy transition

Regional Energy Efficiency Cooperative

Energy efficiency measures at any of the partners

Regional partnership

- Municipality
- Citizens
- Banks
- Companies
- Associations, institutions etc.

- Financial resources
- Investment
- Share owned
- Pay-out

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The contribution of S3C
The Utility of the Future!


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PLATFORM AND APPS
FOR THE SMART ENERGY WORLD

original trials plus open call
FINESCE SME contest
Phase III

API Layer

Virtual Power Plant
Smart Factory
Smart Home and Prosumers
Electric Vehicles
eMarket Place

Device
Sensor
Actor
Actor

Ludwig Karg, B.A.U.M. Consult GmbH München / Berlin
BEYOND FINESCE: CREATING AN ECOSYSTEM

Business Layer

Service Layer

API

Smart Home and Prosumers

Virtual Power Plant

Electric Vehicles

eMarket Place

BIZ-APP

API

BIZ-APP

BIZ-APP

BIZ-APP

BIZ-APP

SERVICES
(examples from FI PPP Phase 3)

Service

Service

Service

Service

Service

Service

Service

Service

visualisation widget

serious game

Smart City energy performance analysis

interruptable eCar charging

Smart analytics for buildings

interpreter for raw sensor data

consumption curve disassembly („look behind meter“)

remotely controllable underfloor heating
### BIZ APPLICATIONS
(example from FI PPP Phase 3)

<table>
<thead>
<tr>
<th>Biz App</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>least cost supply</td>
<td></td>
</tr>
<tr>
<td>live at home for longer</td>
<td></td>
</tr>
<tr>
<td>energy shopping anywhere</td>
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<tr>
<td>direct energy marketing</td>
<td></td>
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<tr>
<td>community storage</td>
<td></td>
</tr>
<tr>
<td>regional payback</td>
<td></td>
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<tr>
<td>power flat rate</td>
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<tr>
<td>targeted product marketing</td>
<td></td>
</tr>
</tbody>
</table>

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### New business models: a long way to go?

- living at many places
- charging notebooks and mobiles anywhere
- charging electric vehicles anywhere?
Extreme direct marketing

**Strom geben**
Du betreibt im Keller, Garten oder auf dem Dach eines Hauses eine kleine Erzeugungsanlage und speist überkreuzten Strom ins Netz und stärkt den Nebel und die Energie von Menschen in Deiner Nähe!

Jetzt anmelden

**Strom nehmen**
Du ist es wichtig, wann Du mit dem Stromverzug für Dein Haus, Dein Büro oder Deinen Betrieb unterstützt? Wirbche zu buzzn und teile Deine Krafthol mit Stromsystem in Deiner Nähe!

Jetzt anmelden

Die Dezentralität hat mich überzeugt.
Vielen Dank für Euren Einsatz!
Hervorragender Service!
Unser Strom jetzt bei mir zuhause!

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Regional Payback System

- no discounts!
- cross-selling with other regional suppliers

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The Flatrate

- incremental costs of generation = 0
- grid costs = fix
- consumers supporting the DSO

= flatrate for power

• sensors
• flexibilities
• schedules
• power guards
Integrating grids and homes

Gaming works!
**Power Station? Art?**

[Images of a power station and an art installation]

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Cross-cutting Success Factors

1. Address end users as human beings instead of as points of electricity demand
2. Obtain a thorough understanding of target groups
3. Give personal attention and build trust over time
4. Emphasize sense of place: underscoring the local character of a smart energy project
5. Draw upon community dynamics
6. Motivate end users with fun and good news
7. Test before the roll-out

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Cross-cutting Success Factor 1

- Address End Users as Human Beings Instead of As Points of Electricity Demands!

Model region Salzburg – PEEM (AT)
FORE-watch in-house display designed as a kitchen clock to suit everyday social practices.

27.05.2014 Ludwig Karg, B.A.U.M. Consult
Cross-cutting Success Factor 1

- Address End Users as Human Beings Instead of As Points of Electricity Demands!

*Sala-Heby Energi (SE)*
Stepwise implementation of ToU-tariff: consulting local end users to tailor the tariff structure to their needs and adjusting terms and conditions along the way.

27.05.2014 Ludwig Karg, B.A.U.M. Consult

Cross-cutting Success Factor 2

Obtain a Thorough Understanding of Your Target Group!

*Linear (BE)*
Segmenting end users on their attitudes towards smart appliances (based on Davis’ (1989) Technology Acceptance Model):
- Adherents
- Doubters
- Proponents
- Recusants

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Cross-cutting Success Factor 2

Obtain a Thorough Understanding of Your Target Group!

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Cross-cutting Success Factor 2

Obtain a Thorough Understanding of Your Target Group!

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Cross-cutting Success Factor 3

Give personal attention and build trust over time!

Jouw Energie Moment (NL)
Publishing personal testimonials from participating end users

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Cross-cutting Success Factor 3

Give personal attention and build trust over time!

3e-Houses (DE/ES/UK)
Home visits to create interactions with vulnerable target groups (e.g. elderly, social housing residents)

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Cross-cutting Success Factor 4

Emphasize a ‘sense of place’ by underscoring the local character of a smart energy project

EcoGrid (DK)
community event with a locally well known comedian and a band to inform participants and recruiting community members.

Texel Cloud Power (NL)
Regionalised the project’s name to frame it into the local habitus, taking into account regional attitudes and identities: “Texel smart self-sufficient”
**Cross-cutting Success Factor 5**

**Draw Upon Community Dynamics!**

**Rendement voor iedereen (NL)**
Community coach to shape and support the community of end users and organize a board of ‘project ambassadors’.

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**Eueco (DE)**
Standardizing community processes for local energy cooperations with a reliable IT support system.

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Crosscutting Success Factor 6

Motivate End Users with Fun and Good News!

OSCAR (CH)
Gamification approach to foster energy awareness, provide hints and tips and to collect end user data.

BeAware (FI/IT/SE)
EnergyLife game (smart phone app) provides playful social comparison feedback based on consumption data and hints and tips to increase energy awareness.
Crosscutting Success Factor 7

Test Before Roll-out: Ensure Functioning!

Technological Development

- **Design Phase**
  - Include ‘consumer’-experts such as social scientists, but also trained installers or customer service

- **Adjustment phase**
  - Plan a friendly user trial and qualitative interactions to detect malfunctions or flaws in the overall design.

- **Implementation Phase**
  - Rollout functioning equipment and be prepared for questions and concerns of field test customers: Smooth processes are a prerequisite to acceptance

*MOMA (DE) - Energy@home (IT) - Smart Metering Projekt (DE) – Linear (BE)*

S3C toolkit terminology

- **Guidelines** are presented on two levels in the toolkit:
  1. Descriptive *information to explain* a topic, to address issues or questions that should be taken into account and how it relates to other topics in the toolkit.
  2. Step-by-step *descriptions to implement* a tool, including do’s and don’ts and practical examples – see example on the next slide.

- **Tools**: Instruments or processes that aim to facilitate the interaction of end-users with the project partners, the electricity grid, and the energy market. Tools can be technical, financial and oriented towards communication and engagement.
Guidelines and Tools

Guidelines
Automatic and manual flexibility operation
Baseline calculation
Bonus/malus
Co-creation (under construction)
Community support
Competition & social comparison
Consumption shifting and reduction (under construction)
End user feedback
End user segmentation
Energy consultants and face-to-face support
Evaluation through end user centred KPIs
Gamification
Getting to know your target group
Goal setting component as an incentive
Improving the method (under construction)
Introduction of peak levelling to the end user (under construction)
Meter installation
Monetary incentives
Monitoring demand response
Monitoring functionalities
Non-monetary incentives
Performance indicator data processing (under construction)
Potential allies on the regional level
Privacy & data security
Recruitment campaigns (under construction)
Self-evaluation (under construction)
Setting up a fake tariff
Setting up a price use mechanism
Smart appliances
Stakeholder coalitions
Storytelling

Tools
Co-creation workshops (under construction)
Detection of load shift capacity (under construction)
ENact 2020 Workshop
End user segmentation (tool description)
End user segmentation (excel template)
Hotline and customer support
Industrial partner engagement (under construction)
Most Significant Change (MSC)
Personalised mailing template
Postcard from the future (tool description)
Postcard from the future (word template)
Questions for the evaluation within smart grid projects
Strategy finder for tariffs and incentives (under construction)
Training installers
FAQ for Installers

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Co-creation of Products

Pictures from the documentation of the congress „Enact 2020 – Energie-Klima-Nachhaltigkeit“, 11th of November, Erfurt, Germany.

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The S3C Knowledge Platform

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Ludwig Karg
B.A.U.M. Consult GmbH
L.Karg@baumgroup.de
+49 (0) 89 18935-0