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Student Case Competition Report

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Abstract:
This deliverable reports the Case Competition for the Topic “Connected Energy”. It gives a detailed description how the Competition was planned and conducted. Also, the case solution of three different teams is described.

Keyword list:

Case Competition, Students, Case, Crowdsourcing

Content

1. Introduction and Motivation

In the FINESCE Student Case Competition eleven interdisciplinary teams from different European universities developed exciting ideas for new Business Models related to services in the field of "ConnectedEnergy". The Student Case Competition is a concept coordinated by FIR as a service to companies. It has been successfully done several times, with the goal to include young talents into the idea finding process of companies. The past competitions included the following topics and case partners:

- Philips, 2010: Business models for Health Application "Direct Life"
- Lufthansa Technik Logistik Services, 2011: Concepts for the use of innovative logistic technologies in aviation
- Siemens, 2012: Business models for technology based Value Services in Automotive Production
- Deutsche Telekom, 2013: Machine-to-Machine Communication in industrial environments

The concept of the case Competition was applied to the project FINESCE in order to get new perspectives on the FINESCE challenges and to spread these problems into a widely populated innovation community – students. The benefits for the active involvement of those young experts are multi faceted: They are able to apply their knowledge and skills on a "real world" practical problem, network with FINESCE project partners, get publicity and of course eventually win an award with their work.

In order to supply an industry case to the students, the FINESCE project partners developed the following procedure, case and advertising flyer for new ideas and service concepts for future smart energy use related to "ConnectedEnergy".

2. Preparation

2.1 Case Development

A brainstorming about several cases was conducted at FIR, in order to present a relevant and industry-related case to the students. The case ConnectedEnergy has proved itself to be the best fit to align the interest of the project consortium on one hand and the project specific topics on the other hand.

2.2 Case

The following case-description was developed for the topic ConnectedEnergy and is to be understood as a guideline for the individual case solutions. The students are supposed to take the perspective as a member of Ericssons Connected Energy Task Force and develop innovative and economic solutions for services in the energy market.

Ericsson
Strategies for the Enhancement of Decentralized Energy Production through wireless communication

2.2.1 Background

Today, alternative energy resources like Wind, Biomass, Water or Solar energy contribute with more than 25% to the overall energy consumption in Germany. The rise of alternative Energy production creates a decentralization of Energy manufacturing because of the broad spatial allocation of these resources all over the country. This development will impact the full chain from energy manufacturing to distribution and usage. Traditionally, the energy sector is decoupled from the communication market and therefore offers great potential for communication providers to offer solutions that help overcome distance related problems.
The Swedish multinational company Ericsson is one of the worlds' leading providers of telecommunications equipment and services to mobile and fixed network operators. In order to manage 40% of the worlds' mobile traffic, Ericsson needs to continuously make progress and evolve around the customers' needs in more than 180 countries.
A strategic business area of the company deals with the challenges caused by the decentralization of Energy production, manufacturing and usage. In order to face these new challenges, Ericsson wants to expand its service portfolio for end customers (B2C) to foster decentralized energy and improve profits.

2.2.2 Your Task

Coming fresh from university, you have recently joined Ericssons' "ConnectedEnergy" Task Force as a new member. This task force aims to open up the market for Wireless communication technologies in the Energy Sector for Ericsson. In the future, your division needs to contribute its own share of profit to the company. Therefore, your first task within this interdisciplinary team is to find new and innovative Business Models related to services in the field of "ConnectedEnergy".

The focus of this service should be located in the Business to Consumer (B2C) sector in the fields of Energy production, distribution and usage.
First ideas are expected from the Task Force within a short period of time. To ensure the customers benefit you are pleased to answer the following questions:

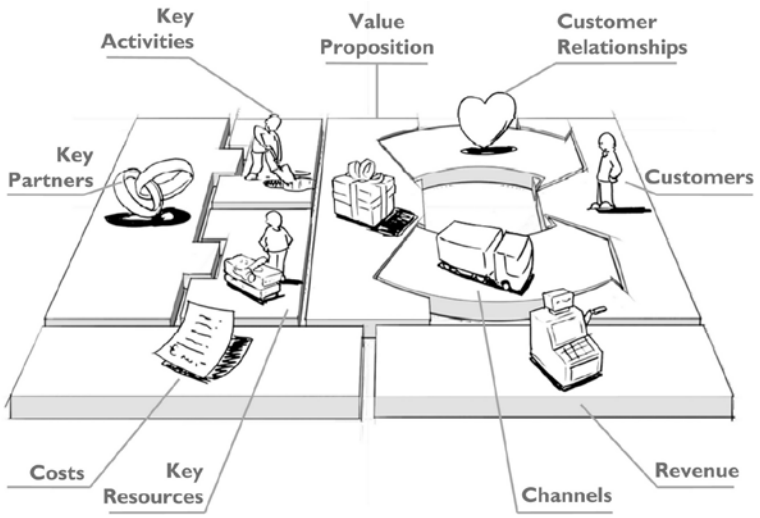
- What's new and innovative about your idea?
- What's the technology gap?
- What's the customer value?
- Which "Pain Point" can be eliminated?
- Which solutions are end user looking at and what future communication is in needed

In order to develop an idea, you and your team can access different channels of information: Internet research, surveys and the documents in your email folder. Use the given information wisely and integrate it into your work for better results.

2.2.3 Expected Results

2.2.3.1 Business Model

The following points can be seen as a guideline for your structure of the business model. Feel free to use existing similar guidelines, such as the Business Model Canvas.



1: Business Model Canvas as a Framework for the case solution

Value proposition model

- Most important: Definition from customers' perspective
- Solutions must improve customers' productivity and efficiency and strengthen the customers' competitive situation
- Focus should be on defined steps of the B2B value chain
- Solutions must not be limited to Telekom products, don't be afraid to open "new doors"
- Decision support
- …

Customer model

- Precise profile of target group
- Customers may include manufacturers and/or suppliers, industrial B2B environment
- Customer relationship management processes
- Distribution channels
- …

Financing model

- Fix price
- Volume based
- Monthly rates
- leasing
- …

Cost model

- Typical costs
- Cost drivers
- …

Revenue model

- Charging models
- Pricing strategy
- Sales approach
- …

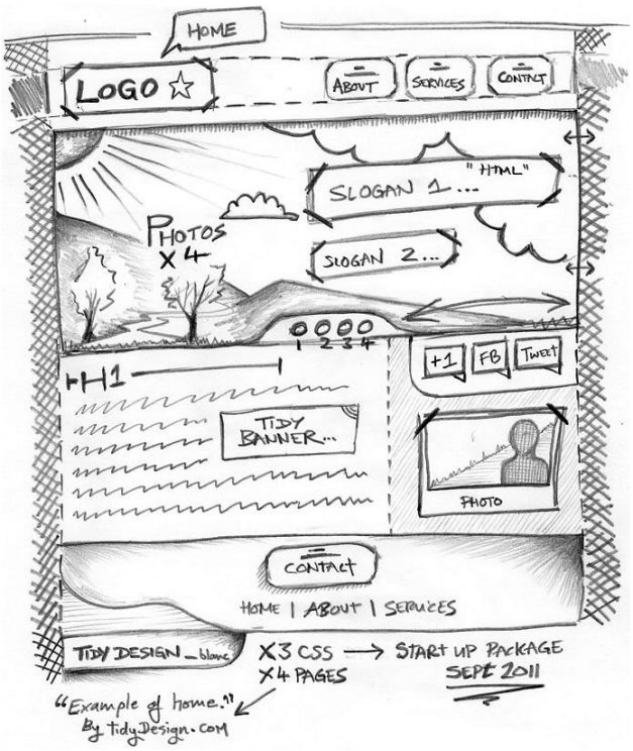
Operating model

- Key resources (people, technical infrastructure)
- Key processes (value chain, interaction)
- Strategic partners
- …

Take also **frame conditions** into account: Business strategy, market trends, competition, operational setup, culture & mindset, further boundary conditions …

2.2.3.2 Visualization

The second part of your result describes the visualization of your service idea with the help of a mock-up. Please provide a short description of the working principles (screenshots, pictures, etc.) so that the jury can easily understand and evaluate your mock-up.



2: Example of a Mock-up (Content: hackerspace.kinja.com)

2.2.4 Further information / additional hints for presentation and summary

- Take a managerial perspective
- Put emphasis on customer value
- Listen to the unfiltered voice of the customer, if possible
- State your products USP (unique selling point) and SWOT (product strength & weakness, marketing opportunity and threats)
- Explain your business model
- Give a recommendation based on the results
- Present your concept in a vivid, practical use case
- Language of the presentation has to be English

2.3 Marketing

The marketing activities played an important role in the preparation for the competition. In order to reach students at the participating universities of Aachen, Maastricht, Warsaw and Horsens different marketing materials were prepared and designed by FIR. They included a short description of the case, the program, Awards and contact details.

The following marketing materials were used in several marketing activities:

- Materials
  - Flyers
  - Posters
  - PowerPoint Slides
  - Project Website
- Activities
  - Distribution of Handouts in Aachen, Maastricht, Warsaw and Horsens
  - Posts in online student boards
  - Announcement in university lectures (Service Design & Engineering; Business engineering)

3. Framework, Requirements and Timetable

3.1 Framework and Requirements

All teams that wanted to participate had to apply through FIR's online registration portal. The portal checked, whether the Team size was between one and three participants and whether the teams came from the participating universities.

The requirements were as followed:

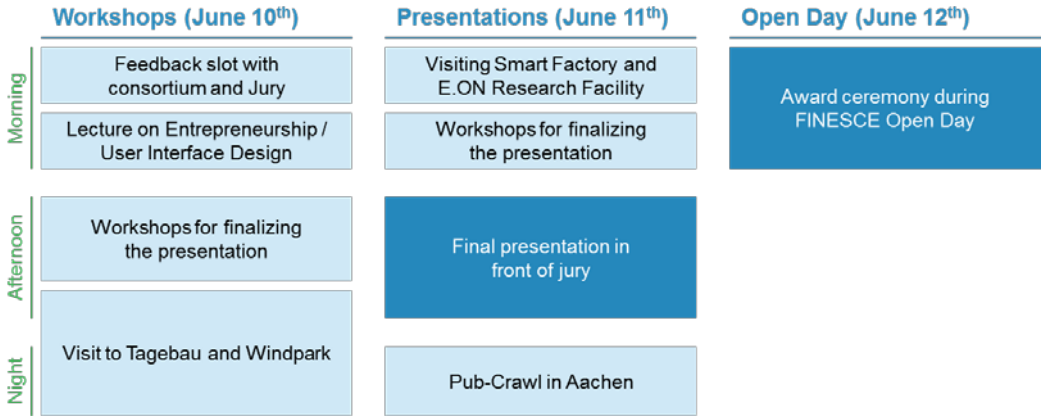
- Team Size 1-3 persons
- Language of case solution – English
- Font size 12pt, 1,5 spacing, Arial
- Participation at the final event mandatory

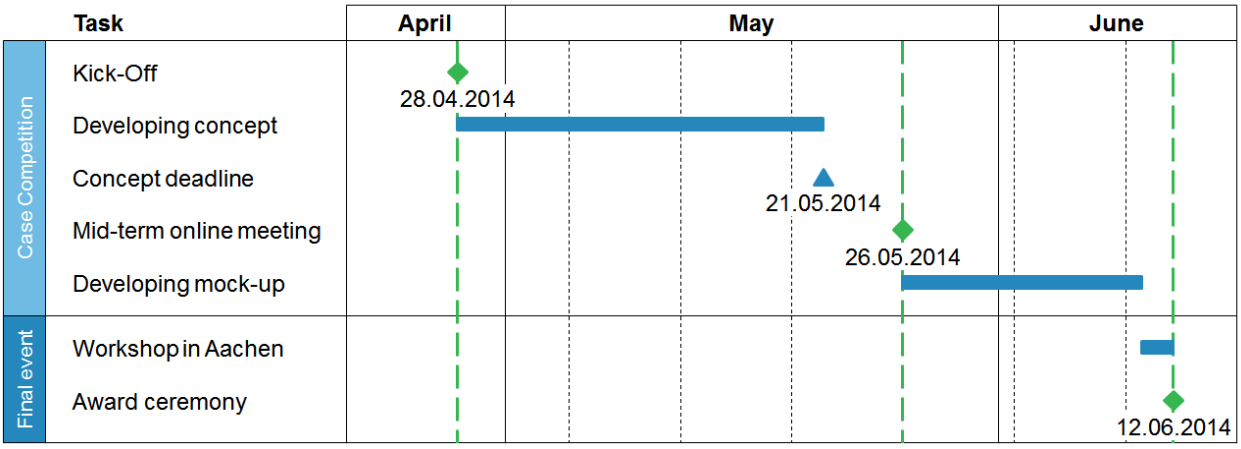
3.2 Timetable

The following timetable was developed with the case partners and was divided into two fields: The Case Competition and the final event.
The Kick-Off was held virtually at Ericsson in Aachen. Since the registered teams were spread all over Europe, a video conference helped to introduce the case to the teams online. After a short introduction of the company Ericsson and the project FINESCE, the teams learned about the Case and were able to discuss questions directly via microphone and webcam.
Following the kick-off event, the development of the concept started. Within the given teams the students focused on the case description and developed their ideas.
For the concept deadline, those ideas were turned in and collected at FIR in order to undergo a first evaluation. Those ideas were again discussed during the mid-term online meeting, in order to help the teams to focus their work.
Afterwards the teams started to work on mock-ups to easily explain their ideas and visualize the case solutions.

The second part of the program consisted of the Workshop and the award ceremony, held at FIR Aachen. The figure above shows the precise procedure of these events.
The goal of the first day in Aachen was to give the students, the consortium and the jury a chance to meet each other and to discuss and develop the ideas to their final state. Additionally,

a lecture on entrepreneurship and User Interface Design helped the students to take the perspective of the different user groups (end-customers, companies, etc.) while designing their service. In the afternoon the students visited an underground mining facility located close to Aachen.
The second day started with an excursion to the E.ON Research Facility were several of E.ON's projects were introduced in the Smart Factory. After that the teams had time to finalize their presentations and mock-ups for the following final presentations. During that slot, presentations of the teams were given in sequence of 20 minutes presentation, 10 minutes discussion with the jury. After the exhausting presentations that took longer than planned (as a result of interesting and intense discussions after the presentations), the teams celebrated at a local pub in the city centre of Aachen.





3: Timetable of the Case Competition

4. Teams and Results

Students from the Institut polytechnique de Grenoble, the Warsaw University of Technology, the VIA University College, the RWTH Aachen University, Maastricht University and the Cologne

University of Applied Science were invited for the 3-day event in Aachen in order to present their ideas.

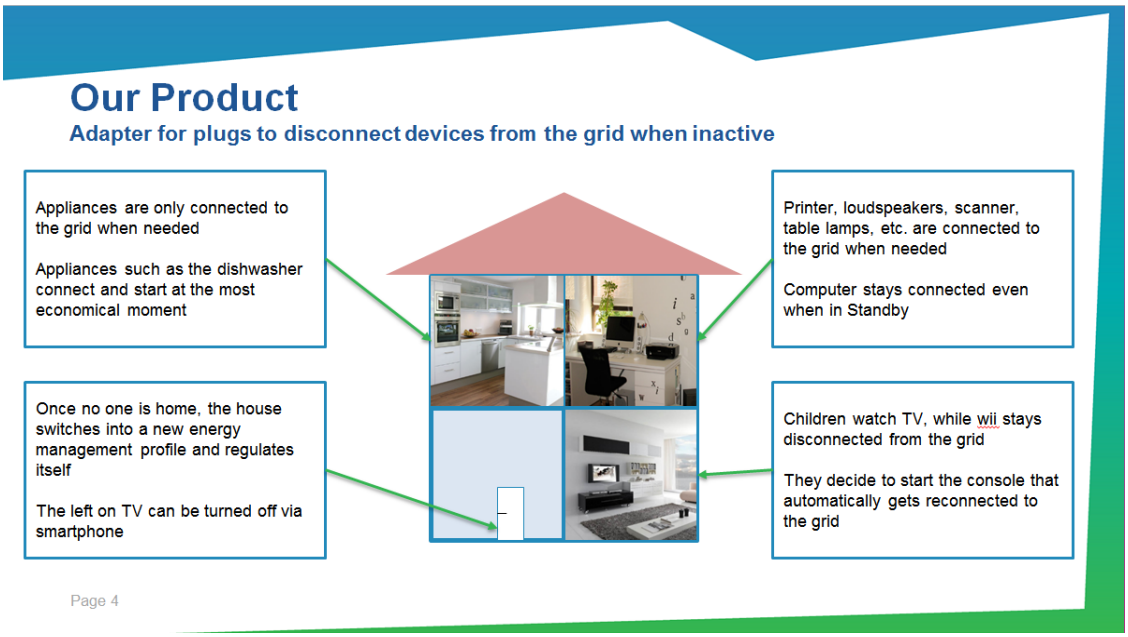
Team Energetica
Members: Julian Scheuber, Lennart Peters, Henning Wilms
Team Go
Members: Charis Mourtzakis, Mustafa Adham
Team EC2X
Members: Caroline Henneke, Sebastian Stille, Martin Lachmann
Team Rose/ micromanage
Members: Grace Mason, Jonas Trusbak

All four teams gave great presentations of their business cases. Team "Rose" from Denmark showed an opportunity to organize the daily tasks of prosumers with a Smartphone app. Team micromanage's idea was to build an app that allows the user to remote control all electronic devices and even to manage the electronic vehicle and Team EC2X showed opportunities for a secure data transmission by peer to peer networks and team "Energetica" created the idea of a miniaturized smart plug that can be installed in new houses.

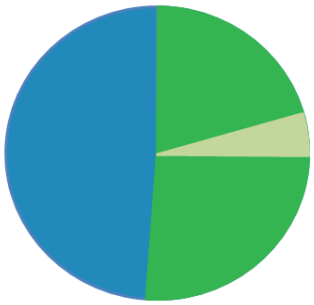
The following paragraph gives a detailed insight about the specific ideas:

4.1 Team Energetica

Members: Julian Scheuber, Lennart Peters, Henning Wilms
Their business case is a miniaturized smart plug, which is not visible for the user and can be installed in new houses as well as in already existing installations. Through a Smartphone app, a combined service and the use of different sensors, it offers a smart energy management for every household.



Market analysis



- Total of 9395 newly build houses in Germany 2013
- 51% of these home-builders are willing to pay an extra 4000 to 8000€ for smart technology*

  → Total market volume for smart home appliances in newly build houses: 28.748.700€
- An estimated 15% of those consider our adapter

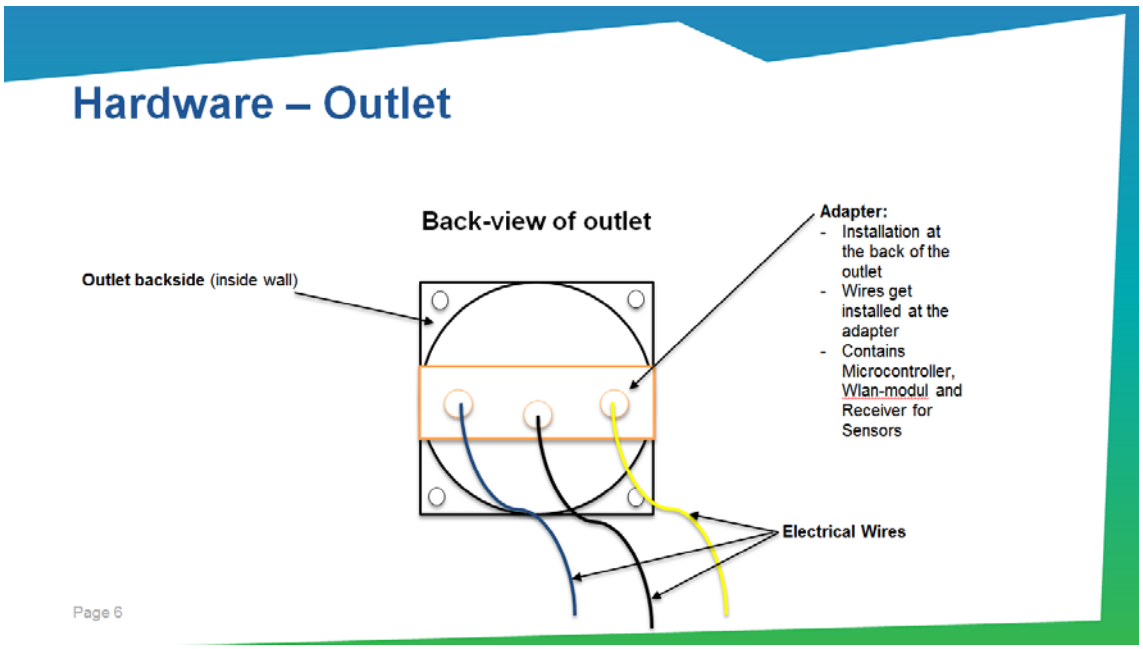
Page 16

* Forsa 2012

Business Model Canvas

Partners: - Production partners - Sales partners - Producers of home appliances - Universities - Ericsson	**Activities:** - Continuous improvement of product - Product and service maintenance - Data bank and analysis - Costumer support **Resources:** - Product - R&D - Data bank - Contacts	**Value Preposition:** - Energy management - Energy efficiency - Energy consulting - Visualization - Control of home - comfortable and easy to use - Inlet modification -> no adapter - Gamification - Bonus points as extra incentive - Retrofitable - Usability - Integration into "Energiesparausweise"	**Costumer Relationship:** - Functional customer restraints - Product as a service - Emotional, fun product **Channels:** - Online - Fairs - Specialized press - Media - Specialized trade	**Costumer Segment:** - Young families - People in the process of building a house - House owners renovating - Geeky - Green - B2B costumers (e.g. office buildings)
Cost Structure: - Hardware development - Software development and maintenance - Business expenses - Production costs			**Revenue Stream:** - Mainly from use of offered services, (freemium model) - Extra services from redemption of bonus points - Distribution and selling of hardware	

Page 20



4.2 Team Go

Members: Charis Mourtzakis, Mustafa Adham

The idea is to monitor and control the power production of a household, as well as storage capabilities in houses and correlate the production and storage capabilities with energy prices of the market to optimize profitability. This will also serve to help in the balancing of the grid's volatility.

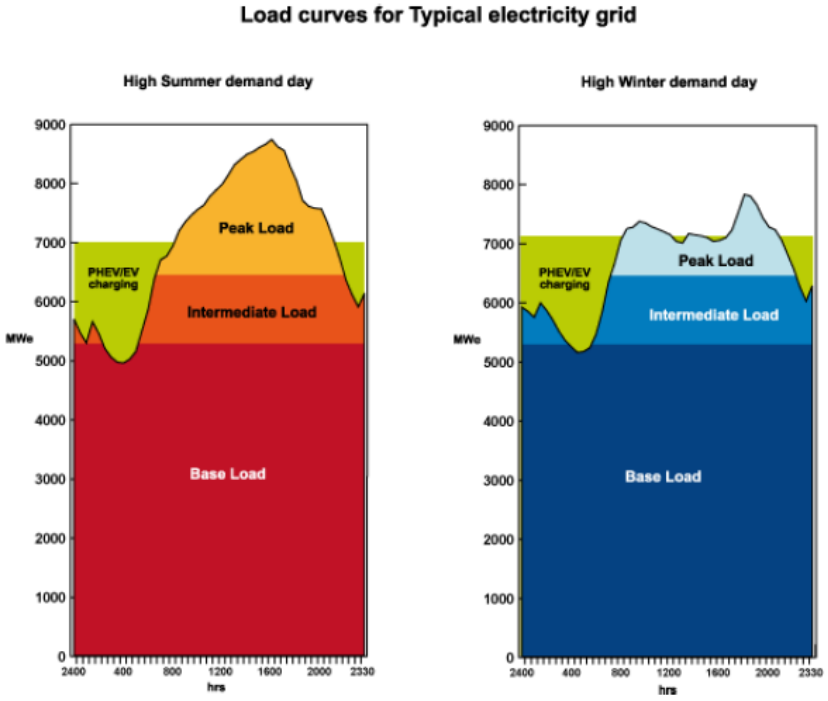


Figure 1 Grid Demand – Graphs showing the current demand and the expected demand with the introduction of EV.

Source: http://www.world-nuclear.org/info/Current-and-Future-Generation/World-Energy-Needs-and-Nuclear-Power/

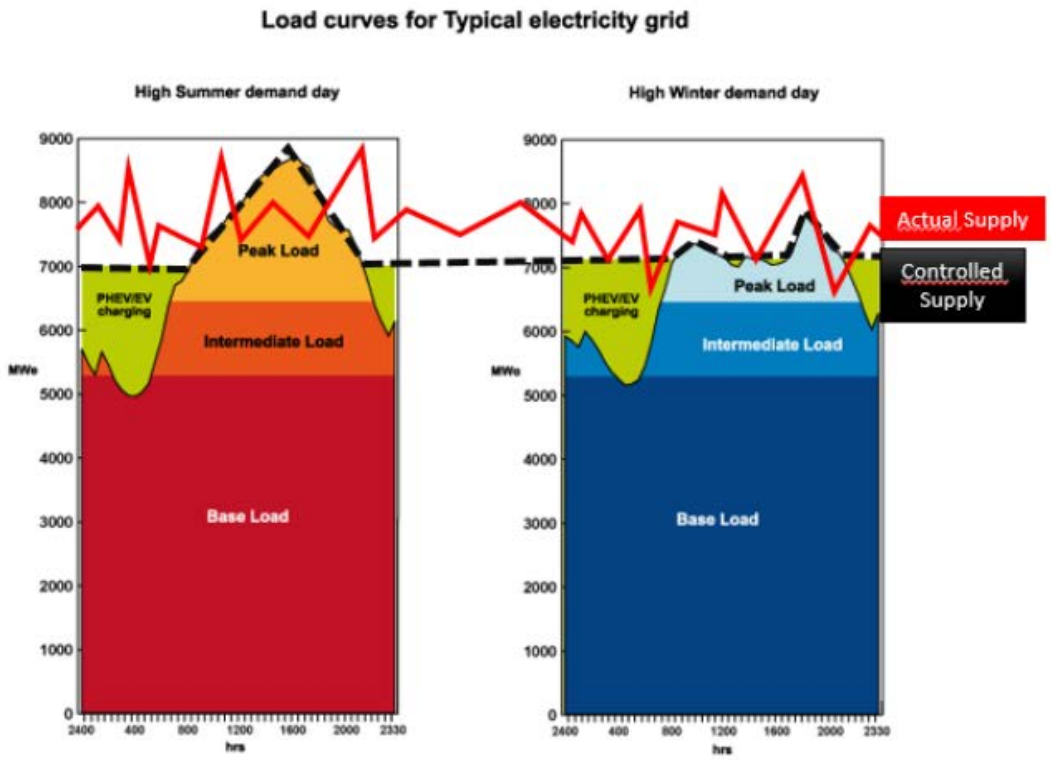
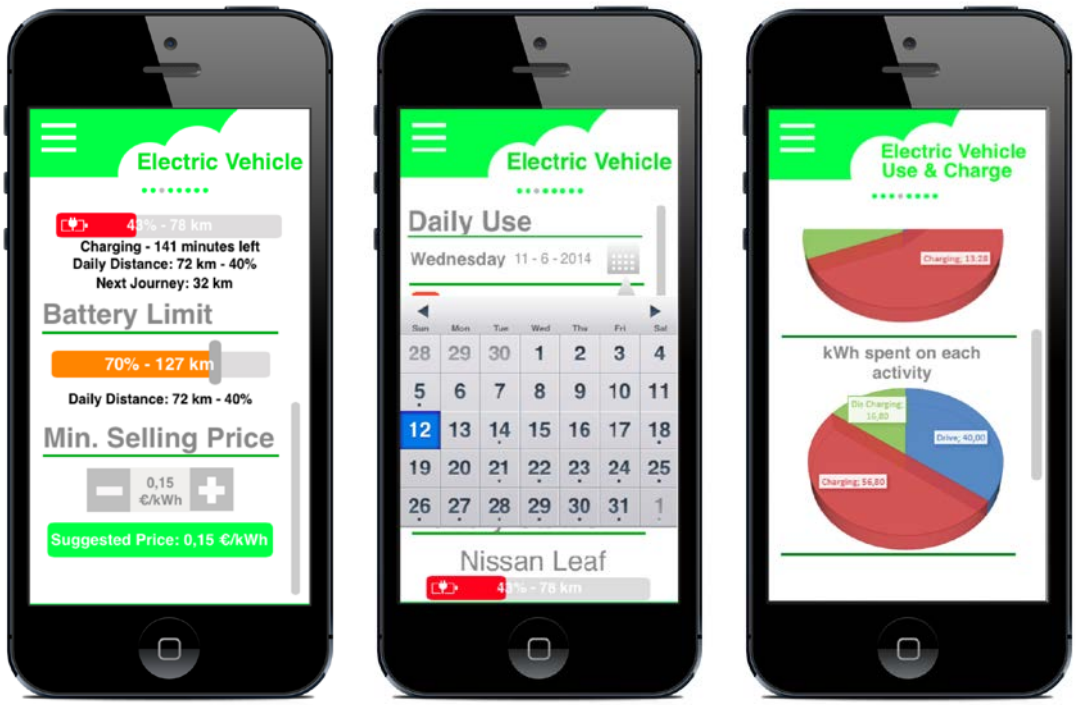


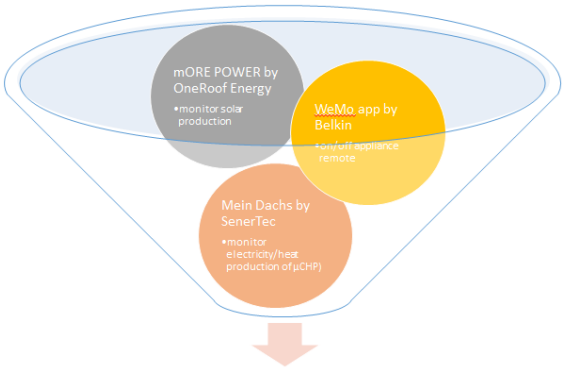
Figure 2

4.3 Team Rose/ Micromanage

Members: Grace Mason, Jonas Trusbak
With a app they want to become the new Google of green energy. The app functions as an easy way for the prosumer to interact with an otherwise difficult and opaque industry. By giving the prosumers adequate tools to navigate as a seller through the grid, they want to help balance the fluctuations of the supply and create and maximize supply versus demand during all times.



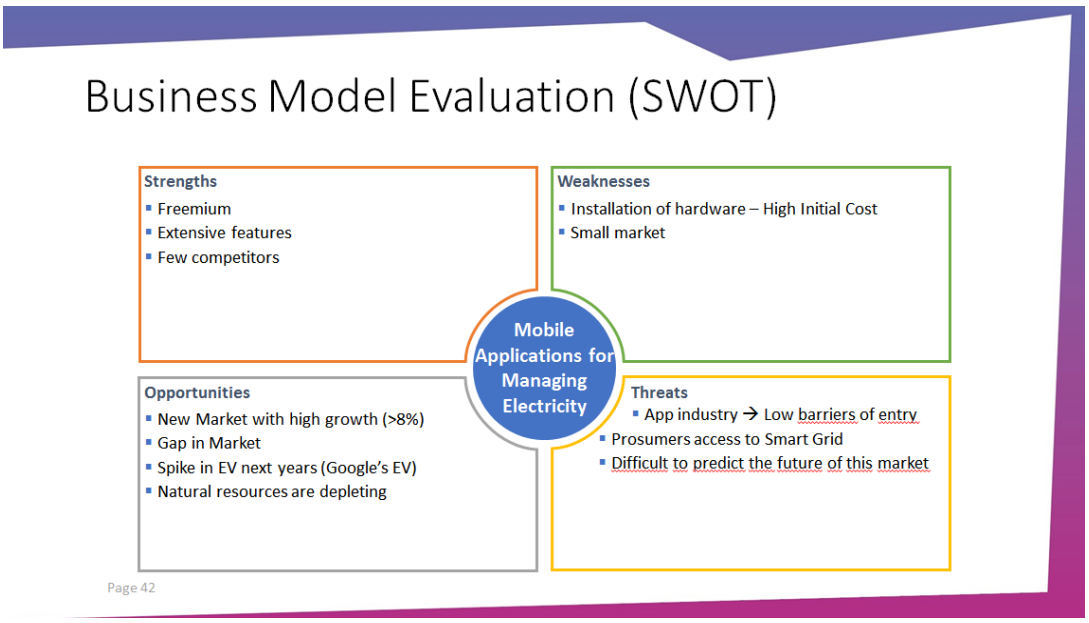
Competition

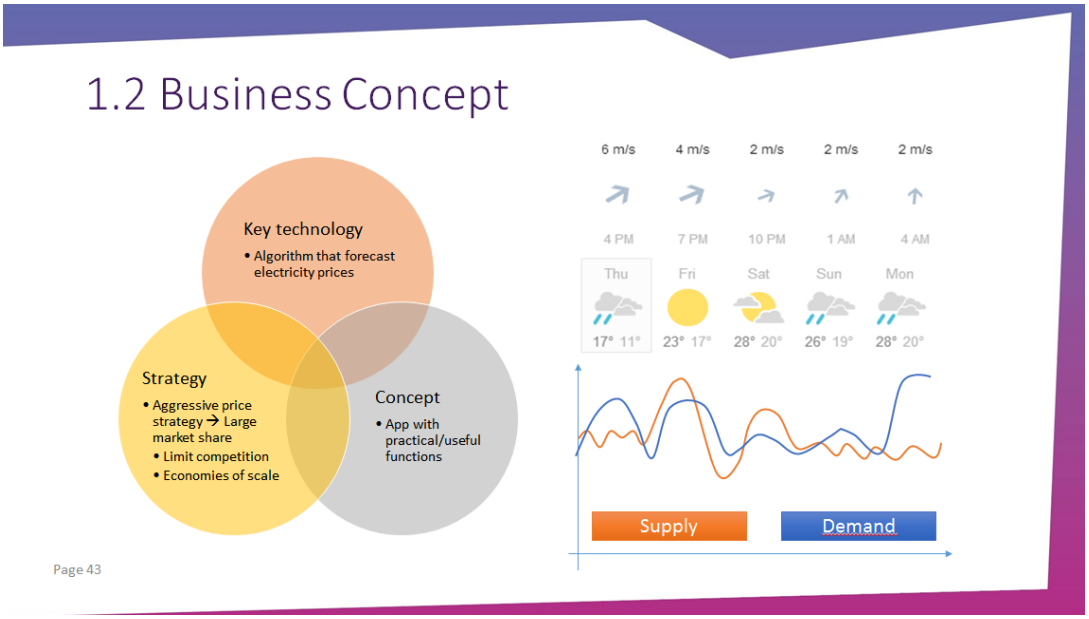


Advantages

Few competitors with less functions.

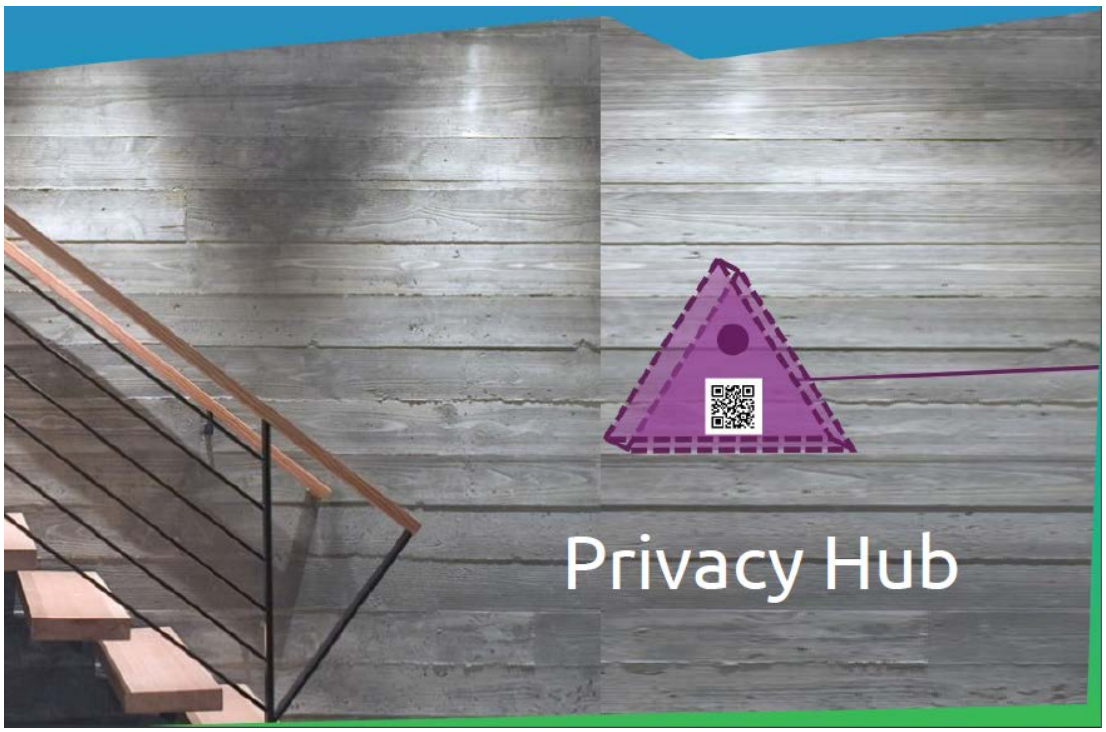
Page 41

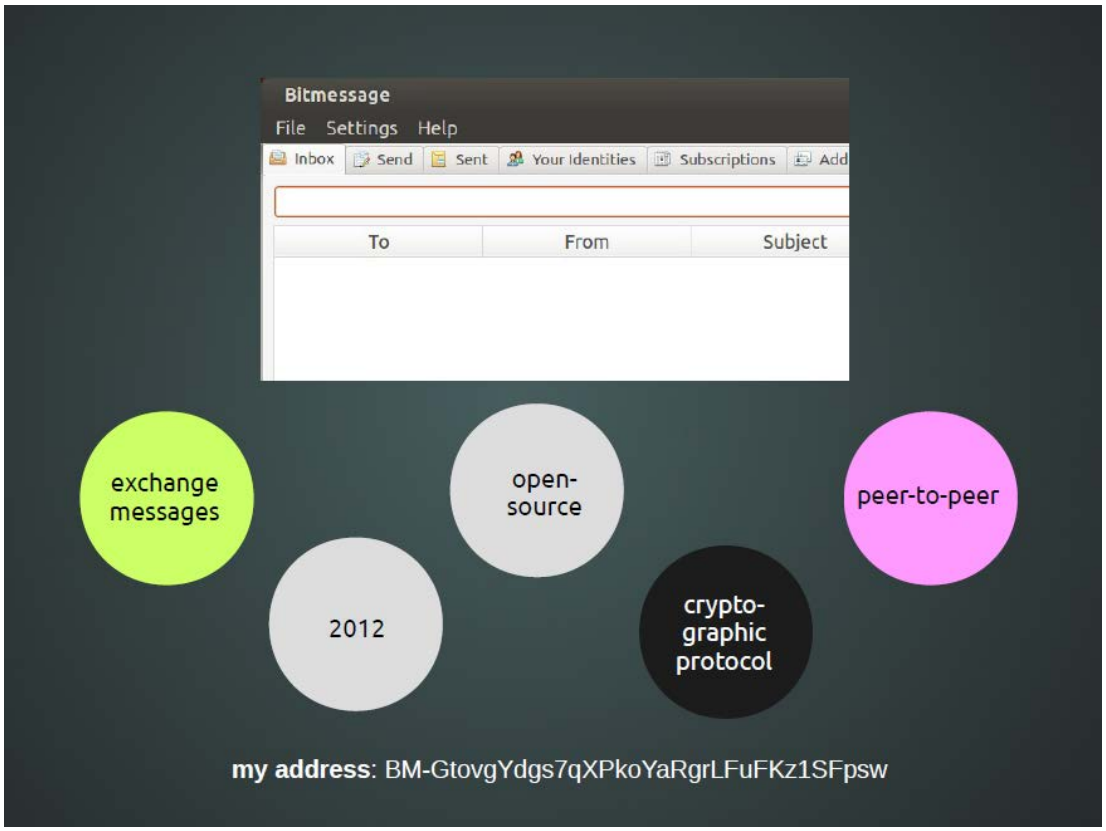




4.4 Team EC2X

Members: Caroline Henneke, Sebastian Stille, Martin Lachmann
Prisma base is a device in your home that is connected to your heating, climate control and your fridge via local LAN or wifi, in order to easily quantify, visualise and stream energy consumption. It is emphasised that the framework is private by design than just private by promise.





Evaluation:
The following criteria were set in order to equally evaluate the ideas. The whole audience was involved in the rating process (about 25 people).

Criteria	Emphasis
Presentation, mock-up and answer of questions	10%
Detection of pain points and goal-oriented processing	15%
Innovative capacity	15%
Strategic fit to FINESCE	15%

Practicability of the idea	20%
Development of a Business Model	25%

5. Conclusion

During the whole 3-day event, the students refined their inventions within the teams, but also challenged their developments across teams. In order to set the stage for moving their ideas forward, they had the chance to use the infrastructure of the Service Science Innovation Lab – FIRs' laboratory for service innovation. Within this room, the service development becomes "touchable" and visible through various whiteboards, multimedia-beamers, "innovation corners" and touch interfaces. Also service development methods, such as the Business Model Canvas were digitally available. This helped the students to systematically develop their ideas, along the pathway of the nine fields of this internationally recognized method. It was interesting to see how the students worked on fields that represented their specific skills best. Some worked on the detailed idea description, others built a creative mock-up in order to demonstrate the solution hands on.

Finally the team Energetica with Henning Wilms and Julius Scheuber won the competition. Their idea successfully identified certain pain points for customers and showed the potential of a smart power plug that disconnects energy consuming appliances from the grid when inactive. Additionally their mock-up of an actual plug helped to understand the idea. Because of the high strategic fit to FINESCE and the innovative capacity this idea was chosen by the jury.

The winning team was offered an interesting internship at Ericsson and were awarded prices like iPads and headphones for their great work. Team Rose made it to 2nd place and was awarded a iPads. Place 3 and Bluetooth headphones were awarded to both, teams EC2X and Team Micromoanage.

The FINESCE Case Competition was a great success for all participants. Students from different backgrounds were able to work together in teams to develop new ideas and discuss all aspects of their plan. Also they were able to receive direct feedback from FINESCE project partners before, during and after their presentations. The social program (excursion to mining facilities, EON energy research laboratory, and pub crawl) helped to strengthen the participant's relations and offered new insights to different aspects of energy. Additionally the marketing activities of the Case Competition helped to spread the projects content through posters, flyers and the webpage.

The participants of the project were amazed by the student's ability to find new ideas and solutions in interdisciplinary teams and to develop great and complex ideas within a short time. Especially the ideas of the Top Teams shown at the prize giving event underlined the capabilities of young student teams. The presentations opened the eyes of many participants to the deep asset of creativity that can be tapped by such a competition.
Especially the combination of business and technical skills (Development of a business model and a touchable Mock-up) displayed by the teams showed their knowledge of how business works as well as their technical knowledge. They brought their ideas into the context of the business world. This was also confirmed by Peter Fatelnig, Deputy Head of Net Innovation (European Commission) who attended the event. He was highly impressed by the ideas submitted and the creativity of the proposals.

The winning ideas helped to see the topic from a perspective of young students that grew up with the internet and are used to a connected world. The ideas presented included radical, out of the box thinking that might be just what is needed to accelerate change in energy markets. There might be a new “google” scale company that could be developed from their ideas! In particular, the peer-to-peer ideas have the potential to radically reinvent business models and turn the energy systems not just upside down, as FINESCE is doing, but also inside out! The feedback from Ericsson showed that the developed ideas were valuable and of high interest for the company. Therefore it can be stated that the Competition did meet the internal targets:

- Involvement of young professionals to solve a given case
- Gaining of publicity through marketing activities and a 3-day event in Aachen

The ideas are not solely feasible for the big players in the energy market. Especially SME are able to quickly develop app based services to support customers in the field of energy management. For future Case Competitions, Students could be integrated even deeper into different workpackages, deliver solutions and compete with even more universities and teams.