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Task 25 D2 report Austria

Austrian context analysis and Business Models case studies for a more Effective uptake of DSM energy services for SMEs and communities

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Introducing Task 25

In November 2014 Task 25 started under the umbrella of the International Energy Agency Demand Side Management Technology Initiative. A Task focused on business models underpinning Energy Efficiency services. This introduction provides the basics about the task and its core views and goals.

Why this Task is important and necessary

Task 25 is trying to understand what can be done to stimulate the market uptake of Energy Efficiency. The premises behind this question is that the current system (the established system) is technocratic and push oriented and that a more user centered approach will be more effective. In order to find out what works when, where and why we have to understand the system at the level of the proposition and the business model, at the level of the entrepreneur and his skills and at the level of all the actors in the system. Also, we have to understand interaction and exchange of various types of value.

We fully acknowledge that the current climate and energy policies reflect the interests of established stakeholders and potentially allow for low-hanging fruit type of changes and inhibit more radical type of changes. In this Task we work towards an understanding of this tension between the established regime and new business models and propositions that aim to transform the system. We have found that there is no canon yet in relevant literature on how and at which level such processes of shifts should come about, or how to make them come about. And we are convinced that these questions are essential as part of a "theory of policy" for a true green transformation. The energy efficiency market still is being defined in terms of -for example- technological, subsidiary or legal possibilities. These descriptions not only influence the way business models are being created, but also the way they are being studied (as for example, technical or contractual constructions) and being reviewed by, for example, policy makers. We think this is an exponent of what is called 'the tech-push perspective. In this perspective, the basis of economic activity is the making and distribution of goods (output). The main goal of a firm is then is to maximise profit margins through efficient production and distribution.

Consequently, in this perspective, the user has a passive (consuming) role and service is an ad-on, with the main purpose to increase the output of goods.

The task thus has a very explicit strategic framing and we do explicitly work with and towards a framework that reflects these strategic questions, with the sociotechnical transitions methodology and value flow model complementing the more individual proposition and business model focused methodology of the business model canvas analysis. For a more thorough discussion of these frameworks and models please take a look at our work plan to be found on our task website.

We decided to focus exclusively on Energy Efficiency services (by this, we exclude production like solar, biomass etc.). Based on typologies found in all countries we decided to focus on Energy Efficiency propositions offering:

1. Retrofitting (product or service included)
2. Smart (home) management systems (product or service included)
3. Renewable waste energy (product or service included)
4. Lighting (product or service included)
5. Total solutions

Subtask 2: Identify proven and potential business models for energy services

The Task is divided in 4 subtasks. Subtask 1 is about management. Subtask 3 is about training relevant stakeholders based on findings in Subtask 2. Subtask 4 is the dissemination task. Subtask 2 is the focus of this report.

There are many energy service business models "out there" and often they are closely linked to existing market structures and policies. In other words, business models are often country and context specific. The subtask is focused on performing an inventory of different existing business models, both in the participating countries and also including global examples of successful business models. In the different participating countries we analyse what business models exist, and what frameworks (market and policy) accompany them.

Subtask objectives

1. Identifying country specific suppliers, clients, and their stakeholder networks and trying to establish national advisory expert networks to continue working with throughout the task.
2. Narrowing down the focus of both services, target groups and typology of business models in close cooperation with national experts and other relevant stakeholders.
3. Clarifying how the different parameters of success of business models and services will relate to each other in the analysis – economic profitability, scale of impact and real savings, business creation, growth rate, synergies with other values, adoption rate etc.
4. Developing a task specific typology or categorisation of business models and services for EE.
5. Developing an overview of existing energy service business models in the participating countries and their frameworks/ecosystems and how they meet and incorporate client needs.
 - a. Longlist overview of existing services and business models
 - b. Shortlist overview of services to be focused on in more detail.
6. Reviewing global existing business models and their frameworks/ecosystems with a clear focus on quantifying and qualifying effectiveness.
7. In-depth comparative analysis of around 4 similar business models in different countries and around 12 per country. Determining patterns, drivers and pitfalls.
8. Identifying key factors that make services (and their vendors) succeed in the participating countries through an in-depth analysis of country specific markets and policies for energy services and their influences on business models.
9. Organising country workshops with service providers and clients.

Subtask 2 and Austria

Together with the national experts, we first drew up a longlist of interesting Energy Efficiency propositions in the participating countries. The selected propositions are interesting because they are more or less successful, effective and often fit the existing system well for some reason but still manage to create real uptake of energy efficiency (fit propositions), or they are interesting because they are 'unconventional, innovative' and focus on the high hanging fruit and real transformations of the system, we call these the stretch propositions.

Based on initial information collected in this longlist and based on the categorization of 5 types of energy efficiency propositions we made a selection of propositions that would be further analysed to understand their business model, and the interaction with the context and existing system. The selection will allow for comparison of similar propositions, with sometimes different outcomes, and operating in different political, institutional, technological, socio-cultural contexts. In a parallel movement we started fleshing out the business model canvas for each of the propositions on the shortlist. The canvas however is a snapshot, while the underlying business is a very dynamic and complex entity which operates in a system, which is also very complex, with its own dynamics. Therefore, we investigated the entrepreneur's journey for each of the propositions as well, which is a description of the business and how it has evolved over time. Also, we identify how the system influenced this development. In order to collect our data we interviewed all these entrepreneurs both on their business, their skills and their perspective on the system they operate in.

Once these individual case studies were performed and a national context analysis was conducted we entered the next stage of the task: the comparative analysis. For an extensive overview of the methodologies used see Annex 1.

Reader's guide

This country report is the Austrian Subtask 2 final deliverable for Task 25. The report first provides a short description of the analysis framework for the Austrian context and cases. Then the analysis of the Austrian context is discussed and finally the different business models and services selected for the deeper analysis are described. For the comparative analysis of cases, including the Austrian cases we refer to Deliverable 4 of Task 25.

Three levels of analysis: business model, entrepreneurial capabilities and context

This task focuses on three issues that are of key importance in the successful delivery of energy efficiency services. Sustainable business models can benefit from taking a user-centred approach. This is directly related to the fact that service value is being co-created with the end user. No user means no service.

Business models and energy services focusing on the customer perspective and their unique buying reasons for energy efficiency are therefore the next step in creating a mass market for energy efficiency. These new types of business models and energy services are arguably much more effective than the so far rather technocratic and technology push approach

A second element of importance to delivering effective energy efficiency services is the ability and skills of entrepreneurs and providers of services to focus on this customer perspective and tailor their services. This is becoming increasingly important in creating future competitive market strategies. This certainly applies to the changing customer market for energy companies and utilities and other suppliers, which are in dire need for new business models and effective energy services. These skills include customising and co-creation, contextualising, orchestrating, stretching and scaling,

A third element of relevance to understanding how to deliver more effective energy efficiency is context. A business model design is strongly influenced by context, e.g. existing legislation and available subsidies, other bottlenecks and constraints, and various players within the current energy production and consumption system. The creation of the business model and value proposition, the context in which the business model and service is deployed and finally the capabilities of the entrepreneur/enterprise in navigating the context and user related issues are at the core of our analysis of the country specific cases.

Introducing the transition from only product to also service and user needs orientation in the EE market

A different perspective than the technology push perspective is what could be defined as a service logic. [Vargo and Lusch, 2004] In this perspective, the service is the fundamental basis of exchange.

This implicates that not goods, but knowledge and skills are the fundamental source of competitive advantage and therefore are the main drivers of value. One of the characteristics of services is that their value is experienced in use. The main goal of a firm is therefore to facilitate outcomes the user wishes for and values. From this perspective, the user has a dominant role in the creation of value as well as in the creation of the business model.

In reaction to the lack of uptake of energy efficiency products many businesses and utilities

Transition!



are (intuitively) changing their business and turning towards a more service oriented model. We are witnessing a transition from a focus on delivering the physical goods needed to achieve energy efficiency to a focus on offering solutions including both goods and services. A recent study on North-American and European utilities (Bigliani, R. et al., 2015) for example demonstrates that utilities are facing many challenges and in addition also face new competition for (the wallets of) their customers from nonutility players (including ICT companies, consumer electronics and energy equipment manufacturers, telecom). These new players offer richer customer experience with new services and new business models and force utilities to start discussing new business models (IRENA 2014). In Europe new business models tops the strategy agenda of European utility executives (Bigliani, R. et al. 2015). North-America is following, as a survey amongst stakeholders demonstrate, where new business models were seen as the most important challenge by 2% of respondents in 2014 to 34% of the respondents in 2015 (Bigliani, R. et al. 2015). And of these business models, the service model, including PV charging, HVAC services, rooftop solar, Bundles home services, community energy, data management) is most appealing to utilities that are forward-looking, with even plans to decouple the service from the sale of a commodity supply contract (Bigliani, R. et al. 2015).

Examples of emerging energy efficiency services include integrated or one-stop shop or bundled offerings around retrofitting, smart (grid) services, lighting-as-a-service, heating-as-a-service, smart energy management as a service and the more common ESCo's and EPC contracts. The Cambridge Service Alliance, a leading research-industry cooperation states that in many

sectors we are indeed facing a transition from a system consisting of products, outputs, elements suppliers and transactions to a system consisting of solutions, outcomes, relationships, network partners and ecosystems, packaged as services.

Necessary Entrepreneurial capabilities

By now we know that a (new) service is composed of several different elements, closely linked to the dimensions of the business canvas (Janssen, 2015) (Janssen & Hertog 2016 forthcoming). For these elements to work well together, the service provider needs several dynamic capabilities that have to do with the ability of the company to realize new solutions and respond to changes in the environment where they operate (Janssen et al, 2015). Four sets of capabilities turn out to be particularly significant.

1. Sensing user needs and (technological) options: this capability is about engaging in a meaningful interaction with users and other stakeholders to extract relevant information for fitting the service to the expressed needs. This interaction can be about co-learning, by sharing knowledge from both sides, or about contextualizing, by making efforts to match service offerings with actual needs.
2. Conceptualizing: engaging in service provision often means that the companies experience frequent interactions with users and stakeholders. Yet, the same companies might not always be able to take a step back and uncover general patterns in the rich variety of context-dependent needs. Service providers able to conceptualize have strong induction capabilities and they are engaged in innovation on a regular basis.
3. Co-producing and orchestrating: services often require the alignment of several different actors as they bridge for instance several physical inputs providers to create the end experience. Companies able to co-produce have developed capabilities for working together seamlessly with different partners, have strategies on how to create consistency and smooth procedures for interaction, particularly in the case of diverging incentives.
4. Scaling and stretching: a final key capability relates to the marketing skills of service providers and their ability to package their offerings in a way that large user groups will recognize the value of those offerings. This capability is about finding and promoting a general formula for value creation.

Context

The national regulatory and political frameworks in many countries are not favourable towards service oriented business models and can hinder the development of an energy service market. The current frameworks in many countries in Europe are very much product focused/technology-push business model oriented, hindering service oriented business model (i.e. financing schemes favour the delivery and innovation on products instead of services).

If we want to create markets for energy efficiency services we need to consider current energy markets infrastructures, regulation and support mechanisms in place (both for old and new technologies) since these directly influence the business model opportunities in a country (Huijben and Verbong, 2013). In addition, business models are part of or embedded in a socio-technical system or ecosystem (Johnson and Suskewicz, 2009), and these systems are fast changing and complex environments. Because of these continuous changes and complexity, learning and experimentation are of main importance for business model development (McGrath, 2010; Chesbrough, 2010).

A business model design is thus strongly influenced by context, e.g. existing legislation and available subsidies, other bottlenecks and constraints, and various players within the current energy production and consumption system and consequently some type of business models are encouraged, others are hindered (Bidmon and Knab, 2014; Provance, Donnelly, and Cara Yannic, 2011; Geels and Schot 2010; Huijben and Verbong 2013 Mormann 2014). Business models thus reflect and reproduce the social and political organisation of state and market action, ideas about energy (as a resource or as service), interpretations of public and private space and responsibility and ideas about the role of consumers and providers in constituting demand (Shove, ecee 2015). These institutions not only influence the way business models are being created, but also the way they are being studied, monitored and evaluated (by, for example, policy makers).

In this Task we explicitly focus on this shift from product orientation to also service orientation in the Energy Efficiency field. For a much more detailed description of this paradigm shift, the role of entrepreneurial skills and the role of context see our Deliverable 4 report.

Austria – context analysis

This analysis will describe the relevant context for business models in the market for energy efficiency services or products based on the multi-level perspective. As there is an impact of contextual factors on the development of business models and businesses in general (Provance, Donnelly, & Carayannis, 2011) (Huijben & Verbong, 2013) a context analysis can be considered useful. Context can be interpreted in twofold: first of all landscape pressures, deep structural trends in the macro environment, determine contextual opportunities and barriers for socio-technical transitions (Geels, 2002); they can be seen as relevant context for the market. Besides that, in the process of a transition firms bring products or technologies to the market via their business model (Boons & Ludeke-Freund, 2013). Dominant business models are present in the regime, while the niche is a place for more radically innovative business models to form and grow (Bidmon & Knab, 2014). Like the wider transition these firms have to deal with a context, in the case of a business model these are selective pressures present in the regime. This context analysis will describe the broader landscape, the selection environment in which a firm and the business model are positioned and policy that specifically tries to empower the energy efficiency niche.

Broader landscape

In Austria (similar to most other countries in Europe) the context around the market for demand side management energy services is based on events in the national and international setting. Recent events in Russia and Ukraine (ECEEE, 2014) have once more shown the importance of energy security (although authorities stated that the situation in Austria would not be critical on the short term due to existing backup systems) whilst even leading countries such as the US and China are making more efforts to be sustainable for various reasons (energy security, health, climate change). Especially the meltdown at Fukushima can be seen as an event that caused pressures, leading to a major change in public opinion towards nuclear energy and starting the Energiewende in Germany; a plan to abandon nuclear energy since this moment (WNA, 2015). This decision also influences the Austrian energy environment although there are no nuclear power plants in Austria because of high level grid stability issues that show certain challenges for the respective grid organisations. Furthermore, Austria is facing

due to its small size a different situation than larger countries in the European Union (matter of scales). The European Union has also focused on a more long term vision by stating the goal to reduce greenhouse gasses by 80-95% by 2050 (European Commission, 2011). One can conclude that slowly but steady these landscape events push the general direction of developed countries towards a more sustainable energy system.

Structural elements

Political context

Base for most energy-relevant laws in Austria is the EU Energy Efficiency Directive of 2012 as well as the European Energy Market Directive. The directive focuses on its 20% energy efficiency target by 2020 (European Union, 2012). All member countries were obliged to transfer the directive into national law until June 2014.

In relation to the EU-20-20-20 targets Austria will most likely meet two of the three goals without further interference: 16% reduction of CO₂-emissions in comparison to 2005 and 34% share of renewable energies, while the third target (increase in energy efficiency of 20%) is lagging behind.

Prior to the Energy Efficiency Law the climate protection law has been released. However, the impact has not been sufficient yet. The law, resolved in 2011, determined maximum limits for emissions for six sectors (waste industry, energy and industry, buildings, transport, agriculture and prospered gas). Besides, the elaboration and implementation of measures outside the European Emission Trading System should be regulated (BGBl, 2011).

Besides, the Austrian Law for Electricity Industry and Organisation (from 2010) determines that till 2019 95% of all energy meters have to be substituted by smart meters. The exchange of meters has already begun. However, there is big wariness and critical voices claiming an invasion of privacy and the violation of data protection (BGBl 2010).

Main aim of the Austrian Energy Efficiency Law is an increase of energy efficiency of 20% until 2020, as well as the achievement of the other 2020-goals. The law includes the following key-aspects: energy suppliers, which sell more than 25 GWh to end users, must ensure the implementation of energy-efficiency measures in the action field of themselves, their customers and other energy

consumers. Those measures must correspond to a minimum of 0.6% of their energy sales to end-customers in Austria in comparison to the year before (accumulated 159 PJ until 2020). Decisive is the implementation of measurements, which improve the input-output-relationship. The energy suppliers must be able to prove those measures, whereas the actual reduction of the energy usage is not necessary. Energy-efficiency and –reducing measures are assessed in regard to their impact (reduction of kWh/a) and are credited within the national monitoring centre, which was newly established. The monitoring centre reviews, if energy suppliers comply with their obligations. If they fail to fulfil their obligations, they can pay a compensation, which goes into a fund for the support of energy-efficiency measures. Within a first assessment of the law conducted with the help of a survey among energy suppliers and companies by the Energy Institute for Business, energy suppliers indicated, that they implemented the majority of their obligations within the own company. Only a little percentage was handled by the payment of compensation fees.

The second important aspect of the law concerns big companies, which have more than 250 employees or an annual turnover of more than 50 Mio. €. They are obliged to either introduce an energy-management system or to accomplish an energy-audit in a four-year-cycle. (BGBl, 2014)

With the introduction of the law the security of supply shall be ensured and positive incentives for economy have been expected. Further it was expected, that a vibrant national market for energy-efficiency measures would arise and that positive incentives for economy would be created, as the topic of energy-efficiency measures would gain greater attention. Furthermore, the additional qualification of staff as energy-service-providers (especially energy-auditors) was expected. An official register was established, in which only officially approved auditors are listed. So far, more than 450 persons are registered in as energy auditors.

Nevertheless, expectations concerning prices for measures were not fulfilled so far, as prices on the market were pretty low. In the survey mentioned above (Starnberger, 2016), around 60% of purchased kWh was bought for a price of 5 Cent or less. Furthermore, interviewees indicated, that overall only little additional jobs were created in their companies due to the law.

Further the first reporting period brought the result, that the national goal for utility services for the declaration of measures has been

outperformed by 75%. This means that for the following year measures are already banked to a degree of 75%. (Günther Simader, Monitoringstelle, presentation at DECA-workshop, 30th March 2016)

Providers on the Energy Efficiency Market ¹

In Austria, there is a range of companies offerings energy services. In the last couple of years, a big increase of energy consultants could be recorded. There is currently a saturation of energy consultants, which leads to decreasing prices of consultation services as well as increased competition on the market. In most of the Austrian federal states there are energy agencies located (mainly initiated by the federal states), as well as local ones.

There is a couple of start-ups and newly established businesses, which deal with energy-efficiency topics, such as the firm mywarm – providing intelligent solutions (cloud solutions) to reduce the energy need for heating at home and to ensure a certain level of comfort, monitoring and costs. The Austrian Climate and Energy Fund establishes a supporting programme for start ups, which is called “greenstarts”. With the programm new business models in the field of energy efficiency, transport and green products shall be developed (Klima- und Energiefonds, 2016).

For the Austrian energy service providers of all kinds there is an umbrella organisation called DECA (Dienstleister Energieeffizienz und Contracting Austria) that has been founded in 2013 as a association. Essentially the duties are lobbying for it's members, organisation of workshops and other events, market assessment and cooperation with scientific organisations. The DECA was formerly a informal club with exclusively providers of EPC and performing lobbying for EPC. With the foundation of the association the DECA broadened it's scope to all energy services (EPC, energy audits, dealing with energy efficiency measures,...). The DECA counts presently 36 members and is administrated by the ÖGUT (Austrian society for environment and technic)

Through the Austrian energy efficiency law a new register for energy auditors has been established. In this register energy consultants could apply for a certificate to be allowed to perform energy-audits in the framework of the law. In this register

¹ EEF is a trade organisation for companies selling energy efficiency in Sweden where also ESCO-companies are members.

there are currently 450 energy auditors with different focus: 381 are registered for buildings, 291 for industrial processes and 102 for mobility. 72 energy-auditors bear the certificate for all 3 faculties. (Günther Simader, Monitoringstelle, presentation at DECA-workshop, 30th March 2016)

For the providers of EPC: The Austrian ESCO market includes 15 to 20 ESCOs offering EPC services. However, just about 5 ESCOs cover about 70 to 80 % of all EPC-contracts.

Target Groups

Utilities

According to E-Control, the national regulation authority for the Austrian energy market, there

are more than 140 electricity and more than 30 gas suppliers on the Austrian market (E-Control, 2016). Since the liberalization of the electricity markets in 2001 customers can choose their electricity suppliers. EPSCs (if they sell more than 25 GWh to end users) are according to the Energy Efficiency Law obliged to prove a reduction of 0.6% of their energy sales to end-customers in Austria in comparison to the year before through approved energy efficiency measures (BGBl, 2014). PSCs are consequently challenged to ascertain the reduction. They have several options: implement the measures the customer's or non-customers, pay compensation fees, implement measures in their company, purchase proven measures on the market. As companies had to prove the measures for the first time at

the end of 2015, a couple of challenges had to be faced (e.g. time pressure, missing documents for the assessment of the measures etc.). The official monitoring centre delivered a document, in which the assessment of several measures is described. However, there are still measures, for which no procedure to calculate the measures are provided. Companies were and are asked to develop corresponding calculation methods themselves.

Industry

Production consumes around one third of the total energy demand in Austria. In regard to energy-efficiency there is potential seen in the usage of efficient pumps, lighting, ventilation and compressed air. Besides, there is potential in the usage of fuel. So far, the potential is not fully exhausted for the following reasons: firstly, there is a lack of information about the topic of energy efficiency. As costs for energy are mostly relatively small (in comparison to total costs), the focus lies on the core business (Brüggemann, 2015). Furthermore, financial barriers prevent industry from energy-efficiency measures. New products or services provide shorter payback periods than the implementation of comprehensive measures. Besides, missing capacities in staff and competences are common barriers. In regard to the company-structure in Austria, from the 582.000 active companies more than 1.085 are according to the Austrian Energy Efficiency Law obliged to conduct an energy-audit or implement an energy management system. (source: Friedrich Kapusta, Energieinstitut der Wirtschaft, presentation at DECA-workshop, 30th March 2016) So far, companies do not have to proof the implementation of measures resulting from these schemes. Though there are activities in the field of energy efficiency implemented by companies, there is still great potential. If companies had to implement measures mandatory, great potential could be exploited.

SMEs

In Austria, there are around 560.000 SMEs (source: Friedrich Kapusta, Energieinstitut der Wirtschaft, presentation at DECA-workshop, 30th March 2016). More than 500.000 companies have less than 10 employees; around 25.000 have 10-49 employees and around 5.000 between 50 and 249 employees. As for SMEs the cost-factor is not essential (in comparison to total costs), energy-efficiency has mostly only little importance. In regard to the total energy usage in Austria, SMEs only play a minor role, as their processes are little energy-intense. SMEs can be characterized by the fact, that many different stakeholders are involved. SMEs provide potential for energy-services. However, barriers need to

be eliminated in order to scoop those. SMEs are currently not legally obliged, to implement energy-efficiency measures (according to the Austrian Energy Efficiency Law). Actions are so far only foreseen on a voluntary basis. Besides, adequate information for creating awareness about energy-efficiency services and potentials are needed. In terms of energy management systems for KMUs mainly firms with 50 - 250 employees are suitable. For smaller ones the effort will mostly be too high (Windsperger, 2014).

So far, contracting programmes have not been used often by SMEs. This fact can be traced back to a lack of information and marketing, as well as to the low energy-intensity. Potential in this field definitely exists. In regard to energy consultations there are several local programmes, which financially supported the consultation of companies in terms of energy issues. Still, there are still firms, for which consultations would be suitable. A study estimated, that there is still energy savings potential of 13-16% for firms, which were not consulted yet.

Private households

Private households in Austria need around 25% of the final energy consumption in Austria (43% go into economy and 32% into transport) whereas 72% of those are needed for heating, around 13% for lighting and electric uses and 15% for warm water and cooking (BMWF, 2014). The rise of energy consumption in private households could be stopped thanks to improved thermal building refurbishments and the usage of energy-saving electrical equipment. Nevertheless, there is still big potential in regard to the usage of energy-efficient technology and suitable energy services. The described Law for Electricity Industry and Organisation defines that until 2019 mainly smart meters are used.

Furthermore, there is big potential for energy reductions in the field of behavioural change. From already implemented projects (Energy trophy, energy neighbourhood etc.) it is known, that a reduction in energy use of 30% is possible. However, incentives and an approach are necessary in order to change behaviour successfully.

Energy market segments in Austria for private households encompass besides the introduction of new products and corresponding services the consultation in energy matters. Those cover a wide range of topics, like refurbishment, heating, lighting, electric devices, water, transport, thermography etc. Furthermore, there are programmes from state, federal states and municipalities, which support private initiatives towards more energy efficiency financially.

Context analysis

Industry structures

Key players:

- Energy retailers
- Energy agencies
- ESCOs
- Umbrella organisation DECA
- Political bodies

Target groups:

- Industry: lack of information about EE, financial barriers
- Utilities: 140 electricity and more than 30 gas suppliers on the market
- Big enterprises: audit or EMS
- 560.000 SMEs in Austria – no obligation, but great potential
- Private households: 25% of final energy consumption
- Public bodies: contracting

Policy context

- EED directive leading the way
- Austrian Energy Efficiency Law: energy audits and EMS, monitoring centre
- Austrian Law for Electricity: smart meters by 2019

Market and User practices

- Energy Efficiency itself is not appealing
- Energy costs not perceived as painful or high; does not create urgency
- Lack of trust and transparency in businesses: these are key-values that firms should communicate

Technology and Infrastructure

- R&D still plays a role, especially for smart services
- Roll-out of the smart meter decisive as well as IT based services and products

Culture

- Comprising mentality – delay in decision making and cautious, restraint approaches
- Climate change seen as serious problem
- Lack of confidence in energy efficiency services

Scientific knowledge

- Research shows big interest in the field of energy efficiency
- Especially the topics of smart meter, smart grid and energy services are well represented.

Public bodies

Public bodies in Austria belong to the core-customers for contracting programmes, especially for EPC (Energy Performance Contracting). Most projects were so far implemented in schools, public buildings and municipalities. In total, there are 2.354 municipalities in Austria (Windsperger, 2014). Consequently, there is great potential for contracting projects. Of course, the number of municipalities represents the limiting factor. But still, there are many municipalities with big potential. But there is a range of barriers, which need to be overcome in order to exploit the energy efficiency options. The Eurostat Guidance Note is one of the newer barriers. The guideline stemming from the statistical office of the European Union defines that within EPCs investments have to be treated as government expenditure, even if financed through the energy service company (ESCO). The investments consequently appear in the budget and might increase the debt level of the municipalities, which are limited through the Maastricht Treaty (Berliner Energieagentur, 2016).

Besides contracting programmes, an effective energy-monitoring would be an effective option for public bodies in order to reduce their energy consumption. The monitoring can be implemented externally.

Moreover, there are programmes in Austria supporting and rewarding municipalities for their energy efficient efforts. The most famous one is called "e5". Municipalities receive support in order to define and reach their energy- and climate targets. Besides, there are programmes offering financial support.

Culture

Austrian politics and society is characterized by a compromising mentality, which often leads to the fact that involved parties in decision making are more or less content, however the overall solution is not satisfying. Lobbying plays an essential role in those processes. This mentality results in the delay of decision making and cautious, restraint approaches. The Austrian Energy Efficiency Law, for instance, was implemented at the last moment possible. Besides, administrative processes are connected to a high bureaucratic effort and represent another delay factor as well as a barrier to energy services.

According to the Eurobarometer of 2014, Austrian respondents think that climate change is a serious problem. On a scale from 10 (extremely serious problem) to 1 (not a serious problem) an average of 7.9 was the result for Austrian respondents. More than 60% of Austrian respondents indicated, that they already took personal action to fight climate change. Austrian respondents think that

national government, the European Union as well as business and industry are mainly responsible for tackling climate change. The vast majority of respondents assessed the support for improving energy efficiency by the national government as very or fairly important (around 93% of respondents).

(European Commission, 2014)

Studies from diverse projects, (e.g. Transparense) showed that there is still a lack of confidence in the sector of energy-efficiency-services. Especially when competences are shifted to an external unit, companies are very sceptical. There is a range of barriers, which have to be eliminated in order to penetrate the market with energy-efficiency services.

Technology

Austria's position as country of technology is ambivalent. In some fields of action, the country is assessed as one of the global leaders (engineering, metal goods and: environmental technology). However, in other fields Austria is lagging behind (apa/proi, 2014). As mentioned before, there are some start-ups on the market offering innovative energy efficient technology. Especially IT technology gains more and more attention. Nevertheless, there is still a lack of communication and marketing, in order to make the new technology penetrate the market. It should be an objective of entrepreneurs to become aware of their offer and how it fits in the bigger picture of an integral solution.

Scientific Knowledge

In regard to the scientific knowledge about energy services there is a range of research projects and activities dealing with the topic in a wide focus. Generally, there is currently great interest in the topic. The Climate- and Energy Fund established an initiative for smart cities in Austria, in which regional smart-city projects were organized. Besides the implementation of projects the initiative provides funding for corresponding projects as well as corresponding services and activities. There are concrete research projects, which are currently implemented. One of them is the project "Hybrid-VPP4DSO", in which solutions are elaborated, how power grids can be prepared for future challenges of the energy transition - and how companies can benefit from it. The project will finally provide a concept for a Hybrid-Power Plant, in which power generators, transmission system operators and consumers (industrial and commercial) are included. Another scientific project is the project "LearningLabLeobenOst", in which a community centre will be developed for three districts in the city of Leoben (Styria),

according to the smart cities strategy. The motto is "living smart in a smart city". Therefore, aspects regarding transport, energy supply as well as construction are considered. A further ongoing project is called "SMART I.E.S." - SMART Innovative Energy Services. Within the project an anticipatory analysis is conducted, in which the innovation field for smart grids is parsed. The rollout of smart meters is deeply connected to further smart energy services. However, those services can only be successfully introduced, if data about energy consumption is accessible, for which currently legal and organizational barriers exist. Another important aspect is the development of activities around smart grids. For more than 10 years the smart grids week is organized annually, which represents a hotspot for companies (technology and energy, grid operators, science and research) to discuss the topic of intelligent energy-infrastructure.

It can be stated that there is a big interest in the topic of smart meter, smart grid and connected energy services. Current projects and activities show the importance of the topic and the will, that energy services are further developed in order to achieve an effective rollout of those services.

Conclusion

Needs from potential target groups for energy efficiency services and products differ. Besides, the political framework conditions offer support on the one hand, but challenges on the other. It can be stated that there is definitely a need and a demand for energy efficiency services. But not all target groups are aware of that. Legal, financial and cultural barriers need to be solved in order to effectively reach the potential clients and to penetrate the markets with the solutions, which already exist as well as with new technology.

The Austrian case studies

The initial longlist for Austria contained 23 potentially interesting businesses/ energy efficiency services. The longlist included a mixture from all four categories and ranged from smart meter providers, hardware distributors to information websites.

Based on several indicators such as for example access to information, focus on delivery of a service on top of technologies we selected the cases for further analysis. The table below highlights the selected cases.

The selected cases were assigned to the four categories defined in the consortium. However, some can represent more than one category, as e.g. EPC+ can refer to retrofitting, lighting or total solution, or Click for Climate represents the categories total solution as well as smart service.

In the chapter below we provide case descriptions for each of the services.

Category of Energy Efficiency service	Name of business	Description of proposition	Success Declining - Stable o Growing +
Total solution	Click for Climate	user motivation platform for behavioural change	++
	LSI Leistungsgruppe	platform installers: purchase, information, marketing, purchase	+
Smart service system	mywarm	mobile hydraulic adjustment of heating system	+
	messpunkt	hydraulic adjustment of heating system)	o
Lighting	netconnect	automated capture, monitoring and analysis of meter data	+
	EPC+	EE measures encompass ventilation, lighting, heating etc. for smaller projects	+

Total solutions

The Story of Click for Climate

Graz Energy Agency (GEA) is a small-sized enterprise aiming at increasing energy efficiency and the increased usage of renewable energies. The basic target is the efficient provision of energy services. The main shareholders of Graz Energy Agency are the municipality of Graz and the local electricity supplier Energie Graz. The main activities of GEA encompass consulting services, research and studies and user motivation. The main topics cover:

- energy efficiency concepts
- the accompaniment of refurbishment projects
- contracting
- re-commissioning
- energy consulting
- efficient mobility
- behavioural change.

GEA has 15 employees. The main geographic scope lies within Styria and Graz. Besides local projects GEA has long and broad experience with international projects in various funding programmes.

Graz Energy Agency performs user motivation and behaviour change campaigns since many years. A range of national and international projects can be reported. Among these is the "energy neighbourhood", in which private households were searching for energy saving

potentials in a competition. A lot of success stories can be told of those. But the other side of the medal is, that these campaigns need a lot of effort and are thereby expensive, while they reach only a limited number of users and while also the sustainability is not as high as an investment measure on a building, taking into account that people tend to fall back to old routines, if they are not permanently reminded of new routines. The accomplished projects such as energy neighbourhood showed that an e-learning platform would be helpful in order to raise awareness, activate participants and provide concrete suggestions for a behavioural change.

This was the reason to think about new ways of user motivation and behaviour change, also introducing modern media channels like internet platforms. The initiating situation was to provide user motivation to potentially approx. 6.000 computer working stations in the municipality of Graz (including connected organisations). This led to the creation of Click for Climate, a behaviour change platform for predominantly computer working stations.

Business model canvas

There are numerous applications for this platform: in its original state it is most suitable for office buildings that are used on private or public premises, e.g. administrations of municipalities, banks, large companies. The initial idea of the platform was elaborated in cooperation with

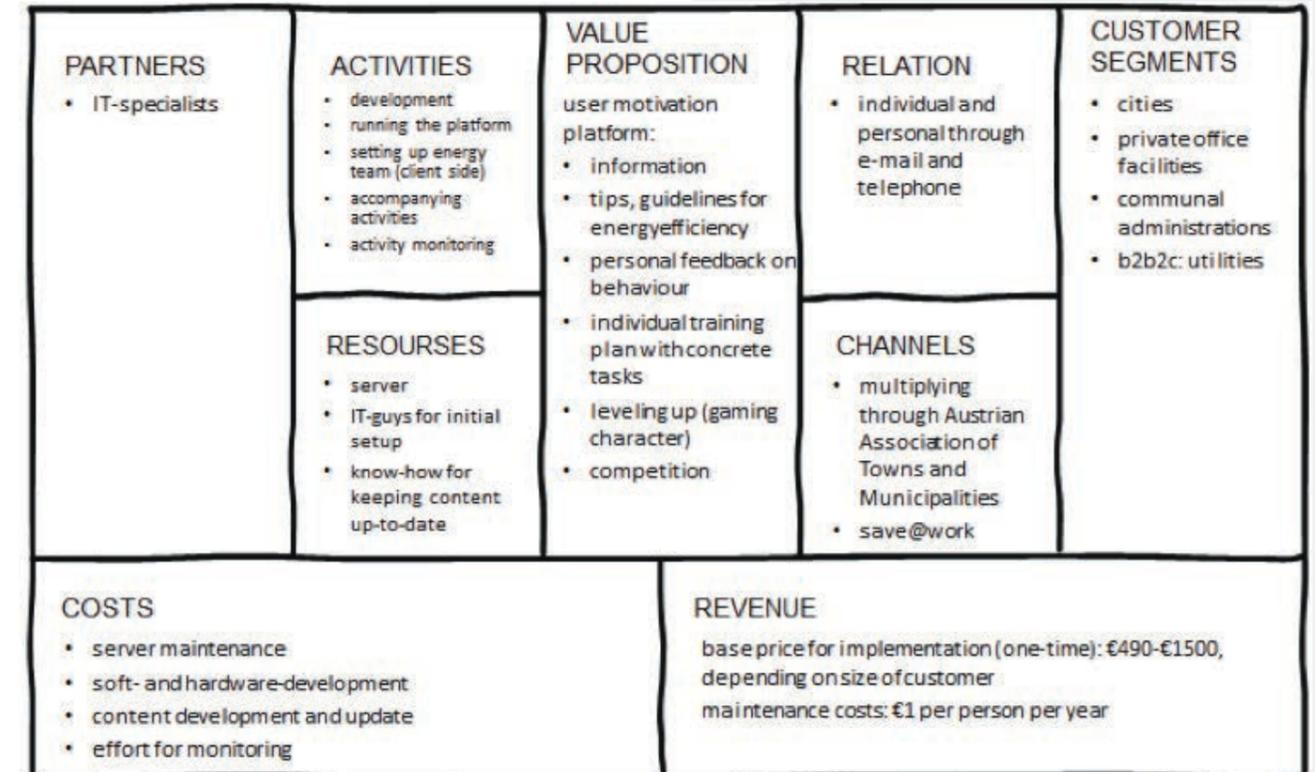


Figure 1: the business model canvas for GEA. The canvas is based on the canvas developed by Ostelderwalder & Pigneur 2010.

the municipality of Graz, which saw the need to develop an online-learning platform for its many employees. Further applications, that would require adaptations of content and systematics, would be schools or real estate management companies that could offer the platform to their (commercial) tenants. Finally also for private tenants the platform could be fitted, but this is the perspective furthest away. One of the main advantages of the platform is that in contrast to a campaign the platform can be used by the client on long-term without producing high effort. The main challenge of the gaming-character will be to keep the so-called "level-ups" achievable, but not too easy and to create new challenges for advanced users/players.

Customer segment: Initially the concept was foreseen for municipalities and other public administrations, so the first activities in acquisition were to seek other municipalities than Graz to establish Click4Climate. After a while it became obvious, that the platform could also be a good tool for private office facilities for applying user motivation with acceptable effort and still optionally customized content and appearance, but the platform would need a slight rework for this purpose. Further the platform was discussed to be useful also for supporting utilities in their ambition to offer user motivation services to their clients (private or commercial).

Value proposition:
The platform should feature

- Know-how-transfer to users
- Motivation to change your own behaviour while working with the platform
- Keep a certain attention level for making the users return to the platform for as long as possible

For the first item on the list there was plenty of experience and material available in Graz Energy Agency. On the other hand for the other 2 items the know-how was there only partly or not at all. The new word to be introduced was gamification: the platform has to motivate the users in terms of achievements, comparison with others and fun. Therefore, IT specialists were brought on board in order to technically implement gamification items as well as to technically implement the characteristics of the user motivation platform. Optional upgrades to the use of the platform are the organisation of competitions within the organisation, e.g. between different departments, houses or sites. Those competitions are highly recommended, if not already included in the package of the first year, as it raises the attention level tremendously. The platform offers various features. Firstly, information, tips and guidelines for energy efficiency are provided. Besides, the platform is conceptualized with at a certain gaming character,

as levels have to be reached in order to access the upcoming topic fields. Additionally, the tool provides funny facts and numbers covering the topic of energy efficiency, energy consumption etc. Within the core-feature, the so called energy saving check concrete guidance is provided how to implement certain measures. When finishing on topic field (e.g. computer, printer etc.) a personal training plan is generated, offering concrete activities on how to improve the energy efficiency behaviour.

Channels: For reaching out to the potential municipal clients the Austrian Association of Municipalities, to which GEA has a long lasting relationship, could be won to spread information about the platform throughout Austria. Further the platform instantly could be tested in the European H2020-project save@work.

Relation: the traditional customer relationship management of GEA is based on individual and personal communication via e-mail, telephone and meetings. Although this is effective, it could be discussed whether it is time-effective on the large scale.

Revenues: Similar to the costs there is a base price for implementation of the platform, ranging from €490-1500 per client and a frequent fee of €1 per user per year. The value proposition of Click4Climate.

Resources: The necessary resources besides to working time are the provision of a data server and know-how and experience in motivational communication and keeping the content of the platform up-to-date.

Activities: The own activities to provide the platform are initially the development of the gameplay and interdependencies, keeping the platform running, feeding it with actual and fresh content. Besides communication activities are necessary to keep the users/client attentive through setting up energy-teams, providing a hotline and monitoring the activities of the teams.

Partners: Partners for providing the service were identified quickly: web-designers were necessary to program the platform.

Costs: the costs can be distinguished into base costs and use-frequency-related costs. Server, basic development of the platform and its general maintenance are clearly base costs, while update of content, working on and with the energy teams, maintenance of the individual parts of the platform are dependent on the number of clients.

Customer value canvas

Customer jobs: The customers of Click4Climate, which can further be defined as energy commissioners aim at reaching the climate protection targets of their organization. Besides,

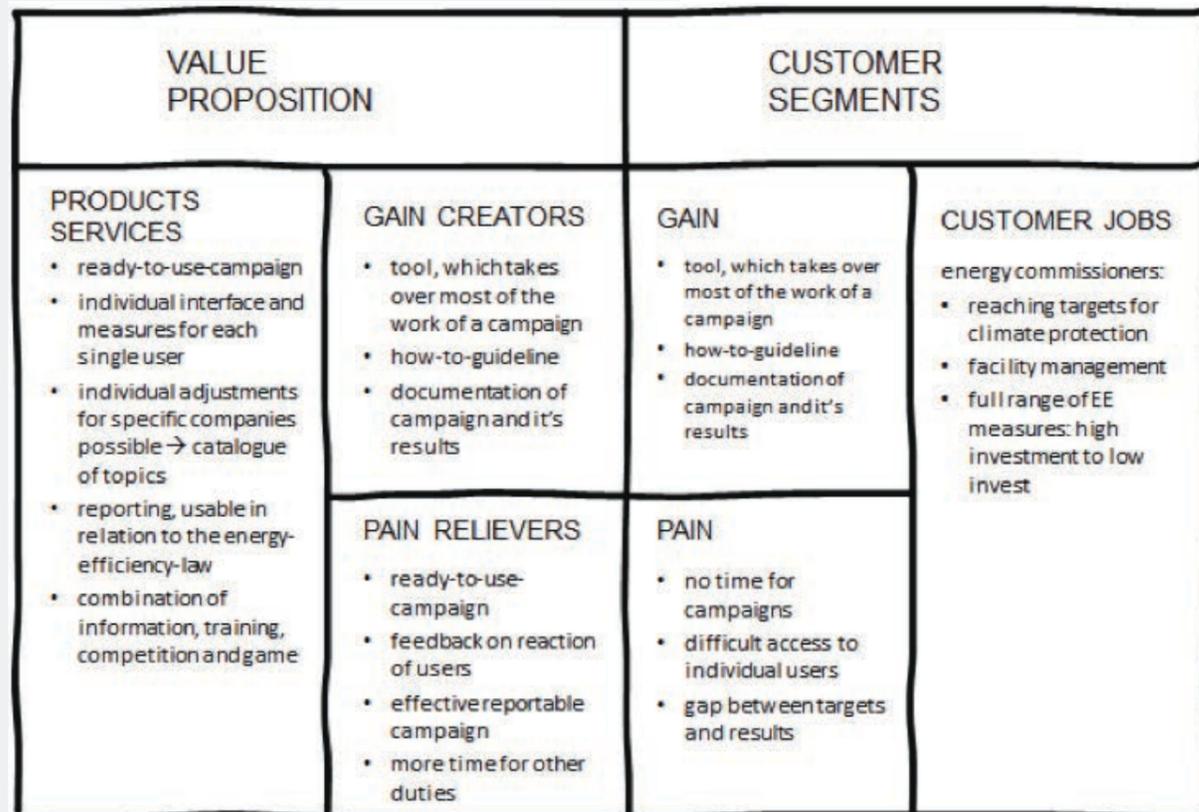


Figure 2: The Customer Value Canvas for GEA. The canvas is based on the canvas developed by Ostelderwalder & Pigneur 2010.

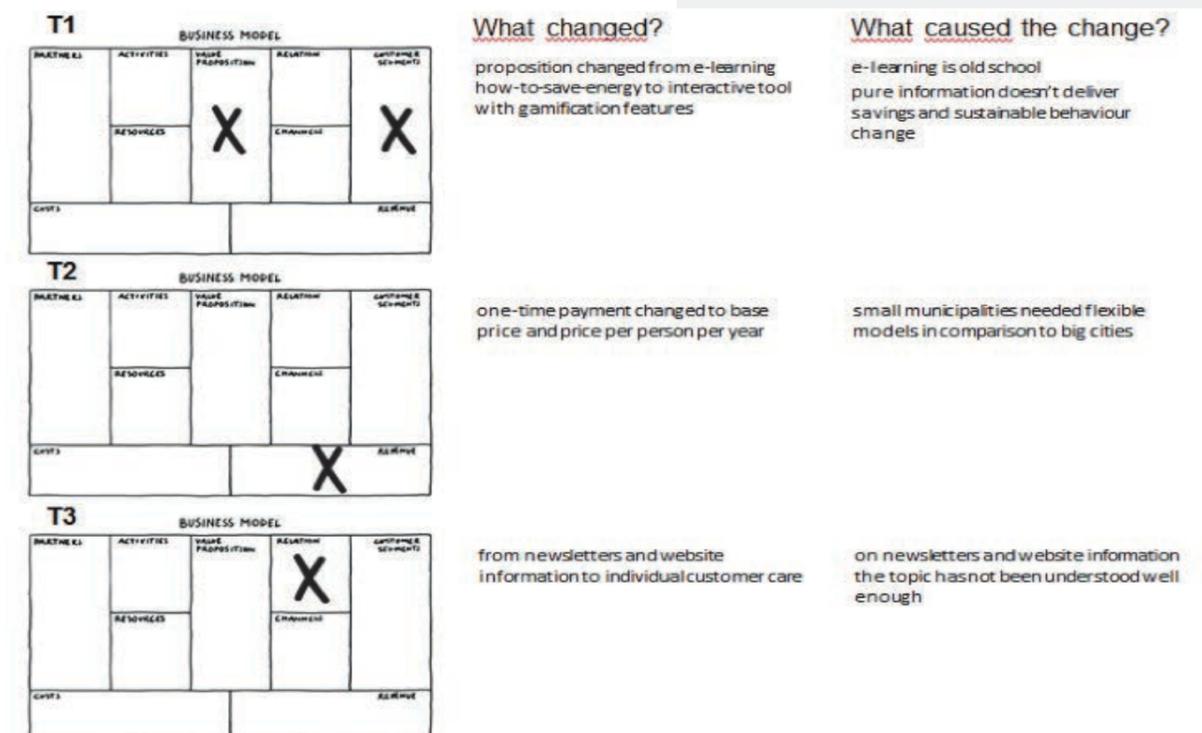


Figure 3: the entrepreneurial journey of GEA.

customers are responsible for the facility management and deal with the implementation of EE measures, ranging from low up to high investment measures. It must be taken into account, that not all users are enthusiastic about behaviour change programs, but on the other hand through mailings and newsletters it is easier to reach all co-workers in an organisation to inform about the platform instead of working through change agents and other contact people. The systematic also makes constellations possible, where the platform is provided as an additional feature to rental agreements – a relatively cheap way to build up an USP over other offers – for reporting the use of the platform e.g. in a sustainability report.

Pain and pain relievers: Most energy commissioners do not have sufficient time to cover topics like behavioural change. Their focus lies on technical and facility related matters. For the successful implementation of a campaign there is mostly no time. Especially in big organizations, it is difficult to access individual users and influence them in their personal behaviour. Click4Climate offers a ready to use campaign, which provides direct feedback from

the users and features on how to report about the results.

Gain and gain creators: The gains and gain creators, which are created by Click4Climate are the implementation of a tool, which takes over most of the work of a campaign by its contents. Those range from guidelines to the documentation of the results and the campaign.

Products/Services: The ready to use campaign offers various features of an individual tool. The interface and the measures of each single user are adapted individually. Besides, specific companies can choose from a catalogue of topics. The outcomes of the campaign are useable for the requirements of the Austrian EE law, which is of importance especially for large companies.

Entrepreneurs Journey

The platform was originally foreseen as an e-learning-platform. But without a mandatory usage of such a platform it would not be effective, so to achieve commitment and participation gamification elements were necessary to be integrated.

For making the tool as flexible as possible and to represent the effective costs and when they occur the pricing has been adjusted from one-time payment to having a base-price and a price of 1€ per year and user. This is a WIN-WIN for both sides: the risk on the provider's side is dramatically reduced and the initial price, if the client is not sure whether the product is the right one for him, is not that high any more.

Within GEA, there is one person mainly in charge of the tool. She is the face to the customer, in charge of marketing and support and implementation. Stretching is therefore not very distinct. The main partners are the programming specialists. In regard to scaling/conceptualizing, the tool was designed for employees working at computers in municipalities. However, there is the option to adopt the tool to make it usable for companies (SMEs, industry), as well as for tenants. So far, the tool was sold to 9 organisations, which include municipalities as well as private companies, which around 3500 employees using the tool. The plan is to further sell the tool to 20 organizations and firms.

When the tool is presented to potential customers, the head of department is the decisive contact point, as he/she decides about implementing the tool or not. In order to convince the head of department more than a tool is necessary (e.g. additional material, accompanying campaign etc.). Besides, the main problem is that the top arguments for the tool are soft facts (e.g. education of employees, image, climate protection, team building). There are no hard facts such as impact on health, productivity etc. More orchestrating is currently necessary to reach more clients.

Feedback can be provided by the end user to the customer and to GEA via a feedback form, which is implemented within the tool. It is mainly meant for the customers, but GEA is shown the feedback as well. The usability of the tool is mainly represented by the number of end users.

The product/service paradigm

The whole offer tends to be service-orientated, while the competing market still counts on information-campaigns. Also the client's side, that often tends to buy whole products, prefers in this case the service-orientated approach.

The godfather of Klick4Climate, which is the municipality of Graz, the tool is seen as a service. The tool is mostly implemented with an accompanying campaign. For end users (employees) as well as customers (municipalities,

companies) the same can be mentioned.

The suppliers of the tool, which are the programmers, deliver the tool as a product. Competitors, mainly firms offering energy relevant apps, are to be positioned in the middle, whereas the apps are rather product than service.

Marketing and communication is mainly made online (homepage, newsletter, presentations) and consequently a lot service orientated.

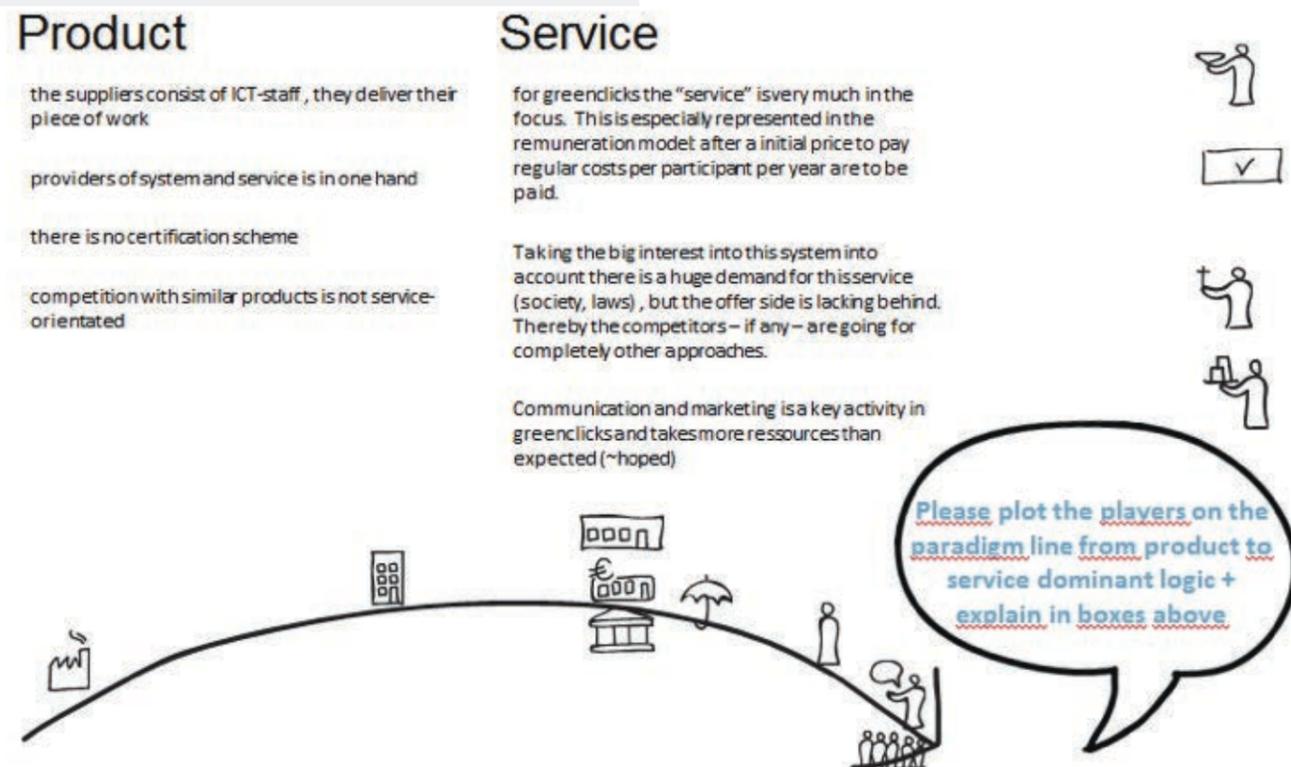


Figure 4: where do GEA and her stakeholders stand in the product versus service paradigm?

The Story of LSI Leistungsgruppe

LSI Leistungsgruppe is an Austrian platform for Heating, Ventilation and Air Conditioning (HVAC) installers. The platform emerged from a purchase community for installers.

The LSI connects Austrian installers within one platform and members receive many services and products from one hand: acquisition, procurement and marketing. The network encompasses a wide range of experts from technology partners, thermographic installers and website programmers. The scope of equipment that is offered by LSI covers the typical assortment of HVAC-installers: heating system, ventilation&cooling, water-technic, bathroom installations and wellness-products. Besides standard installers the LSI encompasses partners offering energy monitoring and energy management. The network profits from the platform within a fee on purchased material and acts as negotiating partner for many suppliers.

It started through purchasing material and equipment in 1976 in Styria with some of the leading HVAC-installers in the region. Today it is an Austrian-wide reaching platform with a member-network of approx. 65 HVAC-installers with a hotspot in the Eastern part of Austria. All network partners together represent a yearly turnover of ~110 Mio € and employ 1.300 people. (relation: the whole branche of HVAC-installers features a turnover of ~5.000 Mio € and employ ~32.000 people) ²

The mission of the platform has always been to seek for developments of services and solutions on behalf of the client. The platform purchases material and equipment of ~30 Mio € each year. The platform is led by its mastermind Herbert Reisinger, who founded the platform and he is supported by a small and competent team of 3 assistants.

Since 2014 LSI offers a sophisticated showroom at the headquarter in Voitsberg. There not only clients can experience the proposed solutions, but the facility is also used for training purposes.

The platform and network offers for its members:

- Information centre – showroom and trainings
- Central procurement of material
- Marketing
- Being part of a big network – exchange of know-how and experience
- Services: internal platform offering technical information, software tools, insurance contracts etc.

² http://wko.at/statistik/BranchenFV/B_111.pdf

Business model canvas

The business model canvas already shows the character of the network: it is not a single-company product, but has to involve energy-efficiency specialists, standard installers, website programmers and thermographic analysts. The value that members gain, encompass various products and services out of one hand. The revenues for the platform consist out of the membership fees as well as a fee for the purchased material.

In detail:

The customer segment is clearly HVAC-installers, therefore the value proposition is b2b. The desired HVAC-installers are those, who are interested in high-quality products and packaged solutions with suitable training and support on them. Moreover also the price conditions for the equipment are of importance for them for being competitive on the market.

The value proposition serves those needs through pooled procurement of material accompanied with information material (for clients and acquisition) and trainings for implementation. Moreover a gap of services with one specific member (e.g. if a thermographic analysis is needed) the platform can make use of its network to fill this gap. A very important element of additional services is an energy-management-tool (HMI-master) that controls various appliances and serves also as an energy-monitoring-tool.

Relations and channels between LSI and the platform-members are maintained especially through the networking-meetings and technical trainings that are offered and organized by LSI. On these occasions not only know-how-transfer is provided, but also topics about (technical) future orientation of LSI discussed. Further the regular core business activities of purchasing material (negotiations and concrete purchase) are relevant in this respect as the numbers of the purchased material are frequently monitored and the negotiations accordingly influenced.

The revenues are a basic yearly fee for each network-partner and a percentage share of the purchased material. Thereby the platform profits from good purchasing conditions through pooling while the fee is lower than the aforementioned profits.

Activities and resources are linked together: pooled procurement, trainings and networking-events require rooms: the headquarter in Voitsberg is the resource for this. The aforementioned activities are also the main factor for the costs in delivering the platform-service.

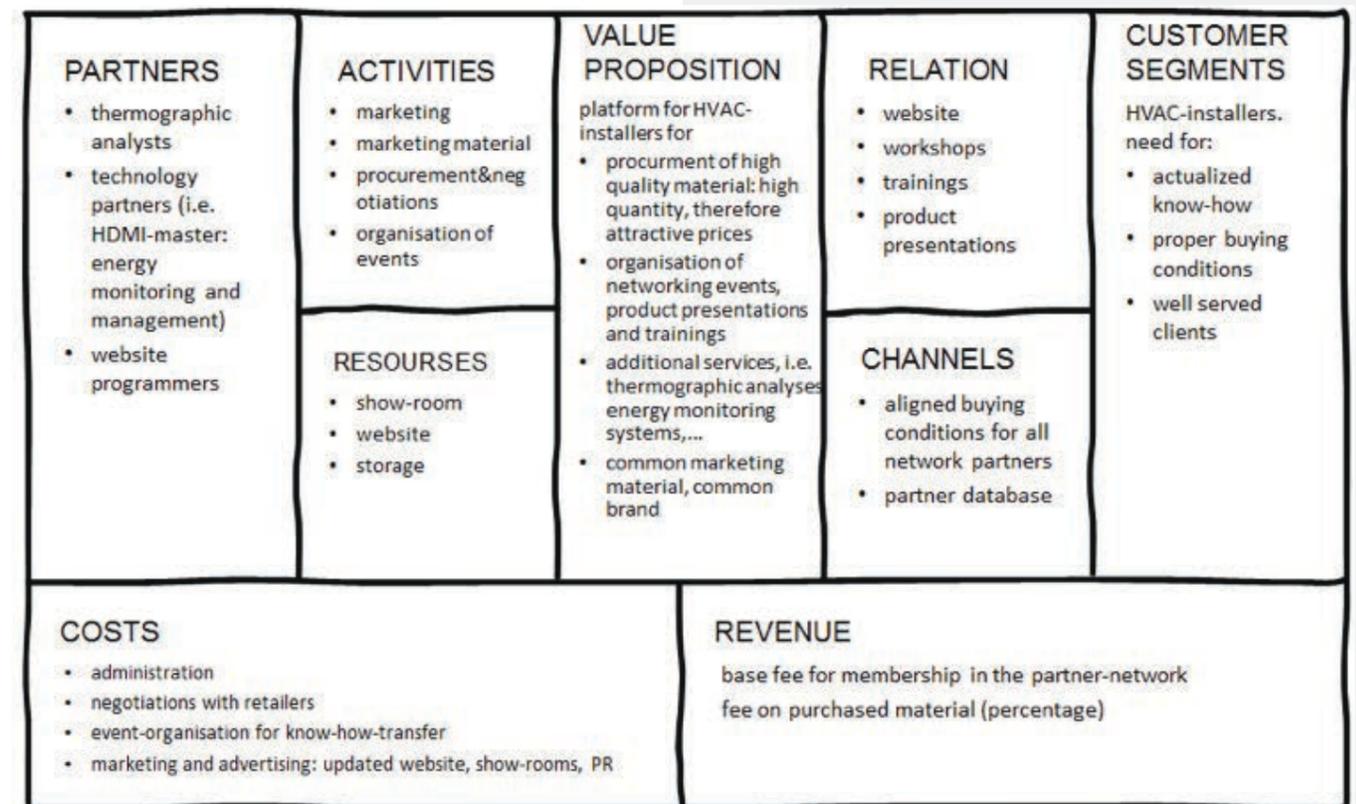


Figure 5: the business model LSI Leistungsgruppe. Template based on Osterwalder and Pigneur (2010).

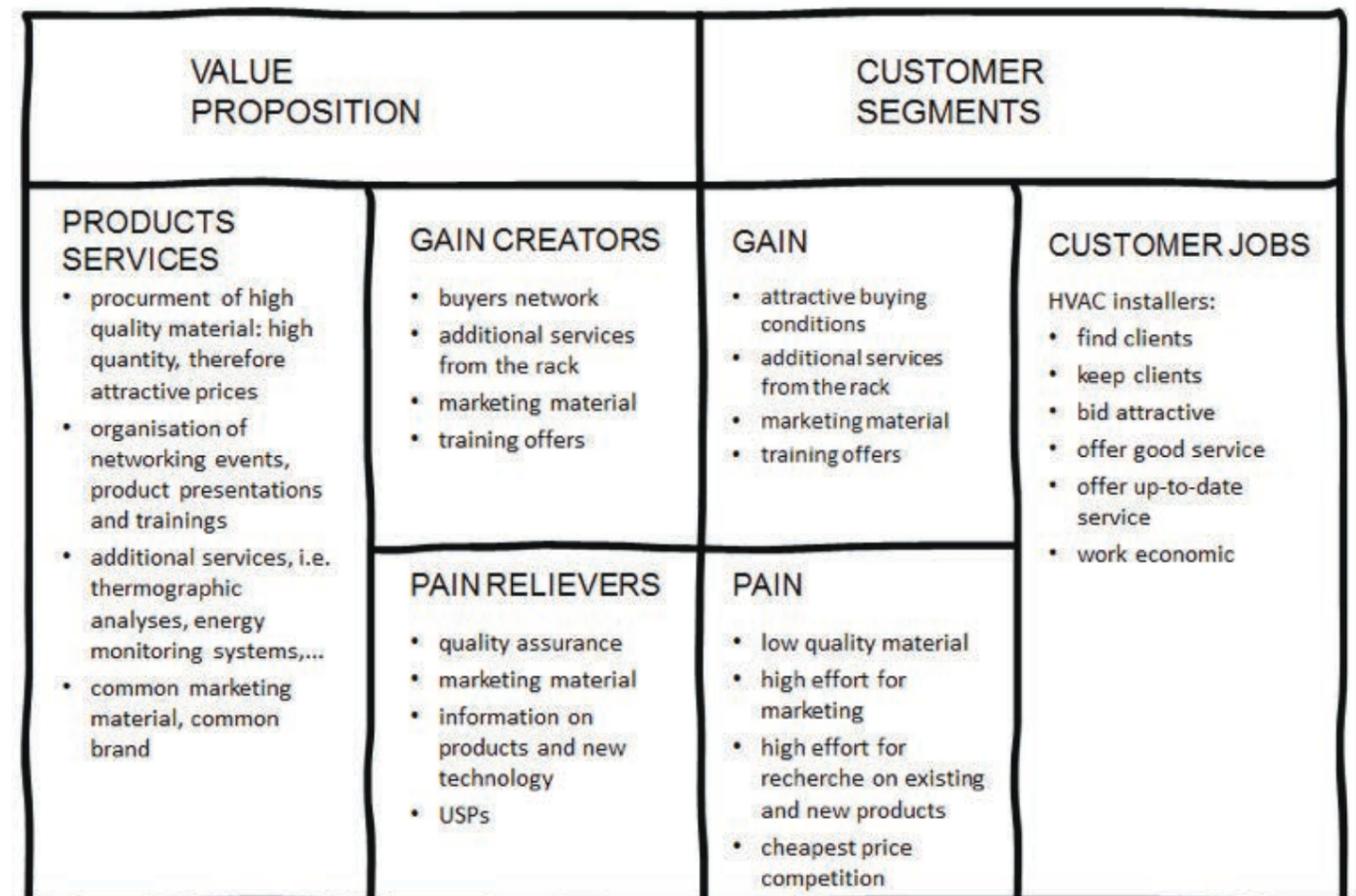


Figure 6: the customer value canvas LSI Leistungsgruppe. Template based on Osterwalder and Pigneur (2010).

Customer value canvas

Customer jobs: HVAC installers are mainly in charge of finding and keeping clients, which is depending on economic working, the offer of up-to date services and adequate pricing. The offers of the LSI network simplify and support the work of the installers in providing an up-to-date service and to work in an economic way.

Pain/pain relievers: HVAC installers struggle to accommodate a number of things, such as marketing purposes, research on new products and bidding for a good price of high quality material. The LSI network provides the installers with diverse services such as marketing material, quality assurance and information events on new technology. To the additional services belongs an energy management tool (HMI master), which can be presented in the LSI showroom and which belongs to the USPs of the network.

Gain/gain creators: thanks to an attractive network of buyers, training and marketing offers the installers profit from attractive material conditions, additional services as well as marketing material.

Products/services: In comparison to standard products and services offered by installers the LSI network provides additional services such as thermographic analysis, energy monitoring systems etc. (which marks the network itself off from competitors). Especially the time effort for search on new products, market positioning and marketing are overtaken by the network and installers can focus on the high quality of their services. Furthermore, the LSI platform offers transparency in pricing. Members have access to the pricing of the LSI, which creates trust among members.

Entrepreneurs Journey

Originally the platform was a purchase community, which was too similar to wholesale dealers. Consequently, the community was extended to know-how-transfer, additional services and marketing, high quality products at low price and HVAC installers offering additional services.

One of the core capabilities of LSI is sensing the user (=HVAC-installer) needs and forming an according total service offer to the network-members. Also the integration of prospective

high-quality technical products is highly relevant for the legitimation of LSI, therefore the capability of sensing user needs as well as tech options can be considered as well developed. In recent years the platform experimented with branding of own products (under licence), but found out, that clients preferred direct high-quality brands (i.e. Danfoss, Viessmann,...), therefore LSI adapted the strategy and brought well-known brands back into the assortment and produced brochures and other marketing material that show those products in approved combinations.

In respect to orchestrating LSI provides a wide package of technical solutions: network-members can activate other partners like HMI-master (a building-management-system-provider) or thermographic analyses. Further through the networking-sessions and trainings knowledge-exchange and feedback between retailers and installers is fostered.

Scaling the concept is an ongoing activity, to be visualized through the constant growth over the last 40 years starting with a few members in Styria, meanwhile reaching out throughout Austria

The product/service paradigm

The LSI platform positions itself rather on service orientation. The know-how-transfer, additional services and marketing are in the centre of the LSI platform, as well as the purchase of material. Competing wholesale companies (as LSI was before) offer less services in addition to the purchase.

Marketing and communications are much service-oriented and focus on the acquisition and know-how-exchange. LSI provides marketing material such as the homepage, on which relevant information can be found as well as the showroom, which can be used by member installers.

Certification: the network created its own label "LSI", which is represented prominently on marketing materials, homepage etc. As mentioned before, the network tried to brand the used products with LSI, which did not lead to the hoped success.

Competitors are more product oriented in comparison to LSI, as those act as wholesale dealers with no additional services.

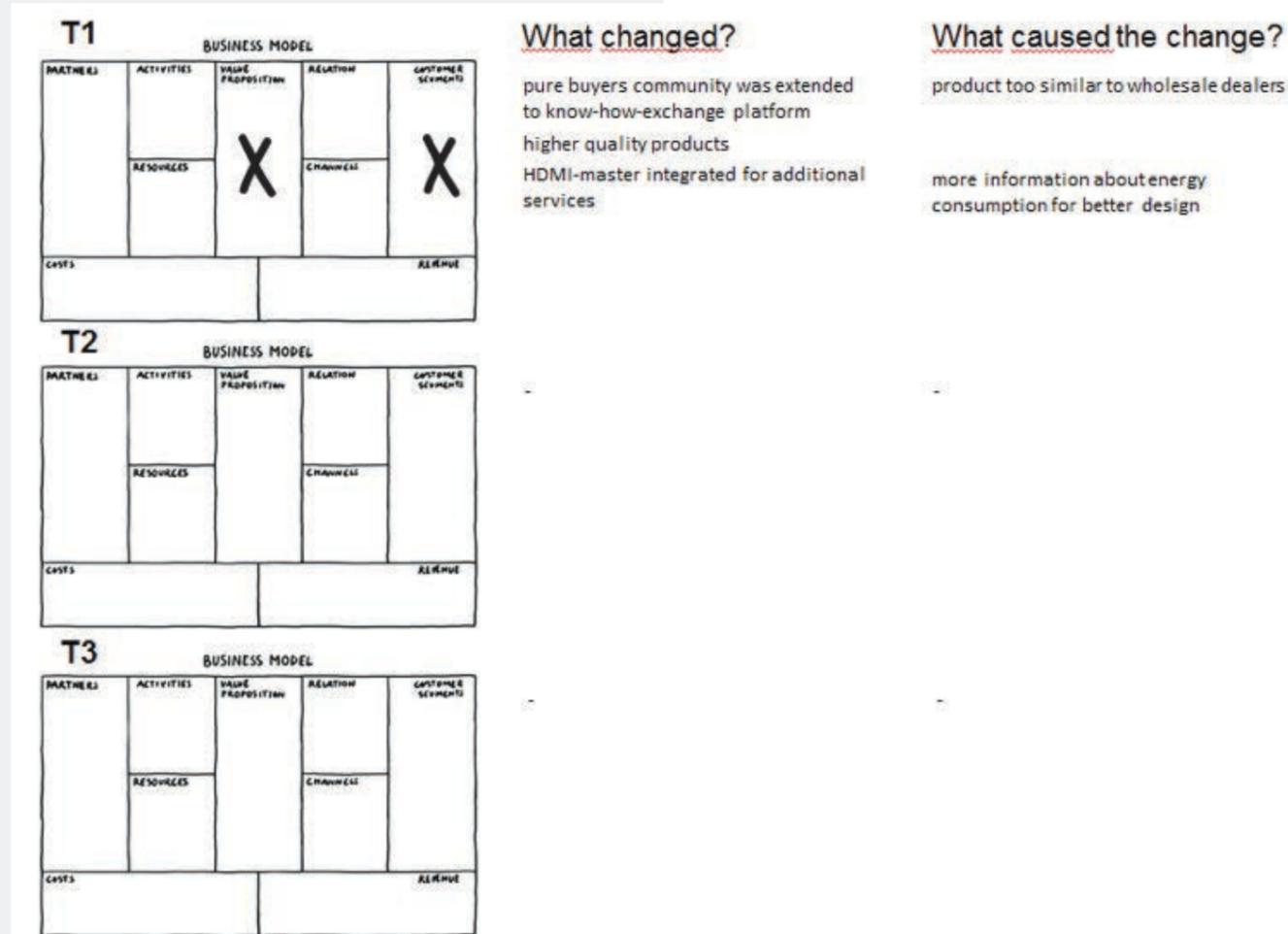


Figure 7: the entrepreneurial journey of LSI Leistungsgruppe.

Stretching and conceptualizing are not deemed relevant.

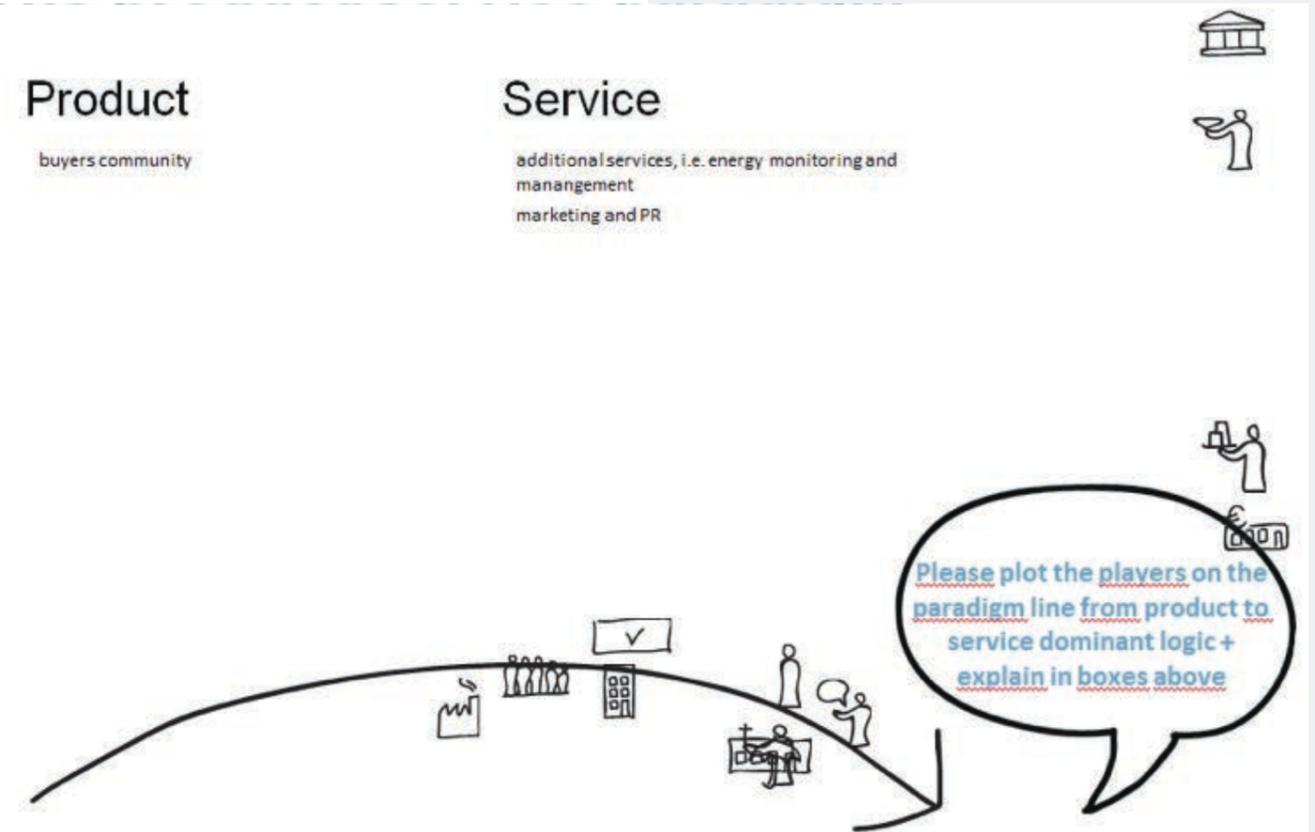


Figure 8: where do LSI Leistungsgruppe and her stakeholders stand in the product versus service paradigm?

Smart service systems

The Story of Mywarm

Mywarm is an Austrian company offering the hydraulic adjustment of heating systems in an automated way. The basic idea is to measure the supply and return temperature of all the radiators in a building (up to 10000 radiators) and to adjust the temperatures, until a common level (mean level of temperature) is achieved. Like that, the radiators deliver after the adjustment the "correct" performance and losses in the heating system are prevented.

The technical implementation works with the help of large modules, which are placed onto each of the radiators. The modules communicate with each other via a server and enable the hydraulic adjustment in an automated way. The base of the solution is a mobile MSR system (measure, steering and regulation). The modules communicate the measured temperatures to the server, on which the optimized values are calculated and communicated back to the modules, which adapt to the optimized values automatically. The system is designed as a plug and play solution and works via mobile networks. The main advantages mywarm offers in comparison to a manual hydraulic adjustment are:

- Easily usable
 - Only short introduction necessary
- Installers can rent the modules and use them for their services. Furthermore, mywarm also offers the mediation of end customers (private

customers, building administrators, offices) to installers.

The model turned out to be specifically profitable in district heating grids that feature a tariff-component on temperature-spreading, because the technique builds on decreasing this figure. As this is only a small share of the market it is necessary to make the business model profitable (in whatever respect: energy savings, maintenance, other benefits i.e. health, comfort,...) for other circumstances as well.

Business model canvas

Customer segments: mywarm works B2B by renting the hydraulic adjustment system to HVAC installers. The installers themselves offer the service to office buildings or multi-family houses, in which a big amount of radiators is available.

Value proposition: mywarm promises the automated hydraulic adjustment on whole heating circuits by placing the system onto the individual radiators. The system enables equal heating possibilities in all rooms by adapting the heating to a mean temperature. A low level of training is necessary for the installers, as the data server takes over most of the communication. The value proposition is slightly switching towards comfort. The service is very much technic oriented, following the pushing harder strategy

Channels/relation: The renting system is promoted and communicated via a partnership to the installers. Mywarm sees the possibility in

rising awareness among installers to realize the potential of this service.

The problem is that mywarm cannot communicate with the end-user in this way, because the craftsmen are the intermediaries in between and thereby the control over communication is out of hand of mywarm. The contact to end-users is only foreseen in the capturing of new markets

Revenue: in regard to pricing, installers pay a certain amount per rented radiator (~ 50,- EUR per radiator). The price for the end customers lies around 100,- EUR per radiator.

Resources: The main resources consist out of the server necessary for the analysis, a metering and adjustment kit, which is necessary for the hydraulic adjustment as well as adapters, which remain on the radiators after the service.

Activities: the activities of mywarm include the improvement of the technical performance of the adjustment system. Besides, the system must be user friendly and simply in usage for the installers. As the partnership of installers is the most important channel to customers, the improvement of the partnerships is a priority agenda.

Partners: important partners of mywarm are IT-specialists dealing with the server operation and programming as well as the suppliers of the

technical equipment.

The big challenges for my warm are the high costs for the renting of the system. Due to the relatively high costs of development and investment the costs for renting are much higher than for e.g. manual hydraulic regulation offers of competitors. Besides, cost for server maintenance and logistics have to be dealt with. Moreover, the system does not provide a performance guarantee in energy savings.

Mywarm works B2B as well as B2C. Thereby two different Value Proposition Canvas have been produced as the content of both is differing tremendously.

Customer value canvas

B2C:

Customer jobs: tenants prefer comfortable living such as a high level of comfort in their apartments. Furthermore, the reduction of energy cost is an attractive option to them. Building administrations try to reduce the effort for upkeep and want to keep the property management as simple as possible.

The fact that an increasing number of end-users are seeking long-term-relationships for enjoying constant comfort is not reflected in the service

Pain/pain relievers: building administrations, owners of apartments as well as tenants know

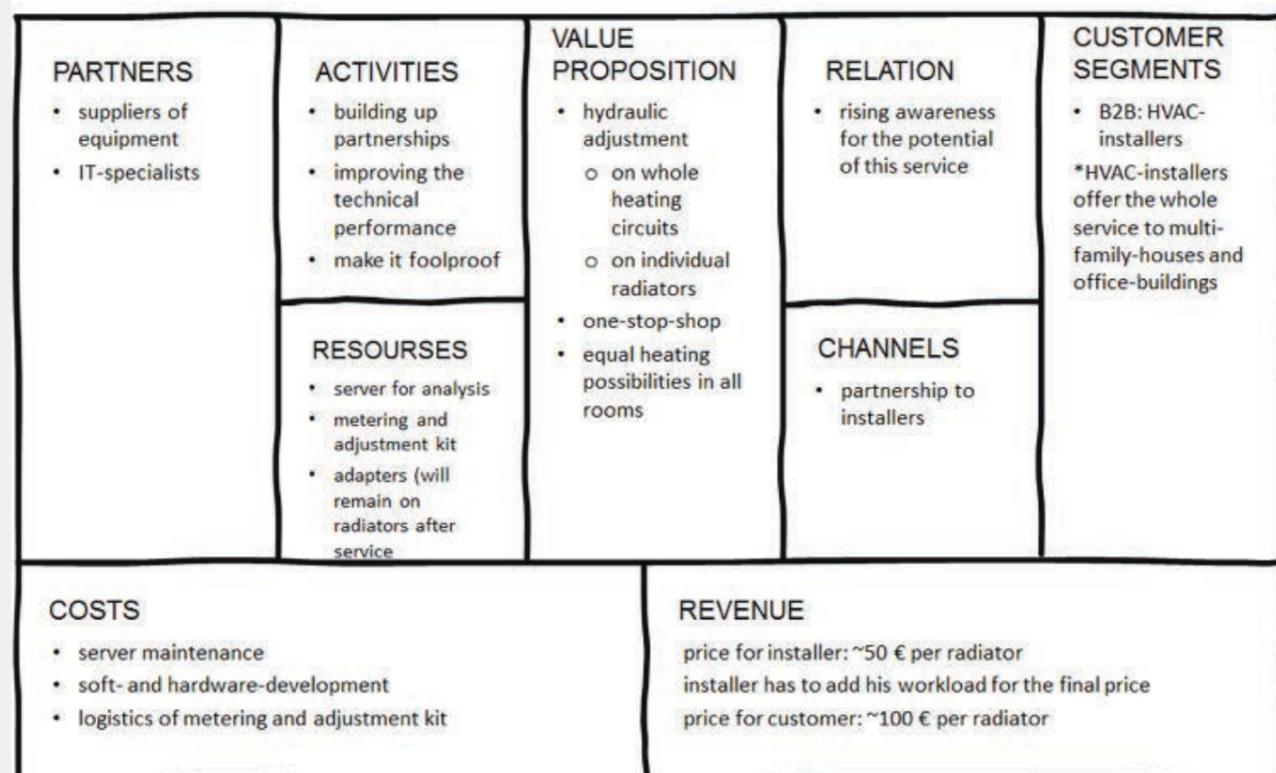


Figure 9: the business model canvas of Mywarm. Template based on Osterwalder and Pigneur (2010).

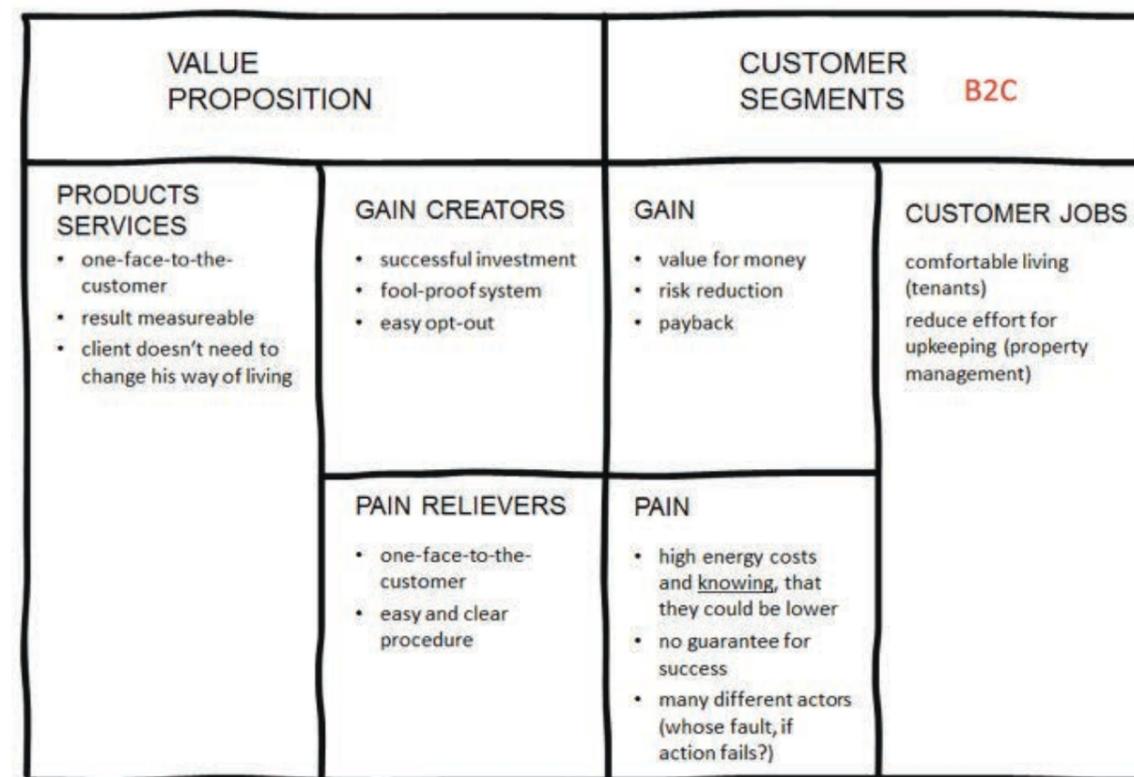


Figure 10: the customer value canvas B2C of Mywarm.

that the energy cost for a comfortable living is high but could be lower. There are many different actors involved in a building and the right recipient cannot always be identified straight. The installers can represent themselves as one face to the customer providing the adjustment in an easy and clear procedure.

Gain/gain creators: end customers receive valuable results for their money in the form of a lower energy demand and consequently cost, which is the payback for investing in to the adjustment. The output is easy to understand.

Products/services: the hydraulic adjustment can be made without any changes of behaviour/living of the client. The results of it are measurable in energy demand and cost.

B2C:

Customer jobs: tenants prefer comfortable living such as a high level of comfort in their apartments. Furthermore, the reduction of energy cost is an attractive option to them. Building administrations try to reduce the effort for upkeeping and want to keep the property management as simple as possible. The fact that an increasing number of end-users are seeking long-term-relationships for enjoying

constant comfort is not reflected in the service

Pain/pain relievers: building administrations, owners of apartments as well as tenants know that the energy cost for a comfortable living is high but could be lower. There are many different actors involved in a building and the right recipient cannot always be identified straight. The installers can represent themselves as one face to the customer providing the adjustment in an easy and clear procedure.

Gain/gain creators: end customers receive valuable results for their money in the form of a lower energy demand and consequently cost, which is the payback for investing in to the adjustment. The output is easy to understand.

Products/services: the hydraulic adjustment can be made without any changes of behaviour/living of the client. The results of it are measurable in energy demand and cost.

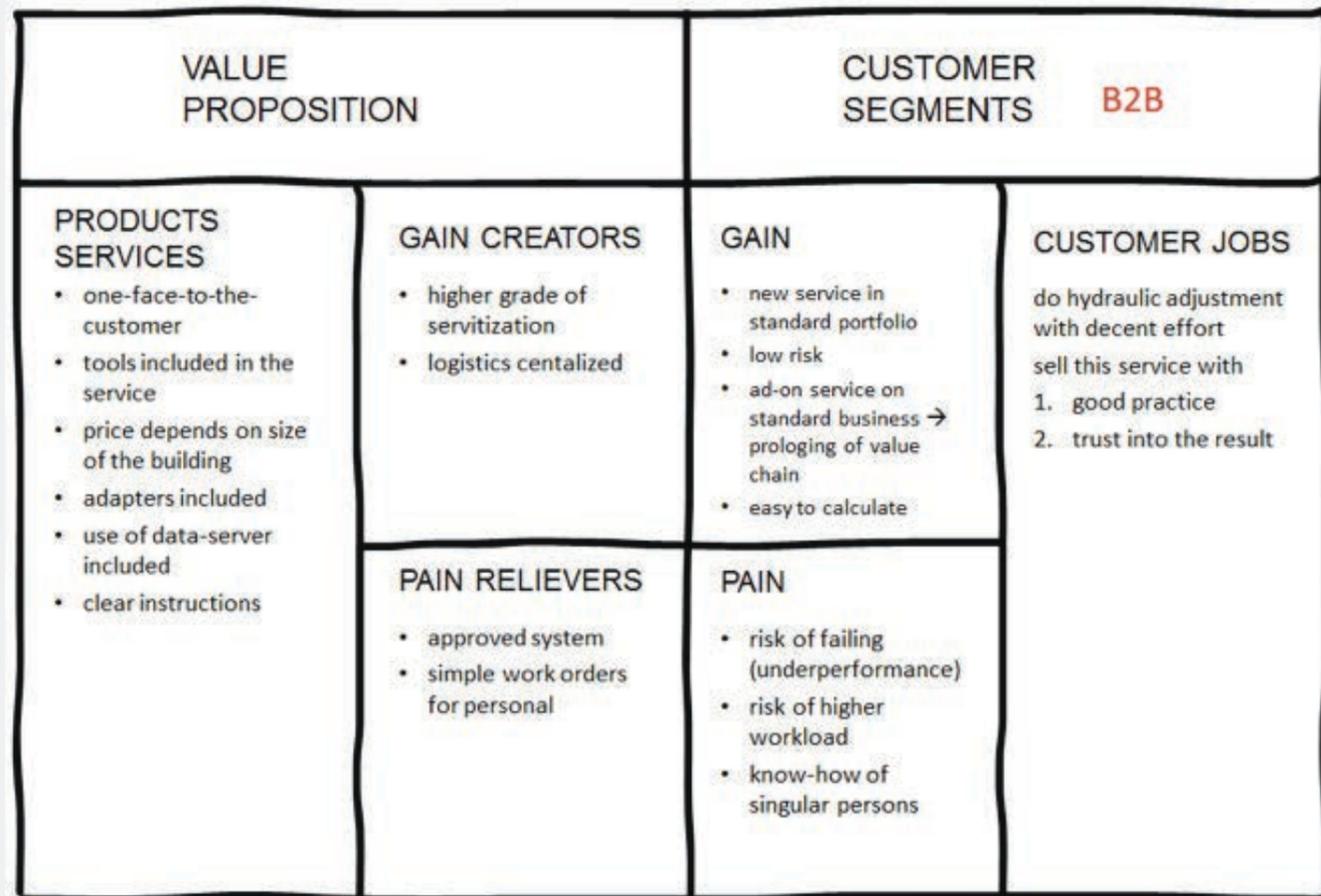


Figure 11: the customer value canvas B2B of Mywarm.

Entrepreneurs Journey

Mywarm already faces a stagnant market. The problem is, that it's trying to sell the service (already better than selling products) instead of values. That means that the customer's (end-user) jobs, gains and pains are assumed once and then set as a standard. The end-user is not actively invited to contribute in terms of user-co-creation and there is no structured feedback-loop in the use-phase introduced (only during implementation), the service-provider is only sending out messages.

As a consequence the "pushing harder"-strategy is being followed by improving the performance of technical appliances and economic performance

Orchestration:

Mywarm is rather good at this capability as it developed relationships with retailers to compile the technical package. But it is not the orchestrating skill, where the company aligns her partners to act as one in delivering the user experience, but it's to improve the technical and economic performance of the product. It's the traditional approach of an Original Equipment Manufacturer.

Stretching is not a target of the company yet: the communication of service features and values (if any) is performed by a limited group of co-

workers (including the CEO).

Contextualizing:

Mywarm is contextualizing the communication according to the target groups. Thereby it distinguishes between

1. home owners
2. SMEs and real estate
3. HVAC-designers and
4. Facility managers
5. Retail partners

Thereby the core product stays the same, only the technical advantages are promoted, but not the pains and gains of the clients addressed.

Scaling:

Mywarm is not only addressing HVAC-installers as partners, but also utility services that have obligations by the energy-efficiency-law through delivery of energy-efficiency-measures.

The product service/pradigm

Mywarm positions itself rather on the service orientation. In the focus lies the renting of the whole system including introduction, server access etc. Besides, mywarm works on a B2B as well as on a B2C basis.

Enablers: The enabler(s) are placed mostly on the service side, as those encompass mostly

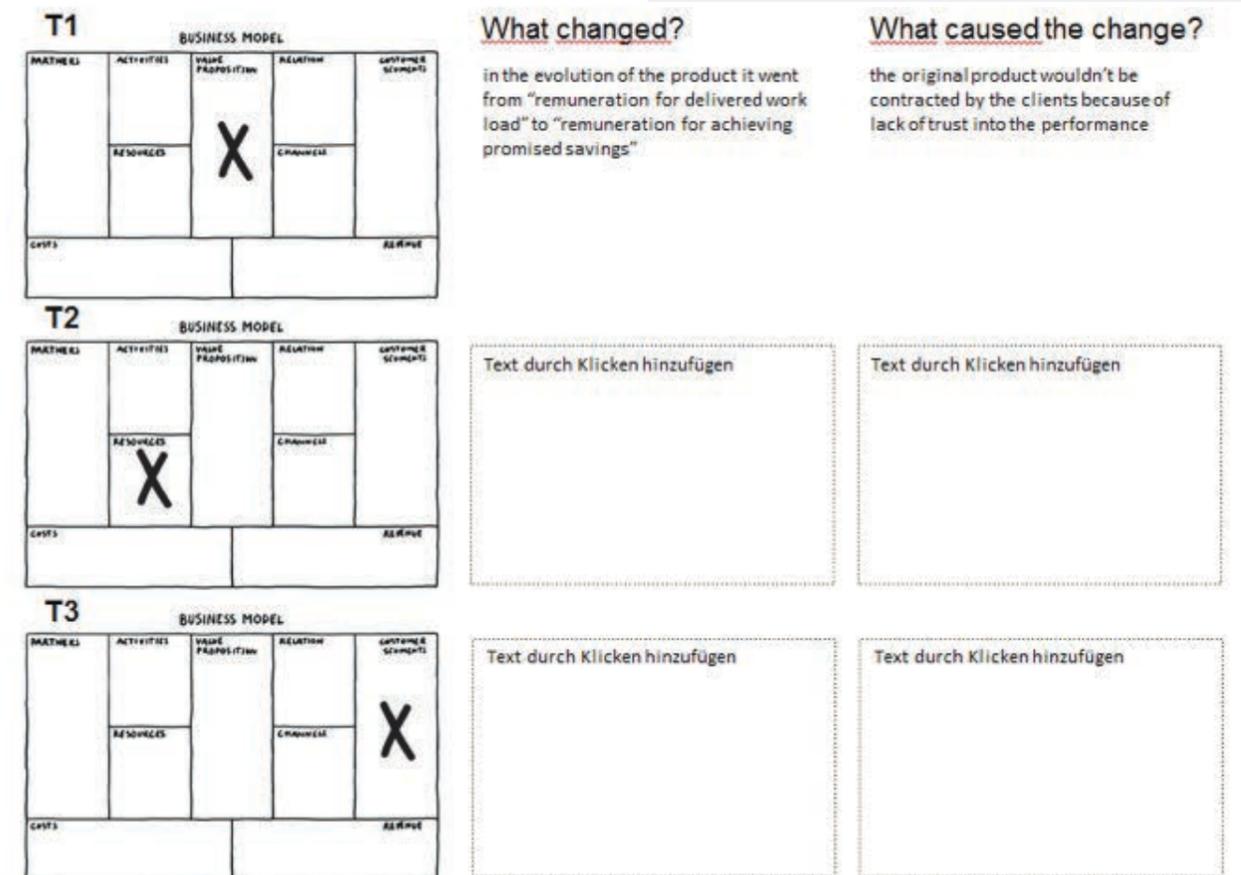


Figure 12: the entrepreneurial journey of Mywarm.

infrastructure like Internet, mobile network etc. They are represented e.g. by housing associations, which act as important multipliers. Associations, which have already consumed the service, are quite willing to transfer it to other buildings.

Customers/end-users: customers offer their end-users a better heating control in all of the rooms. Consequently, a higher level of comfort and lower cost of energy can be achieved. End-users pay for a service rather than a product.

The Story of Messpunkt

messpunkt is an Austrian company offering the hydraulic adjustment of heating systems. Basically messpunkt offers the same value propositions as mywarm, but offers the service in a manual way. The basic idea is to measure the supply and return temperature of all the radiators in a building (up to 10000 radiators) and to adjust the temperatures, until a common level (mean level of temperature) is achieved. Like that, the radiators deliver after the adjustment the "correct" performance and losses in the heating system are prevented.

The business model is focused on specific know-how, which is not multiplicable. The entrepreneur collected experience in a row of companies. The developed business model combines this specific mixture in a very individual way:

The technical implementation works manually. Each radiator has to be checked individually. The measured data is then transferred into an excel file, in which the regulation is calculated and an optimized flow temperature for the radiators is the result. The radiators are then adjusted one by one.

In comparison to mywarm, messpunkt offers a performance guarantee. The evidence of the performance is determined with the help of energy meters. The company does not work with partners, but offers the service with its components itself.

Business model canvas

Customer segments: messpunkt addresses housing associations and owners in apartment buildings, which have a big amount of radiators that need an hydraulic adjustment. For new target markets (if any) essentially a push-harder-strategy is applied

Value proposition: the hydraulic adjustment of messpunkt is conducted on whole heating circuits and enables equal heating possibilities in many rooms. The value proposition itself is very technically driven. The profits are mostly related to energy savings, partly to increased comfort, but only vaguely. At least it offers a one-stop-shop and one-face-to-the-customer, but it is built as a one-off purchase per object.

Channels/relation: messpunkt is in direct personal contact with its customers and tries to communicate best-practice examples to its individual contacts. Thereby long relationships are the target, partly achieved through long-term framework contracts. Still the service per object follows a one-off strategy. On the downside: the used language is very much technically driven, so it needs a client that understands this language to be able to evaluate the service upfront and build up trust. The web-presence and printed material are very basic and also reduced to technical language.

The revenue system (see next paragraph) tries to

Product

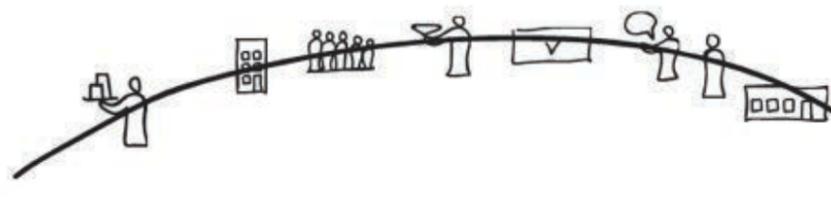
analysing and improvement kit, communicating with a dataserver
adapters stay in place after the process

Service

one-time-service (maybe again 10 years later)
reduced energy costs
more important: increased controllability of room temperatures (no more random "priority rooms")



Please plot the players on the paradigm line from product to service dominant logic + explain in boxes above



PARTNERS none	ACTIVITIES ?	VALUE PROPOSITION <ul style="list-style-type: none"> hydraulic adjustment <ul style="list-style-type: none"> on whole heating circuits on individual radiators one-stop-shop equal heating possibilities in all rooms 	RELATION <ul style="list-style-type: none"> regular customers 	CUSTOMER SEGMENTS <ul style="list-style-type: none"> housing associations owners in apartment buildings
	RESOURCES long-time experience and know-how (difficult to reproduce ☺)		CHANNELS <ul style="list-style-type: none"> individual contacts best practice, but only oral 	
COSTS 75% for analysis (manpower + metering equipment) 25% for improvement (manpower)		REVENUE first analysis per building is free, result is a calculation of the savings. If the client gives a contract for the improvement, the whole effort is invoiced (also the analysis), but only if the calculated savings are achieved.		

Figure 13: where do Mywarm and her stakeholders stand in the product versus service paradigm?

Figure 14: the Business model canvas of messpunkt. Template based on Osterwalder and Pigneur (2010).

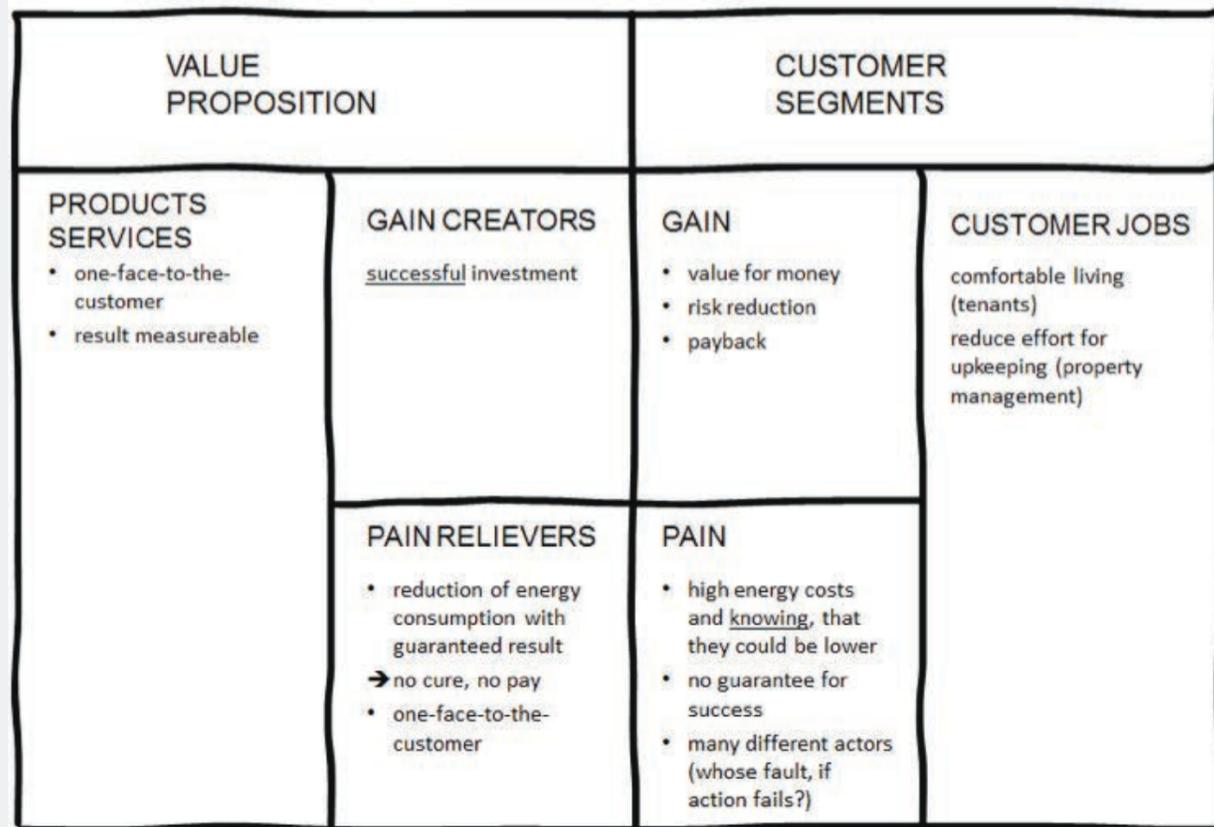


Figure 15: the customer value canvas of messpunkt. Template based on Osterwalder and Pigneur (2010).

compensate this flaw, but a modified user-centred marketing would be more effective.

Revenue: the pricing of messpunkt is done as follows: the first analysis per building is for free. Messpunkt calculates in the analysis the saving per building/apartment. The customer only pays, if the calculated saving (documented in a contract) is achieved. Due to the performance guarantee, the risk lies within the company. In comparison to competitors like mywarm the price for the service is much lower (around one fifth of the mywarm price!). messpunkt works on B2C basis. This approach is very much service-orientated as the client doesn't need the technical knowledge to approve the end result. This is a contraindicating to the strategy of the selling argumentation; thereby many business opportunities are lost.

Resources/Costs: the main resource of messpunkt is the long-time experience and know-how, which is packed into the adjustment tool. The know-how about the calculation is hardly reproducible. The big challenge for messpunkt lies within the effort for the analysis, which is quite elaborate. The structure of costs is split with ~75% for the analysis of the measured data and ~25% for improving the calculation tool.

Entrepreneurs Journey

For solving the problem of lack of trust into the proposed service the company introduced performance based remuneration. In principle this is a smart move as the success of the proposed action depends very much on the individual situation of each building. On the downside the M&V-method is not very convincing and is based on a one-time-metering without any normalisation of the baseline.

The unsolved conflict is that the entity that decides on the purchase is not equivalent with the user, who is enjoying the improved comfort and reduced energy costs. This split-incentive-dilemma is out of control of Messpunkt – we believe that the company is not even aware of it – and thereby reduces the business opportunities of the concept. A focused marketing strategy addressing the end-user would probably create awareness and build up pressure onto the managing and deciding entity.

Orchestrating is not a topic at the moment, because the service works as a one-man-show (with little assistance). In this way the whole business-model inevitably is one-face-to-the-customer-based.

Scaling is limited to dealing with residential quarters as a basis and aiming for commercial objects as well. The used language and communication is not adopted as it is technic-based in all cases.

Co-creating, co-learning, contextualizing, conceptualizing and stretching are underdeveloped and not actively considered.

Value proposition canvas

Customer jobs: tenants prefer comfortable living such as a high level of comfort in their apartments. Furthermore, the reduction of energy cost is an attractive option to them. Building administrations try to reduce the effort for upkeep and want to keep the property management as simple as possible.

Pain/pain relievers: building administrations, owners of apartments as well as tenants know that the energy cost for a comfortable living is high but could be lower. There are many different actors involved in a building and the right recipient cannot always be identified straight. The installers can represent themselves as one face to the customer providing the adjustment in an easy and clear procedure.

Gain/gain creators: end customers receive valuable results for their money in the form of a lower energy demand and consequently cost, which is the payback for investing in to the adjustment. The output is easy to understand. Products/services: The results of the adjustments are measurable in energy demand and cost.

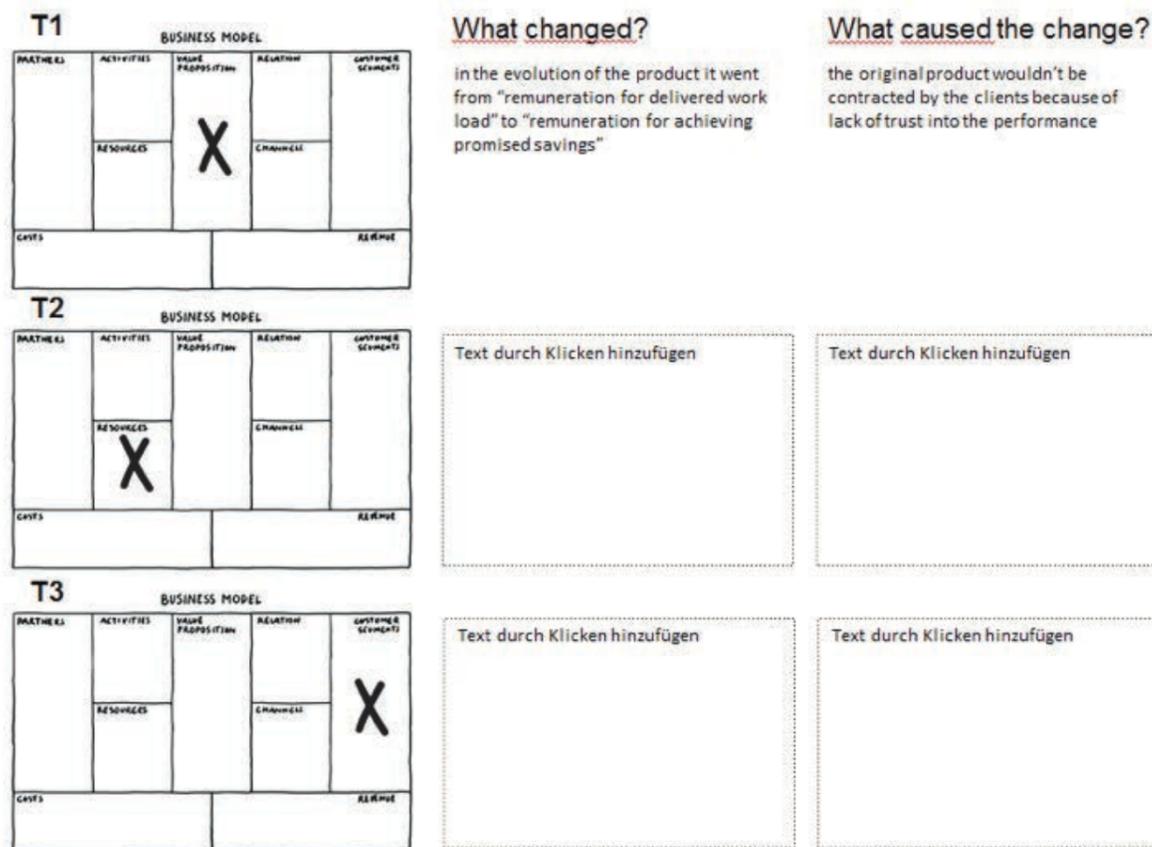


Figure 16: the entrepreneurial journey of messpunkt. Template based on Osterwalder and Pigneur (2010).

The product/service paradigm

Messpunkt and its key stakeholders have to be split up between product and service. Marketing and Communications is placed double in the chart for the following reasons: the firm has good selling capacities, but the general appearance of the firm is not appealing (e.g. homepage or marketing material).

Customers: to customers a better heating control in all the rooms is offered. Consequently, a higher level of comfort and lower cost of energy can be achieved. End-users pay for a service rather than a product.

Enablers: The enabler(s) are placed mostly on the service side, as those encompass mostly infrastructure like Internet, mobile network etc. They are represented e.g. by housing associations, which act as important multipliers. Associations, which have already consumed the service, are quite willing to transfer it to other buildings.

Competitors still try to apply similar technical services in a conventional way, not performance-related.

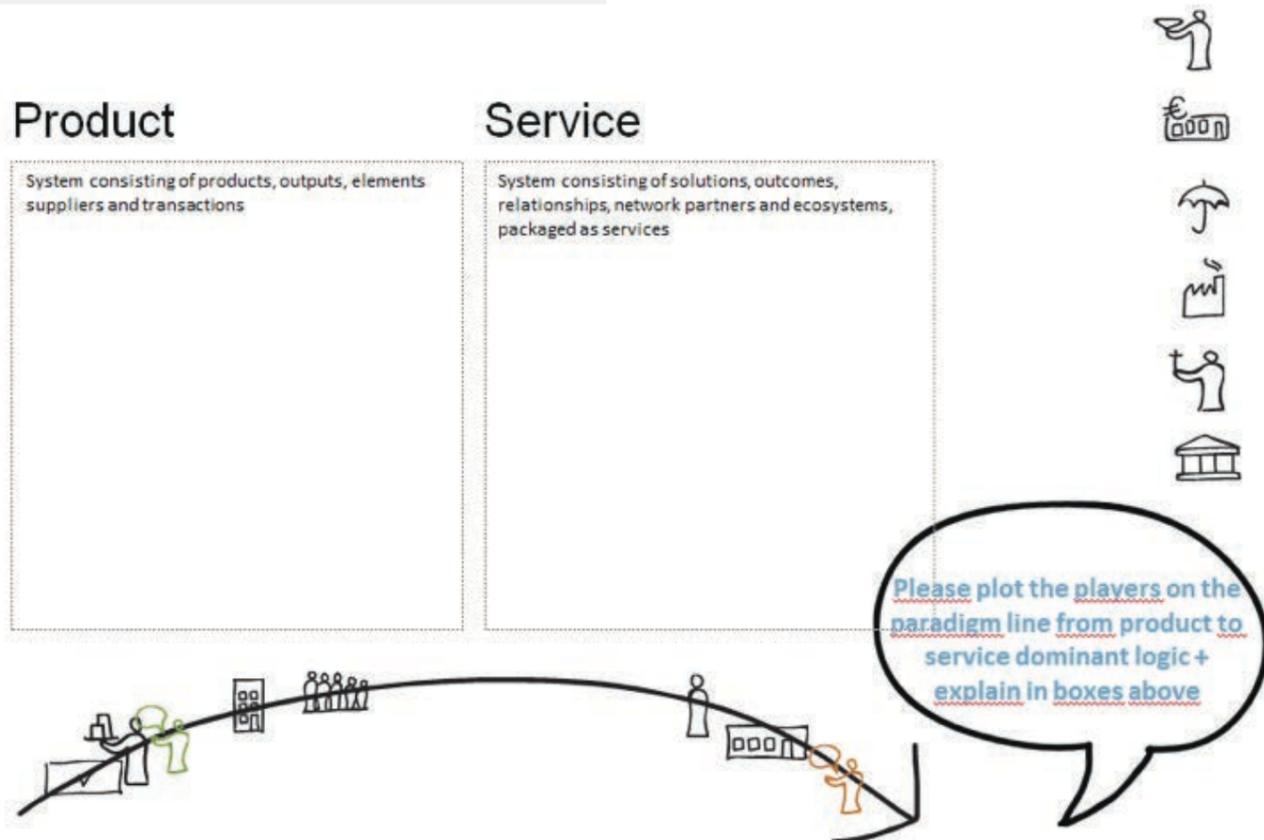


Figure 17: where does messpunkt and her stakeholders stand in the product versus service paradigm?

The story of Netconnect

Netconnect is a small company located in Graz, offering the visualization of the energy consumption for large businesses. The firm developed at times, when energy efficiency was not that attractive (1980ies) and adapted thanks to the quick development of the IT-sector. The founder has a technical/programming background, stemming from the control technique. The business idea arose in the state hospital of Graz, where the big amount of meters had to be read individually (and manually). Moreover, more and more medical (power supplied) equipment was developed and acquired. As a consequence, energy costs increased drastically and the billing of accounts according to the consumption was required. Besides, breakdowns of the power lines became more frequent due to the new equipment, which is a serious problem in the medical sector. The area of the state hospital is quite huge and external firms, such as restaurants, shops etc. have rented shops. Those needed an individual billing of the consumed energy. The need for an automated reading of the meters as well as a consumption related billing of the consumed energy made the firm develop a new software.

The developed software is a tool, which enables the automated reading of many meters in large businesses such as hospitals, industry etc. The tool works server-based. The data is stored on the server and is visualized in great detail. The customer receives an in depth analysis about

the consumed energy and the workload of the power lines ("power-line-XRay"). The visualizations are offered individually to the consumers (according to cost, time, department etc.). The tool offers the two main advantages of reduced energy costs and a secure operation of the business. Besides, energy potentials and their dimension can be identified in a secure way. If measures are implemented, the tool provides the documentation as well as the documentation of the success/improvement. Currently, netconnect has roughly 25 customers.

The core offers of netconnect are:

- Automated reading of meters (e-monitoring)
- Billing tool for energy costs according to consumption
- "Power-line-XRay"
- Optimization of load management

Business model canvas`

Customers: netconnect mainly addresses large firms, which have a relevant energy demand. Within these firms, the main contacts are CEOs, as they are mainly the decision makers, technicians and environmental officers, who are in charge of the technical energy system and responsible for the environmental aspects of the company.

Value proposition: the value proposition of netconnect includes the consumption-adequate accounting of energy costs. Costs belonging to rented facilities in large business areas can be passed onto the corresponding institution.

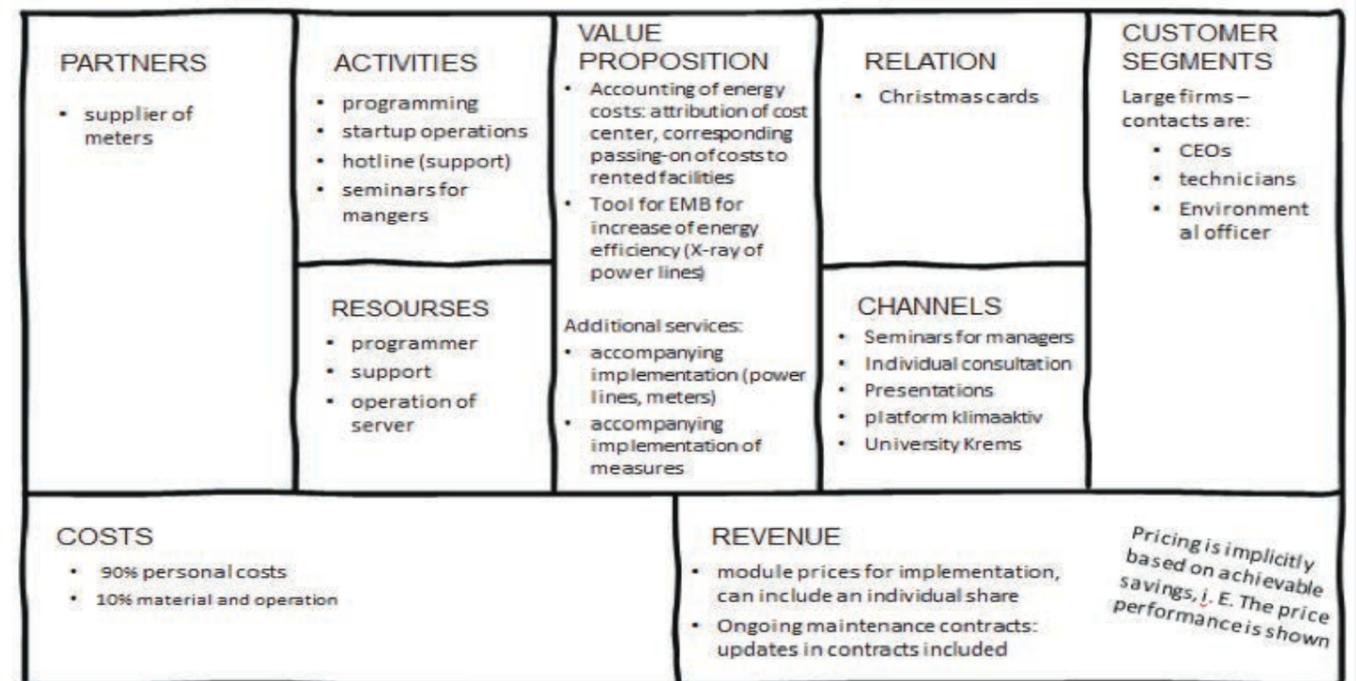


Figure 18: the business model canvas of Netconnect. Template based on Osterwalder and Pigneur (2010).

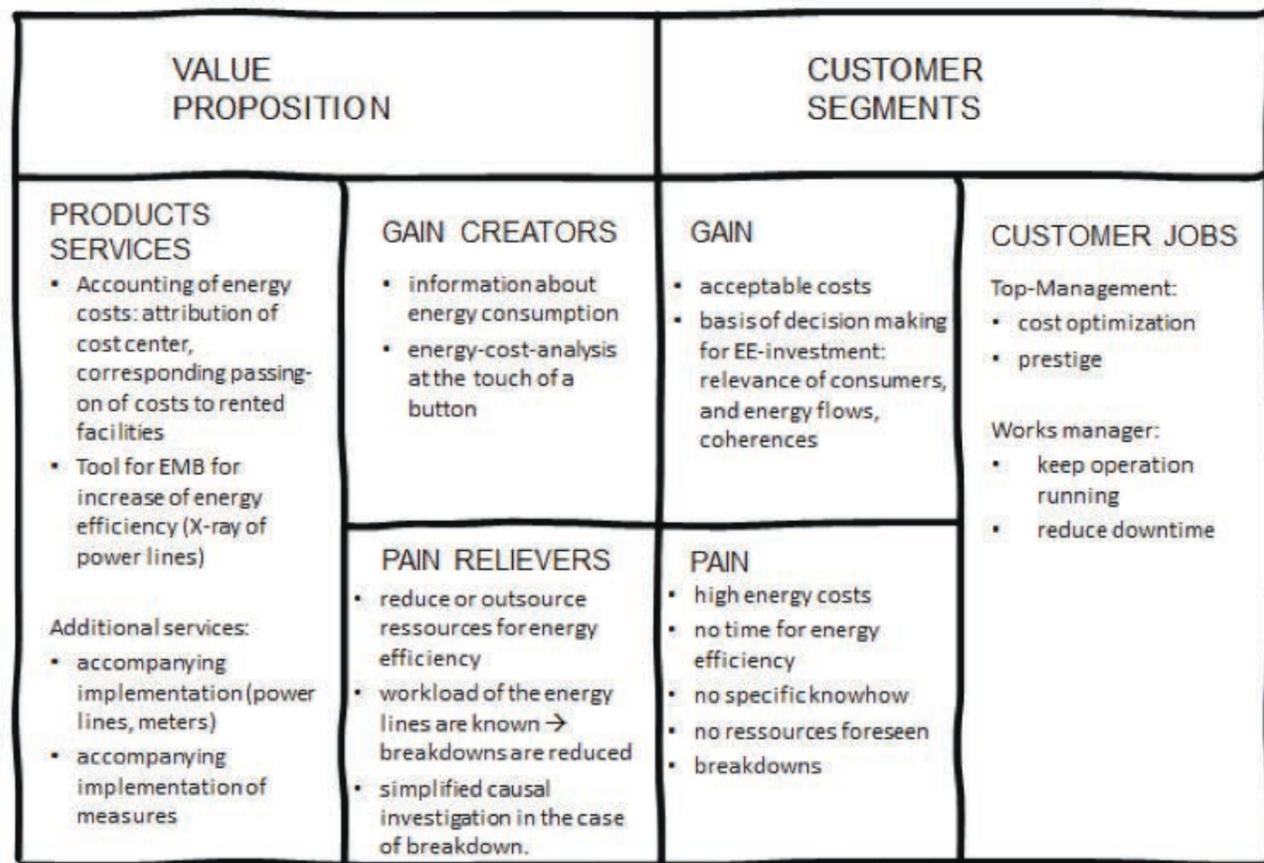


Figure 19: Value proposition canvas of Netconnect.

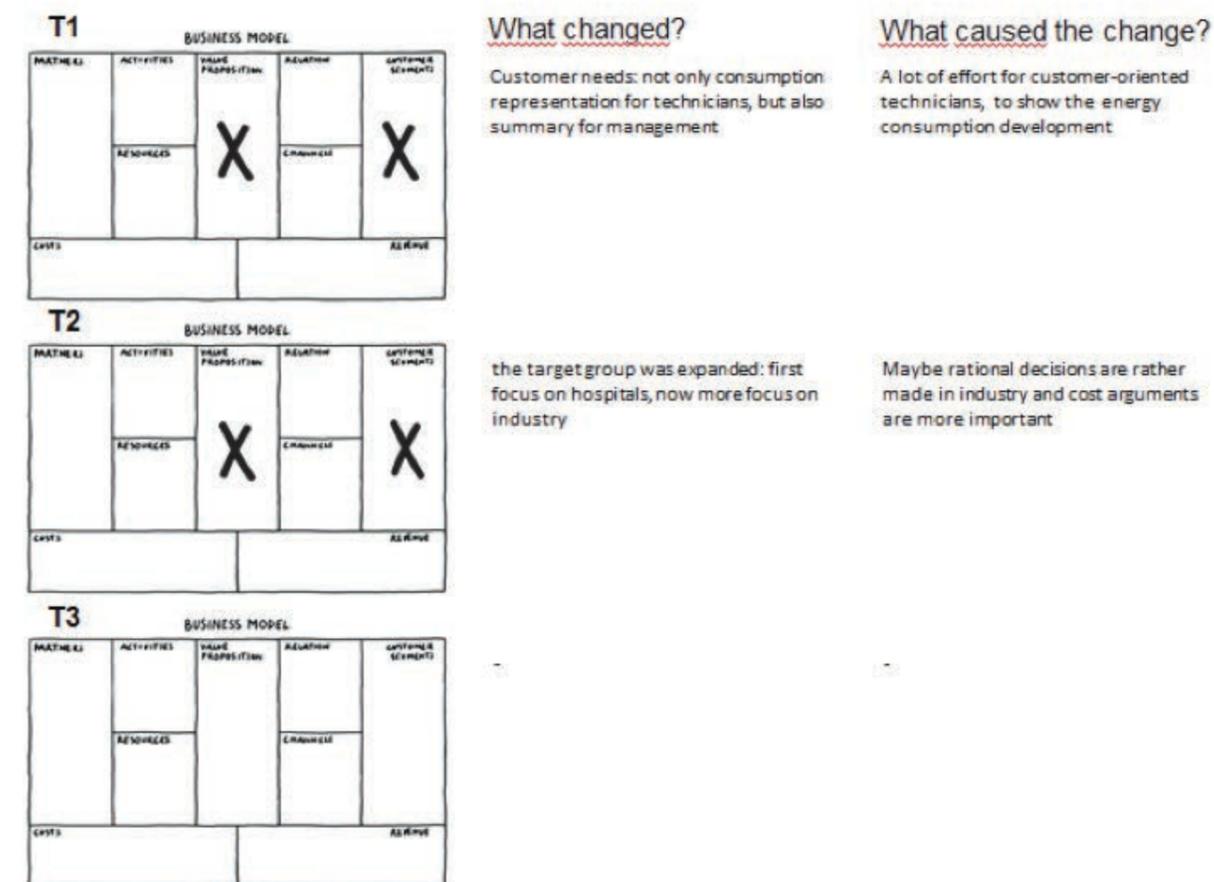


Figure 20: the entrepreneurial journey of Netconnect.

Besides, the X-ray of the power lines enables a secure operation of the business. Moreover, netconnect offers additional services such as the accompanying implementation (in regard to power lines and meters) as well as the implementation of concrete measures identified within the tool. The usage of the offered tool is generally accompanied for 2 years, after that the customer can handle the tool himself. The customer does not get the impression "to buy additional work", but to receive a tool, which simplifies complicated tasks.

Channels: netconnect interacts with (potential) clients mainly via personal contact. There are seminars offered for managers as well as individual consultation being made. When possible, presentations are held on workshops or adequate events. Moreover, there is a collaboration with the platform klima:aktiv and the university of Krems.

Relation: netconnect is mainly in personal contact with its clients. There is a homepage of the company. At the end of the year there are Christmas cards being sent to the most important clients.

Revenues: the tool for accounting is built upon modules, which are the base for pricing. Besides, the individual costs are referring to the achievable energy savings. Maintenance costs are included in the contract.

Resources: The value is generated by programmers, the operation of the server and support. The main activity of netconnect is programming work.

Activities: the activities of netconnect include the programming of the software and the startup of the operation of the tool. During operation, a support hotline is served. In seminars, managers are trained to deal with the tool.

Partners: the main collaboration partners are the suppliers of the meters.

Cost: Around 90% of cost is represented by personal cost, whereas the remaining 10% go into material and operation.

Value proposition canvas

Customer jobs: There is a difference between the top management, which is in charge of cost optimizations and prestige of the firm and works managers, who must keep the business running and reduce the downtimes.

Pain and pain relievers: As for many companies

in the energy efficiency sector, the customers of netconnect are characterized by the facts of little available resources for energy efficiency, high energy costs and breakdowns in operation. There are no resources foreseen for the topic of energy efficiency, as it does mainly not belong to the core business. Netconnect takes over those tasks and makes energy efficiency a financial resource and reduces breakdowns.

Gain and gain creators: The gains can be offered for acceptable costs and provide a solid basis for customers do make decisions on EE-investments. The customers receive individually visualized analysis of their energy demand.

Products/services: the main product/service of netconnect is the tool, which enables the energy costs accounting, the attribution of cost centre and the passing on of the cost to rented facilities. Besides, additional services are offered, as e.g. the accompanying implementation of measures.

Entrepreneurs Journey

During funding times, the main target group were hospitals as they had great need to simplify the reading of the great amount of meters, the corresponding billing and the visualization of the energy data. So in regard to sensing user needs more effort was made in the first years. It changed its value proposition from the sole presentation of the energy consumption for the technicians to the summarizing presentation for the management. For technicians it is very elaborate to provide the development of the energy consumption in the various forms, the management needs it for decision making. Nowadays, the firm reacts to the needs of implementation of identified measures, though this is not the core business. Around 5% of customers take that offer. The idea arose thanks to the funding possibilities, which are possible for companies when doing so. Netconnect does not provide the implementation as a total package, but recommends other firms and experts.

Nevertheless, netconnect offers the consulting and education of employees. The offering of energy audits and EMS systems was developed rather from a legislative change in Austria, when large firms were obliged to do make audits or EMS systems.

Netconnect receives feedback of customers via a support hotline, in which mainly technical problems are reported. Besides, personal contact is the main channel for feedback.

There is no need for orchestrating, as netconnect is the one point to the customer. As less than 10 employees work for netconnect and the

Product

Energiemonitoringprogramm

Service

Unterstützung bei Maßnahmenplanung und Umsetzung
Anpassungen bei Reports
Updates
IT-Support

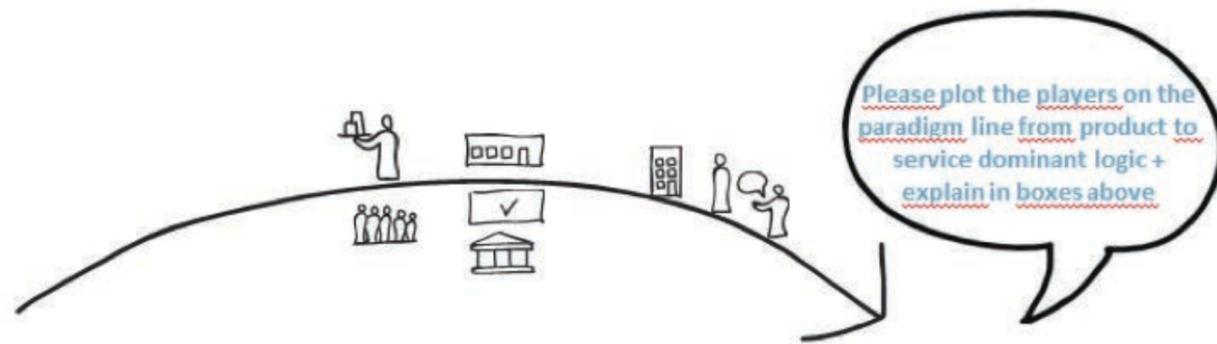


Figure 21: where does Netconnect and her stakeholders stand in the product versus service paradigm?

CEO is acting as salesman, for marketing and communication, implementation of operation of the tool and main contact for customers, there is no stretching. Scaling is relevant for growth within Austria.

The product/service paradigm

Netconnect positions itself in between the product of the energy monitoring tool and the services of support for the planning and implementation of measures, adaptations of the reports, updates and it-support. For the customer, the value is rather the service side of the offer, though he receives the e-monitoring tool after two years and can use it himself.

Competitors: Competitors offering smart meter solutions, energy audits or energy monitoring systems move towards service orientation.

Customers: large firms see more the service of the offers of netconnect. Though they receive the tool (product), the outcomes of the tool, as e.g. the visualization of the energy demand as well as the accompanying services are to be seen as services.

Enabler: the enablers of netconnect are the operators of the server.

Marketing and Communication: there is a homepage of netconnect, Christmas cards are sent in December. Personal contact via seminars, university etc. is the core marketing activity.

Certification: netconnect is enabled to certificate companies under ISO 5001 as well as to conduct energy audits.

Lighting + Retrofitting cases

The Story of EPC+

Graz Energy Agency has advanced knowledge and experience in the field of energy performance contracting (EPC). A lot of success stories can be told of those. Still the scope of projects is rather limited, as history shows, that this business model is suitable almost exclusively for public buildings and also the transaction costs of such procurement plus the individual design effort plus several risk surcharges limit its application, so the minimum baseline cost for a suitable project should be 100.000 €/year.

To reach other clients – speaking of SMEs, industry or public facilities with lower baselines – it is deemed necessary to develop alternative business models that suit those situations better.

Previous attempts e.g. to reduce transaction costs through standardisation of contracts and other connected documents resulted in only decent progress and not in the great breakthrough that has been hoped for.

The new idea was to accept a few reductions in terms of service and guarantee range in favour of reaching new clients.

The features of this so-called EPC+ service should be:

- flexible measure package with performance based remuneration, still avoiding a costly M&V-procedure by introducing smart solutions
- attractive technical modules through standardization
- one-face-to-the-customer, still working in a

- network of small, flexible SMEs
- standard-contract: short contract duration (or easy to terminate)

This would also incorporate, that Graz Energy Agency changes its role: for standard EPC GEA is a supporter of the client, preparing a tender and leading the procurement process in favour of the client, while for the new model GEA is needed to be the head of the implementing bodies.

The model also creates opportunities to extend the service of classical energy consultancy, making it possible not only to advice on a concrete measure but also to implement it with the consent of the client. This would reduce the number of interfaces for a client and facilitate the transition of an energy agency to a one-stop-shop for energy-efficiency-measures.

Business model canvas

The business model canvas is modified for EPC+, as the performance of the service is not a straight forward construct with own resources and activities and sub-contractors, but a more interactive working platform within the network, that needs to be constituted in an iterative process between the network partners.

The value proposition tries to find its position between pure installation (purchase-only) and standard EPC through a high level of standardization of measures and the dedicated contract, a simplification of the clients' life through the principle of one-face-to-the-customer and still a flexible, modular technical package. Of course experience of former projects tells, that EPC-contracts cannot be standardized, but the hypothesis is, that with smaller projects and

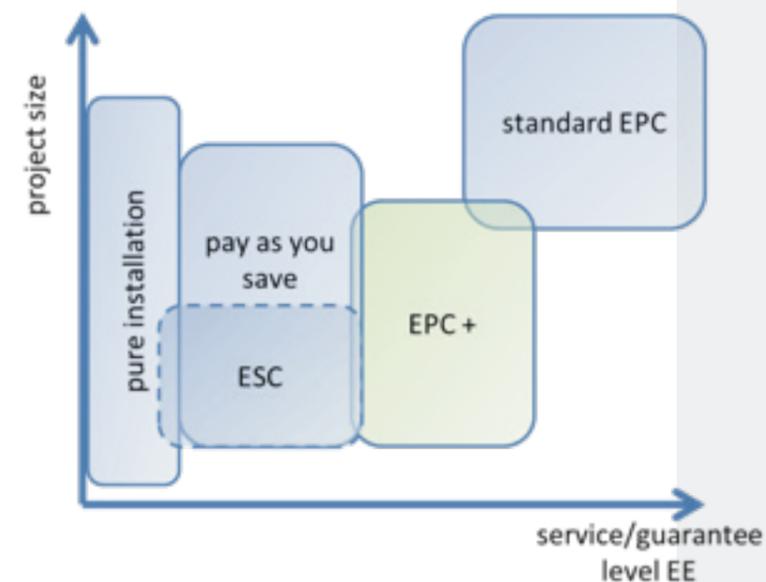


Figure 22: different projects of EPC versus the service/guarantee level EE.

investment-sums standardized contracts might be accepted easier (lengthy negotiations of contracts would not result in adequate cost reductions). Also it is necessary for the SPIN to stick to the technical assortment and not go for individual technical solutions as this would boost the transaction costs.

Most important is the feature that the service is performance based: upfront to the implementation of measures a metering or a baseline is established. After the implementation and commissioning an evaluation of the upfront baselining is performed that should prove the promised savings to justify the business case. If the promised savings are not achieved, the SPIN gets a second chance to improve the appliances and controls. If the savings are still not achieved, the SPIN has to accept deductions from the final payment.

The associated value to this concept is that the client doesn't need the competences to compare technical solutions, but only the competence to compare economic proposals. This competence is available with almost each single public or private entity.

The USP of this concept towards standard EPC is that yearly baseline-audits and -adjustments are not necessary anymore and reduce not only effort on the ESCO's side but also on the client's side. Moreover there are many EPC-clients

that somehow lose their competent personal during the EPC-guarantee-phase, which makes it extremely difficult to negotiate on fair terms with the ESCO in the baseline-audits. This is not necessary in the EPC+ concept. In this sense the concept aims consciously onto "reframing what you propose", away from the "user phase model", which is essentially the idea of standard EPC - with all its difficulties, but with the new feature of EPC+ that the proposition is user centred.

The proposition can be categorized as a total solution (especially because as an optional tool also financing of the investment can be provided), but at the same time it also fits into "retrofitting" and "lighting and heating".

On the right side of the canvas the field "channels" visualizes the add-on-character of the model on classic energy consultancy and energy audits.

The "relation" is strengthened through features that should create "excitement" (after Kano) e.g. through integrated content for the client's sustainability reports.

A barrier to be overcome is the fact that the approach towards the client frequently expresses that in the past errors have been made and that the persons in charge did a bad job. A way out: Offering values would also include giving the persons in charge the possibility to present the improvements as their achievement. This would

even better be possible, when in-house-staff and external service-provider join into one team in the development of a optimization-package, so it becomes a teamwork-success.

Last but not least the remuneration (revenue) for the whole service is performance based, meaning that without metered saving effect there is no need for the client to pay the whole bill - the risk for performance is transferred to the implementing network.

The customer segment in the end represents entities that either are not interested in a complicate, lengthy and inflexible standard EPC-project or that don't have the big projects that justify the transaction costs of an EPC tender, but that still want a performance based service instead of a purchase-only solution. This corresponds to SMEs and industry (no interest in complicate, lengthy and inflexible standard EPC-project) on one hand and to residential and public buildings (small projects) on the other hand. All those have in common that knowledge and resources for energy-efficiency are not sufficiently available in the organisation, mostly because it's not their core business.

The model is foreseen B2B.

Customer value canvas

As there are various contact points to an

organisation of the target group (CEO, CFO, facility or energy manager) there can be different jobs, pains and gains, that have to be dealt with. The classical situation is the contact with the energy manager (can be the same person like facility manager or CEO), therefore the service features focus mainly on dealing with those ones.

It must further be taken into account that just because of high energy costs an energy-efficiency-project will not be concluded very often. More important are gains in terms of increased comfort and reduction of the client's workload and other problems. These are the main selling arguments. Experience with previous projects shows that it is even not so important that the investment repays itself through the energy cost savings, when other problems (e.g. unavailability of spare parts of the existing equipment) can be solved.

The main feature of the model is the one-face-to-the-customer-systematic: this ensures to reduce interfaces and connected problems compared to other solutions, not only in terms of different measures but also in terms of timeline: one service provider for identification, design, implementation and M&V of the measures. Further features are necessary for a competitive pricing (flexible and still standardised measures) as basic features, others are so-called delighters (e.g. reporting material for CSR-reports)

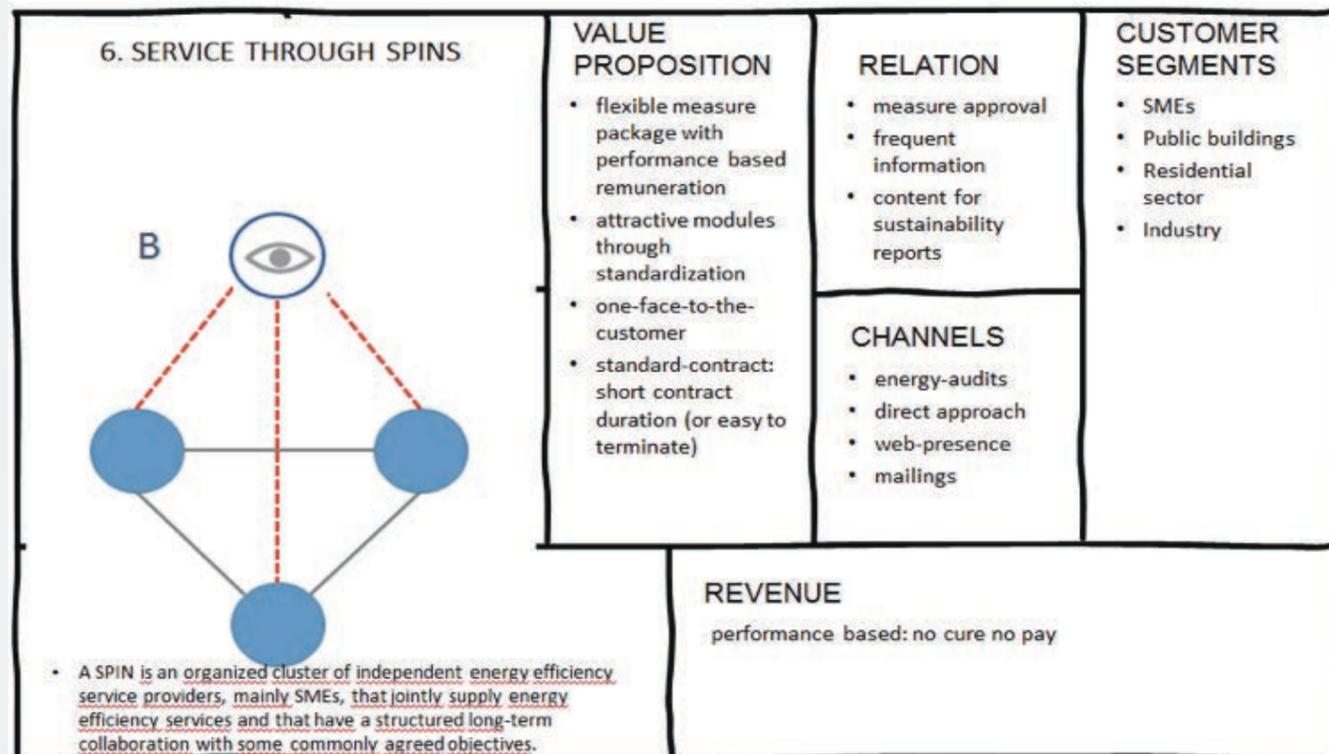


Figure 23: the business model of EPC+. Template based on Osterwalder and Pigneur (2010).

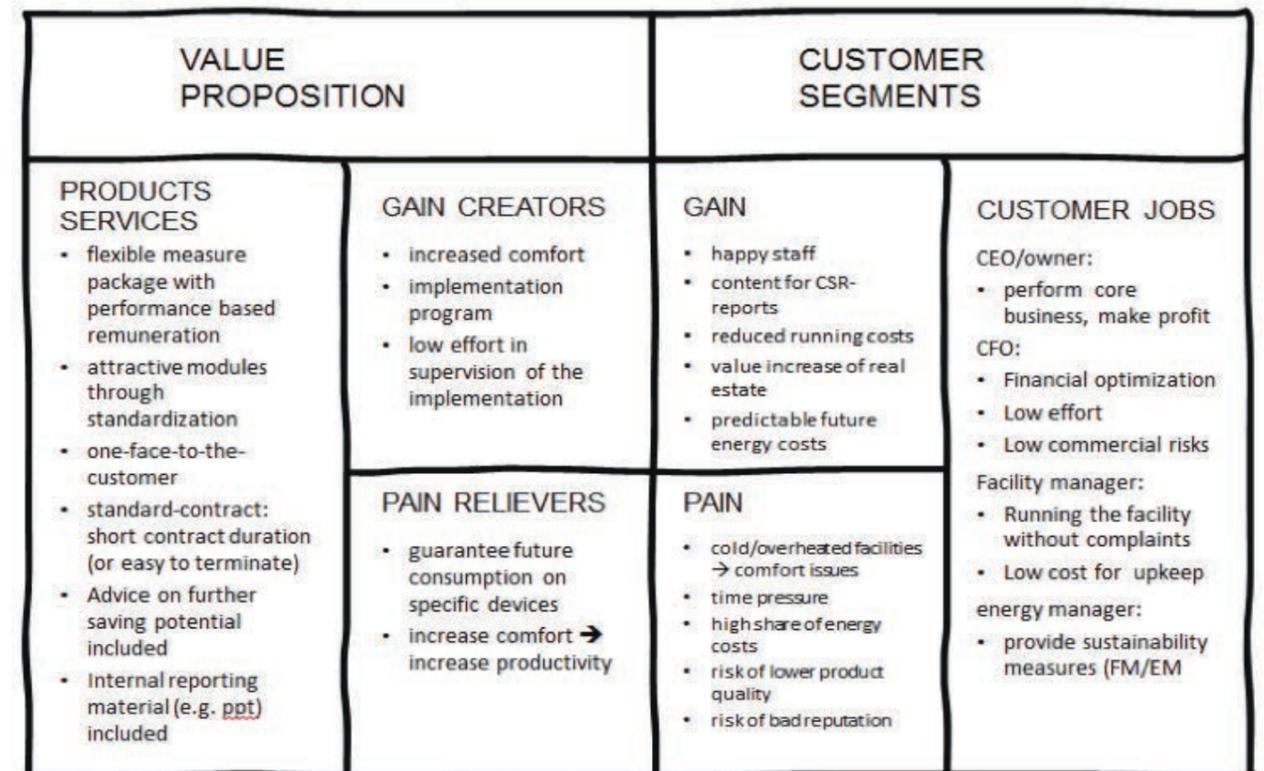


Figure 24: the customer value canvas of EPC+. Template based on Osterwalder and Pigneur (2010).

Entrepreneurs Journey

Compared to standard EPC the USP of long-term-guarantees is reduced, while the measures themselves are mostly the same like in standard EPC. Just the effort for M&V on the long term can be reduced, thereby also reducing effort and workload on the side of the client (i.e. energy manager). The shift is mainly to focus more on time savings than on saving-verification down to the last cent.

The second change is on the target group: originally the EPC+ has been targeted on SMEs as this group is rather left alone and shows over all a large market potential. But through the introduction of the Austrian Energy Efficiency Law approximately 1.000 energy-audits have been performed in Austria, identifying a high number of efficiency potentials that can be tackled through standardised measure packages. This led to extending the scope of target companies also to large companies, i.e. industry.

Sensing user needs:

Graz Energy Agency sees the need on the clients' side on the topics of energy efficiency and comfort conditions. Improved comfort levels (lighting, temperature, fresh air,...) are the immediate profit for a client, while energy-efficiency would be the vehicle to finance the improvements. These

topics have been investigated through a market research study in a multi-step-procedure: at the beginning a theoretical offer has been developed that was presented to two focus groups of relatives (parents and grandparents) of pupils. After a validation of the questions the offer and the questions were targeted on 500 participants in a computer-assisted telephone interview. With those results the technical offer and the tendency of users and their relatives was evaluated. In parallel also operators of elementary schools were interviewed about their motivation to go for a combined energy-efficiency and comfort. As a matter of fact the technical solutions for lighting and temperature were acceptable, but the solution for fresh air were declined (because of various reasons: bad economic performance, maintenance costs, noise of ventilation)

Contextualizing:

On one performed project the feasibility study produced payback periods of ~18 years. While this economic performance is mostly a no-go for most clients, this specific client still considered the project reasonable because of other additional reasons for a refurbishment: the existing lighting system was that old that spare parts were hard to purchase (if not impossible), so each repair of the existing lighting system was extremely expensive and time-consuming. With a complete exchange

through LED-lighting not only the maintenance- and repair-effort could be decreased: a side-effect was that the LED-lighting produces less heat, so also the cooling demand could be decreased and the comfort increased. In this respect GEA shifts the communication of the service into the direction of immediate benefits (comfort, reduced maintenance costs)

Orchestration:

GEA works with a flexible network of technical providers, depending on the competences necessary for the specific project. All potential providers are approved in terms of quality, because GEA as the main contact point and bearer of the performance guarantee has to rely on the predicted savings, but a certain level of competition is necessary between the network partners to avoid misunderstandings within the network. Partly also the purchasing of equipment and of labour is separately awarded through GEA.

To prolongate the principle of one-face-to-the-customer GEA is the only entity the client has to communicate with (especially in case of questions and problems), just on certain occasions in design and implementation the client has to deal with the other network partners.

Conceptualizing: nowadays the provider depends on clients contacting the provider with a problem. Contacting actively clients is not very successful, because the demand doesn't exist and primarily has to be created/visualized. This is only possible with a cooperating client that is willing to share basic data and needs for the possibility to address them. If a client is cooperating in that way the probability for a successful project raises above 50%.

Scaling: the model is being applied on different groups of clients (industry, SMEs on one hand, public bodies on the other hand). Each group has other core jobs to be done and other gains and pains, so the value proposition is being adapted accordingly especially in regard to additional features of the service i.e. presentation templates, training on new user behavior, eco-marketing, visualization of multiple benefits, while the core package of technical measures stays standardized.

Stretching: this is applied in a way that a basic knowledge on the offered services is transferred from the EPC-experts also to pure technical energy auditors, because in the daily business of energy efficiency consultancy its them who already built up a relationship and trust to the client.

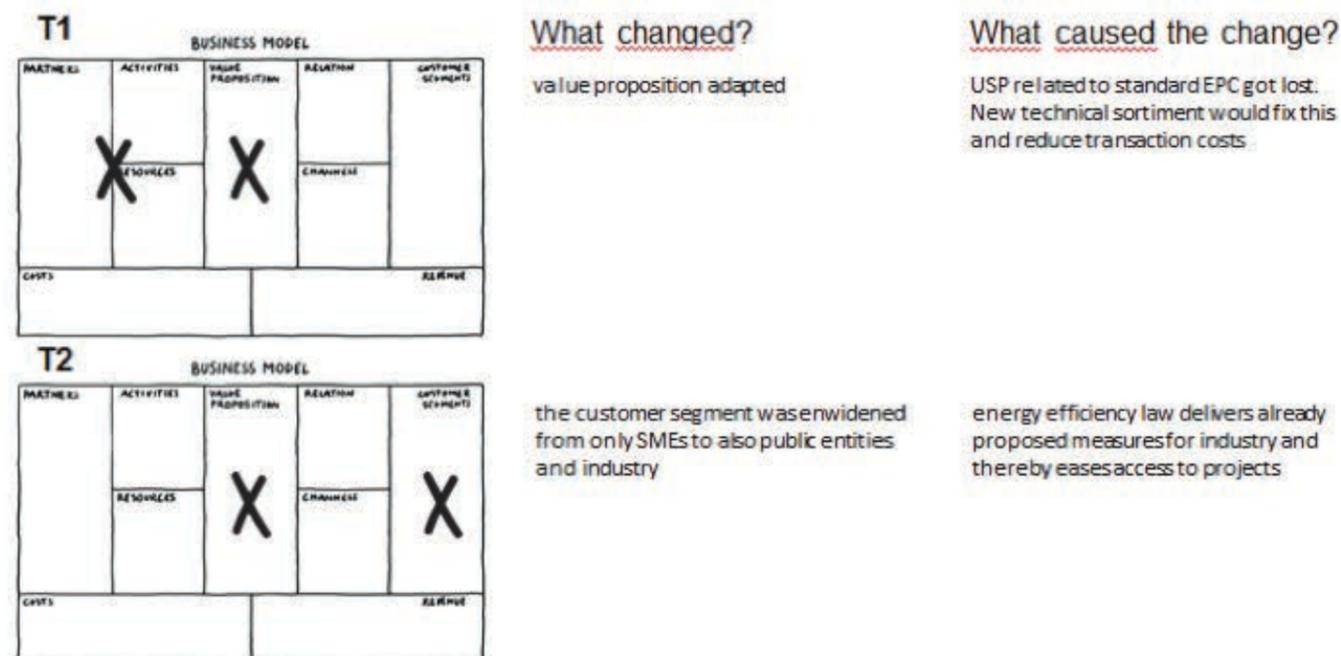


Figure 25: the entrepreneurial journey of EPC+.

Deficits in sensing user needs and contextualizing: Although it's evident that the multiple benefits of energy-efficiency are the real decision-catalysts in most organisations, it is hardly possible to rate/quantify those multiple benefits. Still it is possible to describe those benefits on a qualitative level, but a real game-changer would be a quantitative rating and a common approval of those ratings.

The product/service paradigm

EPC+ positions itself between pure product orientation (installers of equipment) and complete long-term saving and functioning guarantee. Energy cost savings are the (technical) driving force of the business model, but the main value proposition is time savings and thereby focused on the service aspect.

Within the implementing network it is expected that at least some of the tasks will be very much product orientated, so the service aspect has to be produced within the network through specific agreements and partly transfer of responsibilities and risks. The challenge is to find a fair assignment also of the thereby connected cash flows.

Product

technical products, that have to be implemented to increase energy efficiency

Service

design of technical solution, business case approval of performance financing modules for clients

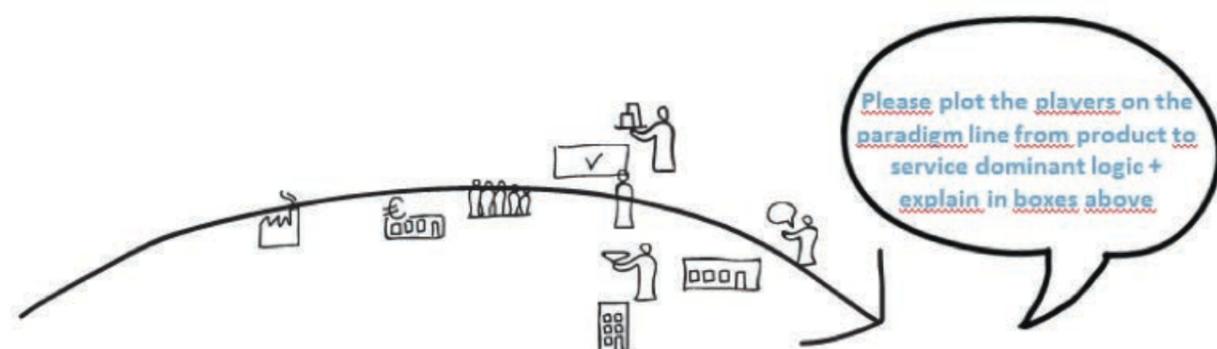


Figure 26: where does EPC+ and her stakeholders stand in the paradigm shift from product to services?

Conclusions

To actually generate a change towards the much needed more user centered energy efficiency services we need to learn from and experiment with business models that challenge the existing framework conditions, learn to deal with the constantly changing and inherently complex and uncertain framework conditions, and to overcome internal organisation barriers (Smith and Raven, 2012; Chesbrough, 2010; McGrath, 2010).

The Austrian business models we analysed show that there are various approaches of developing a business model, from concentrating on own qualities and competencies to first attempts of analysing the core needs of the demand side and reacting with the business model on those needs. Further it seems that the technical solutions and how the value proposition can be "produced" are not the barriers for the breakthrough of the business models but it's the communication channels and relations that need development and support – whether it's because of an incomplete understanding of the client's needs or an underestimated communication strategy itself cannot be concluded from the analysis. Last but not least the definition of revenue in most cases is based directly on the necessary cost for the performance of the value proposition and not on the value for the client. Progress in this respect could indirectly lead to a better understanding of client's needs and more user centred business models.

The intuitive change

An interesting learning from the cases is that most companies seem to have experienced some sort of first -blockade- in the uptake of their business. When this is experienced, entrepreneurs make some intuitive adjustments towards a more service oriented business. These adjustments are efforts to stimulate the uptake of the Value propositions. However, at the point where we've had contact with the companies, some of them realized that the changes they've made are insufficient. In the section below we discuss the four strategies the cases demonstrate.

1. The first pattern is built around a specific manner to try to boost sales (and thus aimed at pushing the same proposition harder): through resellers and referrals. The basic technology or product does not change, neither does the value proposition, market or client segment. The only elements that witness significant change are

the partners, activities and resources. Partners are aligned to be supportive of the provider and the proposition and help deliver the service as a product (SAAP). messpunkt can be categorised under this strategy.

2. The second pattern we witnessed is that of reframing what is being proposed. In this type of pattern, the things that really change in the business model is a reframing of the value proposition, the understanding of the client, resources and client relationships. And that the partners are now viewed as equal partners and are viewed as valuable resources. The rest of the business model building blocks remain the same. Partners are equal in service of the proposition. This strategy is a 'one off' business model, that is, a business that focuses on selling a proposition. Klick fürs Klima, EPC+ and mywarm can be categorised under this strategy.

3. The third pattern is a shift from pushing a solution to becoming Problem solvers. These businesses are trying to pivot the company away from direct consumer sales towards a business-to-business partner relationship. They aim to partner with a larger company offering a larger and complex value proposition to end consumers. Here all elements of the business model change to some extent, where the clients and the value proposition and partners change significantly. In this strategy the product is delivered as A Service (technology is enabling). This strategy is a hard one to follow, the shift to servitisation is difficult mainly because key capabilities are naturally very underdeveloped by tech oriented companies. This raises the awareness that partners are essential and the client is more than a client by a valuable user and the use phase is a critical focus. Netconnect can be categorised under this strategy.

4. The fourth pattern highlights businesses responding to needs from customers. Here the business model is designed around and even with the clients, having them even actively be part of the business model as resources and partners

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IEA Demand Side Management Energy Technology Initiative

The Demand-Side Management (DSM) Energy Technology Initiative is one of more than 40 Co-operative Energy Technology Initiatives within the framework of the International Energy Agency (IEA). The Demand-Side Management (DSM) Energy Technology Initiative, which was initiated in 1993, deals with a variety of strategies to reduce energy demand. The following member countries and sponsors have been working to identify and promote opportunities for DSM:

Austria	Norway
Belgium	Spain
Finland	Sweden
India	Switzerland
Italy	United Kingdom
Republic of Korea	United States
Netherlands	ECI (sponsor)
New Zealand	RAP (sponsor)

Programme Vision: Demand side activities should be active elements and the first choice in all energy policy decisions designed to create more reliable and more sustainable energy systems.

Programme Mission: Deliver to its stakeholders, materials that are readily applicable for them in crafting and implementing policies and measures. The Programme should also deliver technology and applications that either facilitate operations of energy systems or facilitate necessary market transformations

The DSM Energy Technology Initiative's work is organized into two clusters:
The load shape cluster, and
The load level cluster.

The 'load shape' cluster will include Tasks that seek to impact the shape of the load curve over very short (minutes-hours-day) to longer (days-week-season) time periods. Work within this cluster primarily increases the reliability of systems. The "load level" will include Tasks that seek to shift the load curve to lower demand levels or shift between loads from one energy system to another. Work within this cluster primarily targets the reduction of emissions.

A total of 24 projects or "Tasks" have been initiated since the beginning of the DSM Programme. The overall program is monitored by an Executive Committee consisting of representatives from each contracting party to the DSM Energy Technology Initiative. The leadership and management of the individual Tasks are the responsibility of Operating Agents. These Tasks and their respective

Operating Agents are:

Task 1 International Database on Demand-Side Management & Evaluation Guidebook on the Impact of DSM and EE for Kyoto's GHG Targets - Completed
Harry Vreuls, NOVEM, the Netherlands

Task 2 Communications Technologies for Demand-Side Management - Completed
Richard Formby, EA Technology, United Kingdom

Task 3 Cooperative Procurement of Innovative Technologies for Demand-Side Management - Completed
Hans Westling, Promandat AB, Sweden

Task 4 Development of Improved Methods for Integrating Demand-Side Management into Resource Planning - Completed
Grayson Heffner, EPRI, United States

Task 5 Techniques for Implementation of Demand-Side Management Technology in the Marketplace - Completed
Juan Comas, FECSA, Spain

Task 6 DSM and Energy Efficiency in Changing Electricity Business Environments - Completed
David Crossley, Energy Futures, Australia Pty. Ltd., Australia

Task 7 International Collaboration on Market Transformation - Completed
Verney Ryan, BRE, United Kingdom

Task 8 Demand-Side Bidding in a Competitive Electricity Market - Completed
Linda Hull, EA Technology Ltd, United Kingdom

Task 9 The Role of Municipalities in a Liberalised System - Completed
Martin Cahn, Energie Cites, France

Task 10 Performance Contracting - Completed
Hans Westling, Promandat AB, Sweden

Task 11 Time of Use Pricing and Energy Use for Demand Management Delivery- Completed
Richard Formby, EA Technology Ltd, United Kingdom

Task 12 Energy Standards
To be determined

Task 13 Demand Response Resources - Completed
Ross Malme, RETX, United States

Task 14 White Certificates - Completed
Antonio Capozza, CESI, Italy

Task 15 Network-Driven DSM - Completed
David Crossley, Energy Futures Australia Pty. Ltd, Australia

Task 16 Competitive Energy Services
Jan W. Bleyl, Graz Energy Agency, Austria / Seppo Silvonon/Pertti Koski, Motiva, Finland

Task 17 Integration of Demand Side Management, Distributed Generation, Renewable Energy Sources and Energy Storages
Seppo Kärkkäinen, Elektraflex Oy, Finland

Task 18 Demand Side Management and Climate Change - Completed
David Crossley, Energy Futures Australia Pty. Ltd, Australia

Task 19 Micro Demand Response and Energy Saving - Completed
Linda Hull, EA Technology Ltd, United Kingdom

Task 20 Branding of Energy Efficiency - Completed
Balawant Joshi, ABPS Infrastructure Private Limited, India

Task 21 Standardisation of Energy Savings Calculations - Completed
Harry Vreuls, SenterNovem, Netherlands

Task 22 Energy Efficiency Portfolio Standards - Completed
Balawant Joshi, ABPS Infrastructure Private Limited, India

Task 23 The Role of Customers in Delivering Effective Smart Grids - Completed
Linda Hull, EA Technology Ltd, United Kingdom

Task 24 Closing the loop - Behaviour Change in DSM: From theory to policies and practice
Sea Rotmann, SEA, New Zealand and Ruth Mourik DuneWorks, Netherlands

Task 25 Business Models for a more Effective Market Uptake of DSM Energy Services
Ruth Mourik, DuneWorks, The Netherlands

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