



Smart Service Engineering Data Product Design

Collection of Case Studies
from CAS Course Participants

Zurich University of Applied Sciences (ZHAW)
School of Engineering

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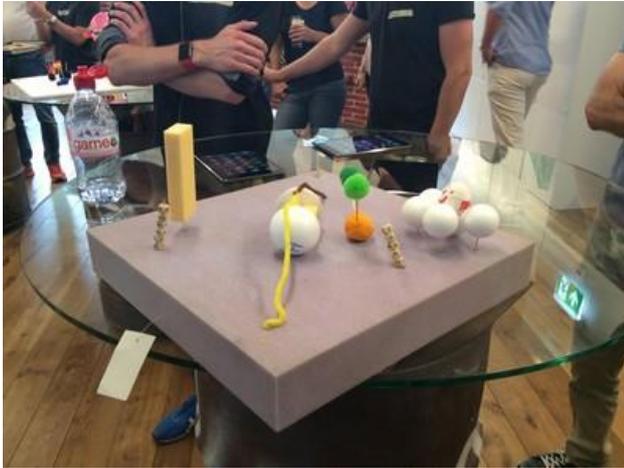


Swiss Alliance for
Data-Intensive Services

Zürcher Hochschule
für Angewandte Wissenschaften



CAS Smart Service Engineering - Data Product



The following questions are the in focus of the CAS Smart Service Engineering:

- How to develop new services, products, and product-service systems based on data with added value for users and customers?
- How to find the relevant, user-specific value proposition for a data product?
- How to develop a profitable business model for a Data Product?
- Which aspects of data protection and law have to be considered?

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<https://www.zhaw.ch/de/engineering/weiterbildung/detail/kurs/cas-smart-service-engineering-data-product-design/>

<https://data-service-alliance.ch/expertise/expert-groups/smart-services>

Foreword

This ebook encompasses the short papers describing the case studies conducted by small groups of students during the CAS (certificate of advanced studies) Smart Service Engineering (Data Product Design).

At the beginning of the course, a sound understanding of the problem through the lens of service design thinking is at the core of the attention. As the course progresses, we bring in more and more data science driven approaches and look repeatedly over the fence into the field of data analytics without getting into the technical details. The CAS Smart Service Engineering (Data Product Design) consists of the following modules, which unfold over 16 days:

1. Module A "Smart Service und Data Product Design"
This module is intended to show students how Data Product Design takes up the findings of data science and thus generates benefits for users.
2. Module B "Data-specific Business Model Design"
This module is designed to show students how to develop economic business models with Data Products.
3. Module C "Practice-Workshop"
In this module students are given the opportunity to apply the learning contents of the modules "Smart Service and Data Product Design" and "Data-specific Business Model Design" in a moderated way in a coherent case. The focus is on prototyping and testing of the value creation concepts.
4. Module D "Data Protection and Data Security"
This module is designed to teach students the basics of data protection and data security in the context of Smart Service Design. We also have a special focus on data ethics in this module.

The ambition of the course is to convey the systematic methods of data-driven service design and engineering to the participants in a scientifically sound yet always directly applied way. To do so, the classes are split in small working groups at the very start of the course. The groups choose users with a real-world challenge which they want to support by design of a new data-driven service during the entire evolution of the course. The only requirement was that the case should have the potential for a solution with a data-driven service and a B2B focus. The case studies are continuously developed across the four modules and the content taught in short theory blocks is continuously applied – from data-driven value design over business model design up to data ethics, data protection, and security.

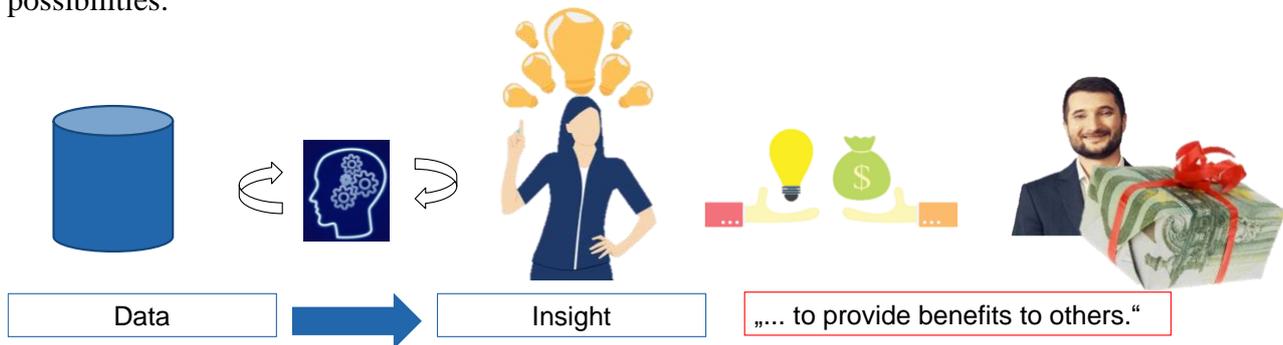
The challenges are chosen by the participants themselves and the service concepts are developed independently, whereby the course instructor is only there to advise and coach. In this sense, the papers summarized in this ebook are the work of the participants and the instructor has no claim or responsibility for their content. However, it is always fascinating to observe how the participants drive the cases with a lot of passion and professionalism and how service concepts are developed whose implementation in a real business can be of great benefit. A big thanks goes to the ZHAW School of Engineering for enabling this course, to the numerous industrial guest speakers, and to the members of the jury for their feedback in the elevator pitches. Many thanks also to Ina Goller for guiding us through the practical workshops and pushing our cases forward and to Fabio Rovelli, managing director of the Mobiliar Forum Thun, for enabling the workshop infrastructure.

The deliberately short papers reflect only a small part of the concepts developed and shall only allow a brief insight into the work without any aspiration to completeness.

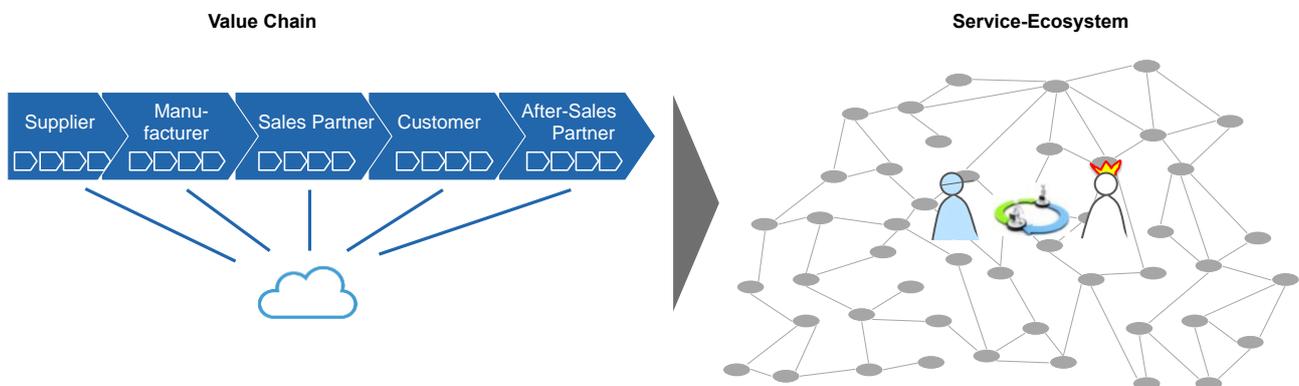
The Importance of Smart Service Engineering

Which tasks or challenges of customers or users can be improved by smart (data-driven) services and how can these services be implemented in practice?

With the spread of the Internet over the last few years, digitization has reached wide areas of society and the economy. Administrative processes are already largely digitalized and efficiently designed. However, the customer-centered development of services that solve relevant problems in the everyday life of users still has great potential. With the broad availability of sensors, data, networks and cloud infrastructures, a basis is now available for this change, which offers new and scalable possibilities.



The service benefits must be consistently oriented towards the users and customers and generate added value for their business processes.



Data-driven service engineering focuses on the design and description of the customer's service ecosystem. In which contexts and ecosystems does the customer have to accomplish his jobs? What are the problem points ("Pains") that a service can solve for the customer? So-called "value propositions" can be created for the customer. The processing and analysis of data helps both to identify suitable value propositions and to design their content.

Properly and carefully designed smart services thus have the potential to bring value to internal or external customers, to businesses, and to society as a whole.

Zurich, July 2020
Jürg Meierhofer

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The Course of the Year 2020

We had four very interesting cases lined up here. Without wanting to prioritize the cases, they are put into a sequence here:

There were two cases with a focus on optimizing the life of professional or private users while a material stream of logistics was involved:

- Automatic medical implant ordering for hospitals
- Smart Emergency Supplies

And there were two cases with a focus on immaterial handling of processes and facilitating the job of professionals with their customers:

- GiZ - Gebäude im Zentrum
- Smart Selling

Automatic medical implant ordering for hospitals

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Dominik Jenni
Reto Järman
Stéphanie Bartels
Stephan Geuter

Abstract

Most hospitals in Switzerland issue purchase orders for implants only after an implant has been used in surgery, delaying cash flow for manufacturers. Furthermore, orders are still made by fax or other manual procedures. Our company offers implant manufacturers a solution that enables their implants with IoT-capabilities together with a service that automates the ordering process and automatically manages stock at hospitals. This will completely eliminate manual ordering tasks for hospitals and implant manufacturers can deliver their products quickly, accurately and in standardized manner. In addition, we will use the consumption data from the hospitals to create predictive models to power our new service. Our offer allows implant delivery before the need is recognized by hospitals. Our service frees-up capital by optimizing hospital stock and thus increasing cost efficiency. Lastly, implant manufacturers can automate order processes, and gain better insights about their current implant stock with our new service.

Key words

Order processes; IoT; hospital logistics; medical implants; healthcare

1. Which Challenge Do We Solve?

Hospital logistics consider in particular the material flow from the supplier to the patient. A reactive ordering process has established itself in many relationships between implant suppliers and hospitals. After an implant has been consumed in the surgery room the medical staff sticks the product labels on a paper consumption report and sends it to the implant manufacturer. After receiving the consumption report, the implant manufacturer's back-office prepares the replacement products, replenishes hospital stock on site, and invoices for consumed implants.

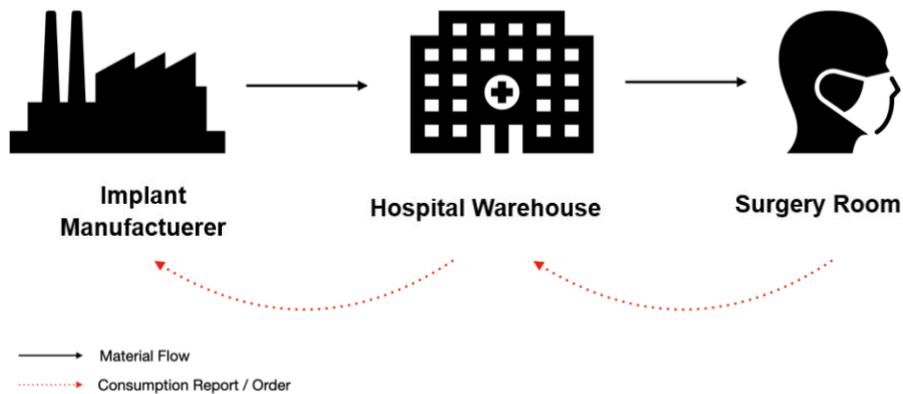


Figure 1. Current flow of implants, information, and purchase orders

The main challenges for the hospital employees are mistakes in the heat of moment in the surgery room. Sometimes product labels go missing or are listed twice on the consumption report. This is leading to incorrect bookings, inconsistent inventory counts, and disputes over invoices.

“Unreadable reports, increased error rates and manual entry of the orders into the system”

The implant manufacturer receives the consumption reports from hospitals in many different formats. The negative consequences for the back-office employees on the supplier's side are unreadable reports, subsequently increased error rates and the manual entry of the orders into the system. Fast delivery times are crucial for customer satisfaction, cost efficiency and patient safety. Furthermore, most suppliers maintain device stocks in the hospital that is still owned by themselves thereby blocking capital.

Lastly, the manufacturer's overview about stock in hospitals is unreliable so that regular inventory counts on-site needs to be performed. These cost time and resources and generate large organizational efforts. Stock inventory checks need to be done by the implant manufacturer under supervision of a hospital employee.

“Inaccurate forecasts, lots of tied-up capital and expiry of sterile products”

In other departments of the implant manufacturer employees struggle with high storage costs of implants, due to inaccurate forecasts. Expensive sterile implants tie-up a lot of capital, furthermore, after the expiry date the remaining stock has to be disposed.

In conclusion, both sides will strongly benefit from a simplified, standardized and faster communication. The supplier would like to receive a purchase order quickly so they can replenish stock in hospitals. On-site stock at hospitals can be optimized using modern machine learning algorithms to free-up manufacturer's capital as much as possible. Hospitals want immediate and complete transparency on delivery dates, so they can better plan surgeries.

There are existing approaches on both sides of this business relationship. Our solution addresses the implant manufacturer where we focused on the biggest pains and gains mentioned above. For the hospital staff the new ordering process much faster and easier. Although, both sides benefit from the new service, we believe that business innovation should be driven together with dynamic medical manufacturers.

2. By which Data-Driven Service Approach Do We Solve the Challenge?

We call ourselves ImpStock and offer a service to benefit implant manufacturers and hospitals. Our customers (implant manufacturers) store their products in the hospital in our intelligent IoT-storage system. The Smart Medical Cabinet SMC2000 (SMC) automatically and independently registers implant consumption on the hospital side and sends these data via our service to the manufacturers for invoicing and re-stocking.

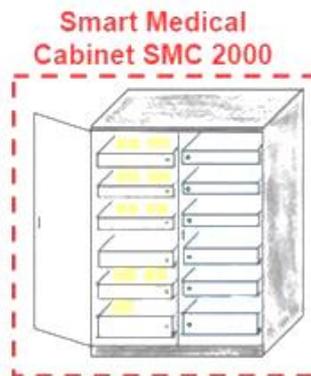


Figure 2. Drawing of our Smart Medical Cabinet Prototype

“Increased production planning reliability as well as reduced storage costs and waste”

We leverage consumption data, accident statistics and weather data and build a prediction model to forecast the future consumption of implants in hospitals. Thereby, we enable manufacturers to increase production planning reliability, reduce storage costs and the waste of expired sterile implants.

“Increased customer satisfaction and competitiveness”

Thanks to our AI powered service, implant manufacturers achieve better availability of implants in hospitals as before, while needing less implants. For the medical staff, the workflow improves as well. They can remove the implants from the storage as usual without thinking about subsequent



Figure 3. Storybook visualizing the process steps with the new service for an exemplary hospital in the Swiss mountains.

paperwork. Both measures increase the satisfaction of the end customer (the hospital) and thus the competitiveness of the implant manufacturer.

3. What Does Our Target Service System Look Like?

Our ecosystem consists of data suppliers, delivery companies and hospitals. Thanks to our ecosystem and our fully integrated service platform, we can transfer implants from one hospital to another if this is faster than the delivery from the supplier.

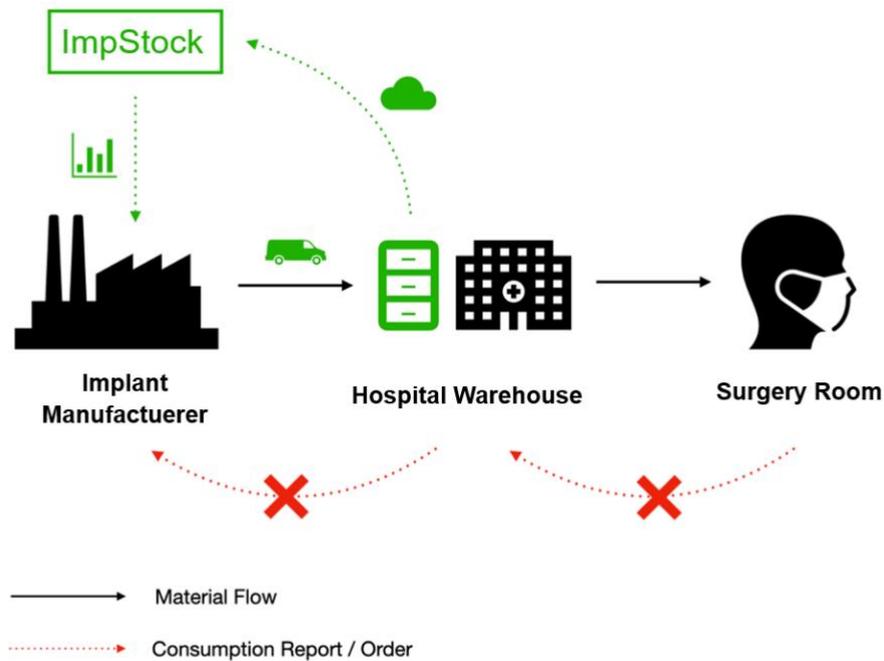


Figure 4. Flow of implants, information, and purchase orders with our new service.

The backstage within our service blueprint consists of an implant management system and the prediction model (Figure 5). These two systems trigger orders to the implant manufacturer (front stage) which is either an interface to their Enterprise-Resource-Planning system or a web portal. Furthermore, the web portal also gives status information about stock in the different hospitals, supplies in delivery, and projected consumption. After preparing the order, an independent logistics service delivers implants to our Smart Medical Cabinets in the hospitals.

The key component of our new service offering is the Smart Medical Cabinet – it maps implant usage in hospitals to a comprehensive implant management system. Implant manufacturers gain an accurate

view into their stock located at hospitals. The biggest pain reduction and gains are on the manufacturer side whom we will charge a commission for our services.

In addition, the data collected during implant transactions allows us to continuously improve our predictive capabilities. As with other smart, data-based services, our predictions and services get better and better the more SMC are installed at hospitals. The improved service in turn benefits of course our offering, but also our customers on both sides.

In order to build a successful service, critical assumptions need to be verified. The most critical assumption underlying the service concerns the value proposition.

WE BELIEVE THAT:

We can reduce storage cost with our service.

WE'LL TEST IT WITH:

Building a scenario using historical data from Implant manufacturers. To be able to use the data we will convince three manufacturers to sign an LOI.

AND MEASURE IT WITH:

Inventory turnover rate for specific implants in hospitals.

WE ARE RIGHT IF:

Our scenario shows that the inventory turnover rate can be improved by 30%.

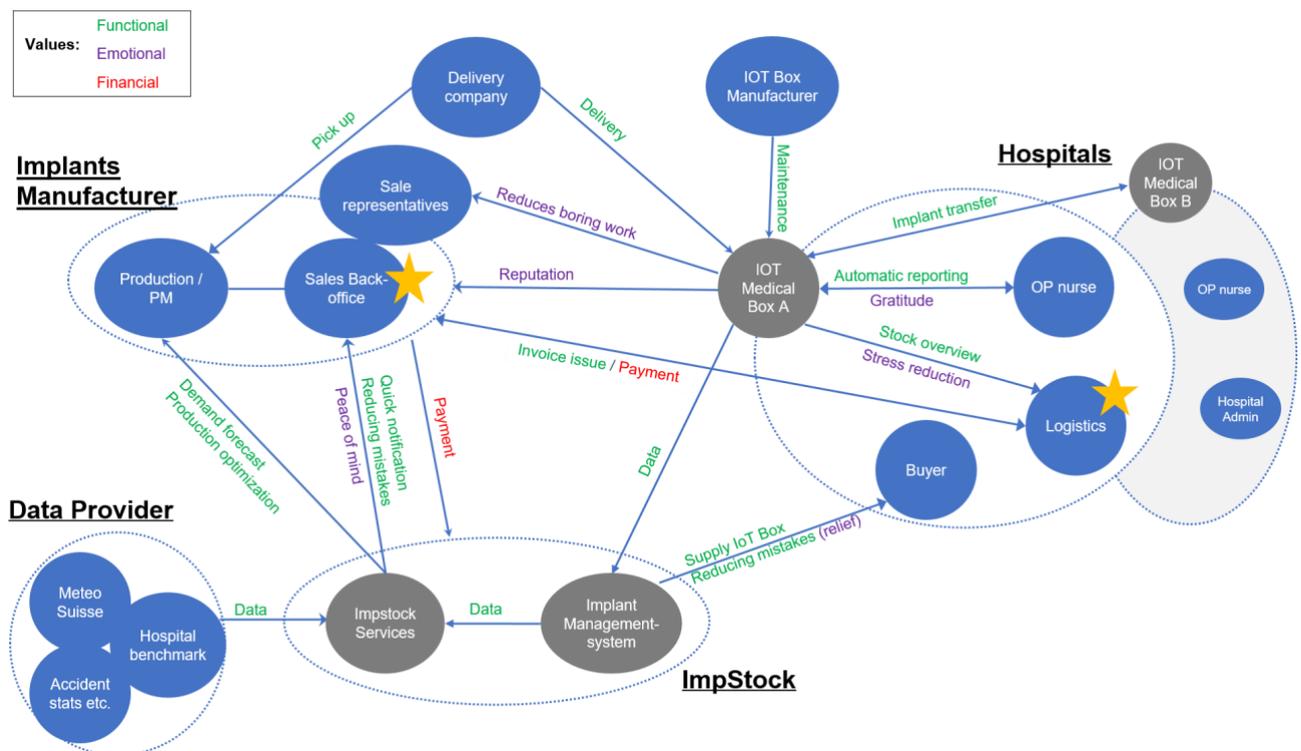


Figure 5. Service Ecosystem for ImpStock automated implant ordering process.

4. Acknowledgement

During the development phase of our project, many people helped us to get insights into the ordering process of implants. Many of them also challenged our ideas and gave us advice, which helped us and improved our service. We sincerely thank all interviewees, gest-speakers, fellow students and our Professor Dr. Jürg Meierhofer for their invaluable support.

Smart Emergency Supplies

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Heidi Steiger

Abstract

Emergency supply can become an important survival factor. It does not only consist of food, but also of various other products such as gas cookers, flashlights, batteries, toilet paper etc. Households should stock sufficient supplies at home to be prepared for a period of emergency. According to surveys, up to one third of households in Switzerland do not have sufficient emergency supplies for one week.

However, when food is thrown away every day and millions of liters of water are used to produce it, households need help to slow down and control this waste. A smart service is proposed to support households and make it much simpler to order, stock and manage emergency supplies at home. Initially, the service proposes products according to a households' individual tastes and preferences in the right amounts.

A virtual shopping cart is generated, and selected supplies are ordered and delivered through third-party retailers with home delivery service. Consequently, the service keeps track of the amount and composition of the emergency supplies, including expiry dates. It proposes recipes for regular consumption and turnover of goods, and reminds the household to re-stock on a regular basis.

Key words

Emergency supplies, food management, food logistics, food waste, smart ordering

1. Which Challenge Do We Solve?

Use Case

During the Corona crisis in 2020 many households started panic-buying supplies such as food, toilet paper and soap in order to be prepared for a potentially longer period without access to retail shops. Within a few days, retailers were sold out of certain goods.

Switzerland authorities recommend storing a sufficient amount of supplies at home to be able to survive at least one week without having access to a shop.¹ A study by Agroscope in 2018 found that between one fourth and one third of households do not meet this requirement.²

Storage of supplies at home requires regular use and turnover of goods in order to avoid waste. This can be a quite significant logistical challenge for households. The authors of this paper see an opportunity to support them. They propose a smart service to support households in the different stages of this task, from selecting the right products and amounts for their emergency supplies to providing recipes for meal planning such that the supplies can be regularly used and re-stocked. The purchase of the supplies will leverage existing retailers offering home delivery service.

Beneficiaries

The main beneficiary of this service are private households. They are supported to have the right range and amounts of supplies for an emergency situation. The service leverages information about individual preferences and therefore is customized for each household's needs.

Beneficiaries of the service are furthermore retailers with home delivery service, who will benefit from higher revenues and improved capacity utilization. Furthermore, they might be better protected from "shop runs" similar to those observed during the Corona crisis in early 2020.

Jobs, pains, and gains of the beneficiary

Jobs	<ul style="list-style-type: none"> ○ select the right range and amounts of emergency supplies to be able to satisfy the basic needs of the household in case of an emergency ○ regularly replace and re-stock supplies to ensure that they are unexpired and edible
Gains	<ul style="list-style-type: none"> ○ being prepared for an emergency ○ having the right amounts and choice of supplies ○ healthy food in line with the household members' individual taste and preferences (right amount of calories per person per day)
Pains	<ul style="list-style-type: none"> ○ needs to get informed what is required for emergency supplies ○ keeping track of expiry dates ○ risk of food waste if not regularly consumed ○ lack of ideas what to cook

¹ <https://www.bwl.admin.ch/bwl/en/home/themen/notvorrat.html>

² A. Zimmermann, G. Prescia (2018), Notvorrat: aktuelle Situation und Einflusskriterien, Agroscope, https://www.bwl.admin.ch/dam/bwl/de/dokumente/Dokumentation/publikationen/studie_notvorrat_agroscop_e.pdf.download.pdf/71_AS_Lebensmittel_Zimmermann_Notvorrat_D.pdf

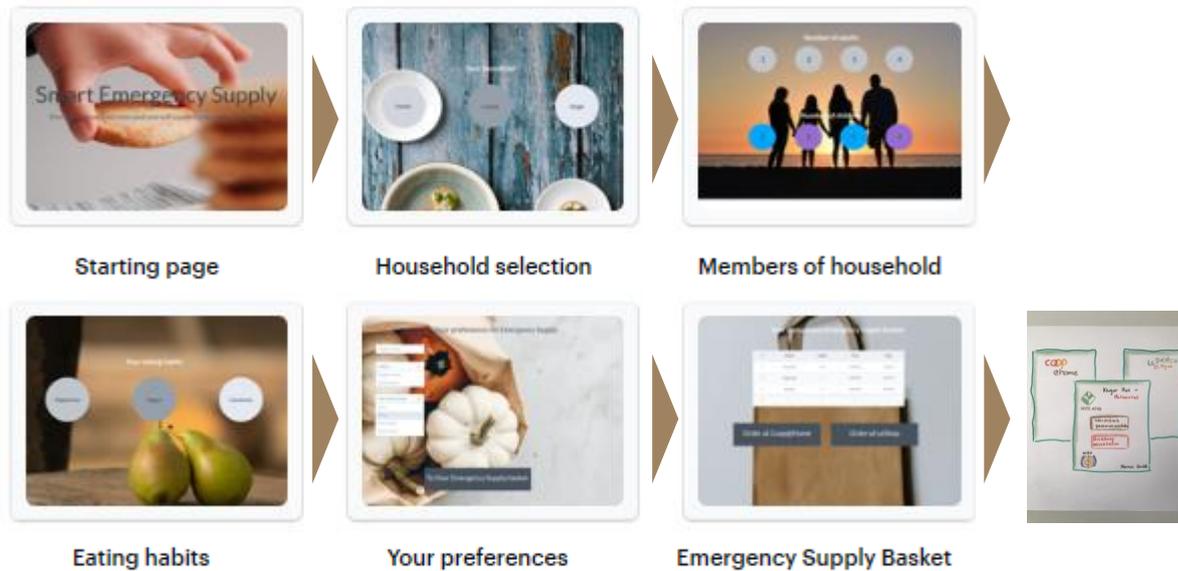
2. By which Data-Driven Service Approach Do We Solve the Challenge?

The following table outlines the key elements of the value proposition of Smart Emergency Supplies and how these elements leverage data and analytics:

Value Proposition	Leverage of data and analytics
<p><i>Composition of a customized shopping cart for emergency supplies</i></p> <p>Values:</p> <ul style="list-style-type: none"> ○ Security (emotional value) ○ Being Prepared for an emergency (conditional value) 	<ul style="list-style-type: none"> ○ The customer answers several questions about her preferences and household characteristics (e.g. household size, budget, preference for certain brands, allergies, food habits...), which are stored as individual customer data ○ The service consequently proposes a virtual shopping basket with products from publicly available food databases, taking into account the household's preferences, the Federal Office for National Economic Supply (FONES) as well as WHO guidance for a balanced diet ○ The customer can change this list according to individual tastes and confirms the final choice
<p><i>Online order with home delivery in collaboration with third-party retailers</i></p> <p>Values:</p> <ul style="list-style-type: none"> ○ Convenience (functional value) 	<ul style="list-style-type: none"> ○ The electronic shopping basket is transferred to third-party retailers for ordering supplies ○ When executing the order, the online retailer sends back the expiry dates of the delivered goods, which then are stored by the service
<p><i>Warehouse management: keep track of expiry dates, send reminders, re-stock supplies</i></p> <p>Values:</p> <ul style="list-style-type: none"> ○ Avoid food waste (emotional, financial value) 	<ul style="list-style-type: none"> ○ The service constantly scans through every customer's products and expiry dates and suggests products with upcoming expiry for composition of meals
<p><i>Customized recipe proposals</i></p> <p>Values:</p> <ul style="list-style-type: none"> ○ Tasty and diversified meals (emotional value) ○ Good feedback from household members (social value) 	<ul style="list-style-type: none"> ○ Suggested goods are matched with recipe databases from external partners ○ Recipes are proposed to the customer based on the content of the client's emergency supplies

The service is targeted to learn over time what the client's preferences are in terms of products, frequency of consumption as well as recipes used.

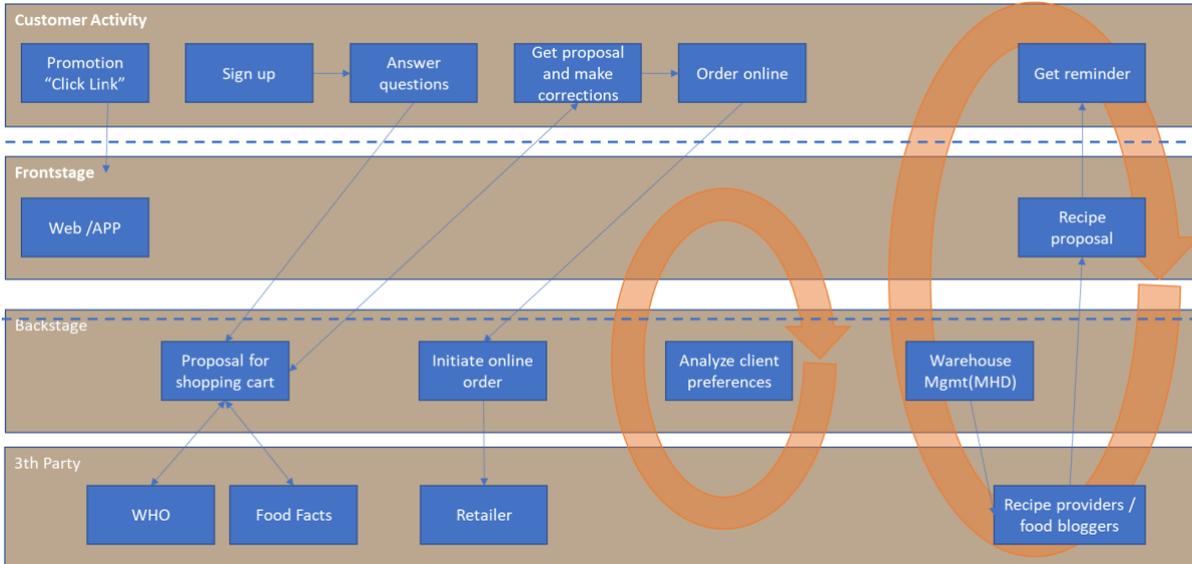
The initial interaction with the service is illustrated below in terms of a mock-up of a web page and flow for the initial Smart Emergency Supply Order:



3. What Does Our Target Service System Look Like?

Service Blueprint

The service blueprint visualizes the process steps of the service taking into account areas that are visible to the client as well as those that are running “backstage”:



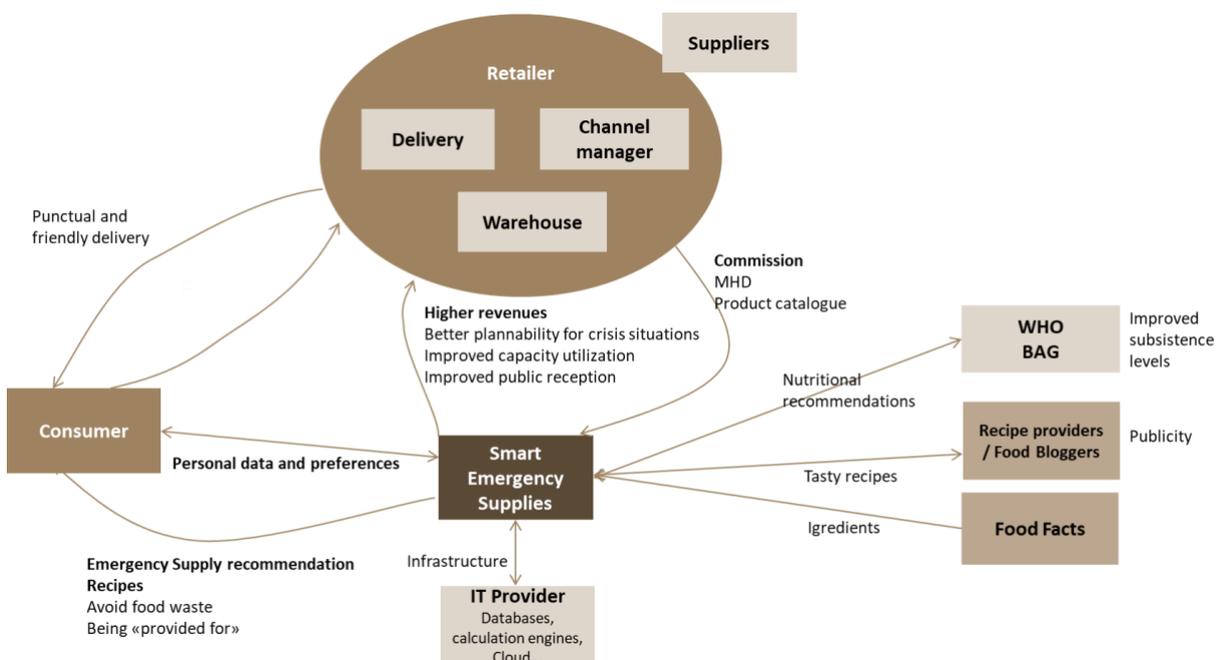
Data integration

Third-party providers are integrated into our service system as follows:

<i>Food database ch.openfoodfacts.org</i>	The database is openly accessible and can be fully downloaded or can be accessed via REST-API
<i>Retailer</i>	Interested Retailer has to provide API for accessing available products, basket, etc.
<i>Expiration date</i>	The expiration date is sent back from retailers once the order has been executed and is stored
<i>Recipe databases</i>	A household's list of products is used to query recipe databases for specific ingredients
<i>Retailer Customer bonus system (Coop Supercard, Migros Cumuls)</i>	Do improve our recommendation and services, private customer can voluntary give access to their <i>food shopping data (digital recipes/data)</i>

Value creation

The ecosystem and values created in the ecosystem are illustrated as follows:



Riskiest Hypotheses

Our two riskiest hypotheses are in relation to customer acquisition and revenue generation.

Hypothesis 1: Customer acquisition

We believe that we find enough people who are interested in having an emergency supply and a service supporting an personalized, intelligent compilation and a simple ordering process. To verify that, we will start a survey in front of a retailer asking different questions in connection with our service to customers coming out of the store. We ask them to fill out a questionnaire with seven (7) specific questions (number of people who using the service, number of pets, special needs, special diets, possible diseases, personal preferences for branded articles and number of days they intend to stay self-sufficient) to classify the client and to put together a standard emergency supply. We measure the number of filled out questionnaires returned to us.

We are right if at least 100 cards out of 500 are returned and confirm they want our service

Hypothesis 2: Revenue generation

We believe that an online retailer is willing to pay a commission for additional orders being placed through our service.

To verify that, we contact the responsible managers of online ordering at one of the retailers in Switzerland

We are right if the responsible manager promises verbally to be interested in our service

GiZ - Gebäude im Zentrum

With smart building data, GiZ
create a consistent customer experience

Catherine Ammann
Fabian Uetz
Gennaro Montanino
Michael Hilti

Abstract

Digitization has touched almost all aspects of our life. This digital revolution requires to rethinking building engineering and automation. Currently, there is no unified and systematic option to store the available building data and often the data are stored on different platforms. The multitude of unstructured data is a challenge for the various stakeholders: data cannot be found, information on the building is not up-to-date or documents are located in a variety of different storage systems - the need for simplification is tremendously growing.

The aim of GiZ is to network and operationalise building data for building owners, and project managers.

GiZ places the building at the centre and creates connectivity between the different types of data. GiZ ensures smooth data processing and facilitate communication between project managers and their customers. GiZ creates a platform able to map data and information in a flexible and future-oriented manner. This increases the efficiency and effectiveness of project management, reduces costs and makes up-selling and cross-selling easier to achieve through automatic sales lead generation.

Key words

Internet of things (IoT), networking of building data, smart data, data storage, building life cycle, sales-lead generation, machine learning.

1. The building to the centre

Connected buildings, via Internet of Things help the owner to reduce operating costs, save energy, and increase the monitoring quality of the building.

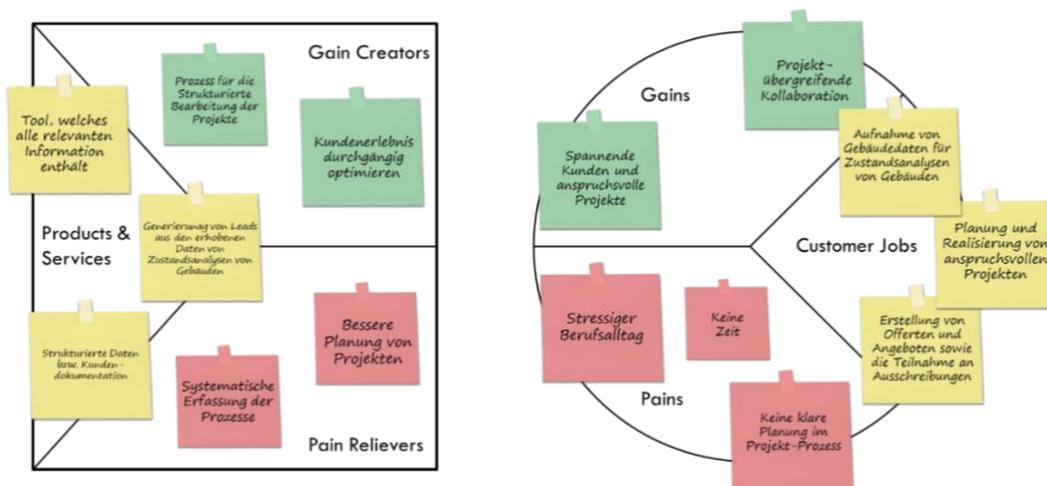
With a centralised platform, the collection and evaluation of building data becomes easy. Currently, such consistent processes are missing. The multitude of unstructured data available for a building is an immense challenge for the various stakeholders. The smart building data and operationalisation of this information for users - e.g. project managers – is the core of GiZ.

Currently, there is a lack of business incentives to manage the existing CRM system consistently and uniformly. As a result, relevant information about the customers or the building owner is missing: from wrong or missing addresses, to outdated or duplicated data, to inconsistent price calculations, discounts or hourly rates.

After the successful completion of the project, the customers are not consistently processed further, the motto "out of sight, out of mind" applies. The end-to-end customer experience and efficient and effective project management are often neglected and opportunities for up- and cross-selling are missed.

In order to align GiZ with the wishes and requirements of the target groups – here project managers - a value proposition canvas was created.

Figure 1: Value Proposition Canvas



Source: Own illustration

The relevant pains for the project manager before and during the completion of his tasks are:

- lack of planning security in the project process,
- stressful everyday work, and
- no time for anything.

But there are not only pain but also pleasure points. The project manager achieves the following positive experiences and results when completing his tasks:

- cross-project collaboration, and
- exciting customers and challenging projects.

2. Data-driven decision-making in the building management industry

The aim of GiZ is primarily to create a long-term customer relationship over the entire life cycle of a property rather than a short-term project execution. However, this can only be achieved if the projects are carried out efficiently and effectively for the end customer, and the project manager can successfully support up- and cross-selling. GiZ connects and empowers the users to act competently and confidently towards the client. The story board visualises this value proposition.

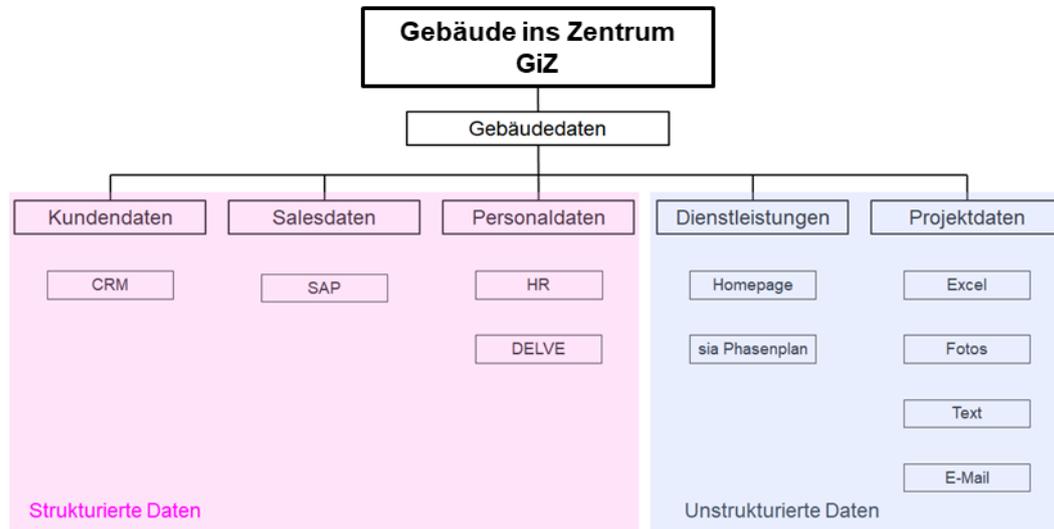
Figure 2: Story board



Source: Own illustration

GiZ aims at different data sources around building data, e.g. linking data from customers, sales, personnel, services, and projects:

Figure 3: Data sources



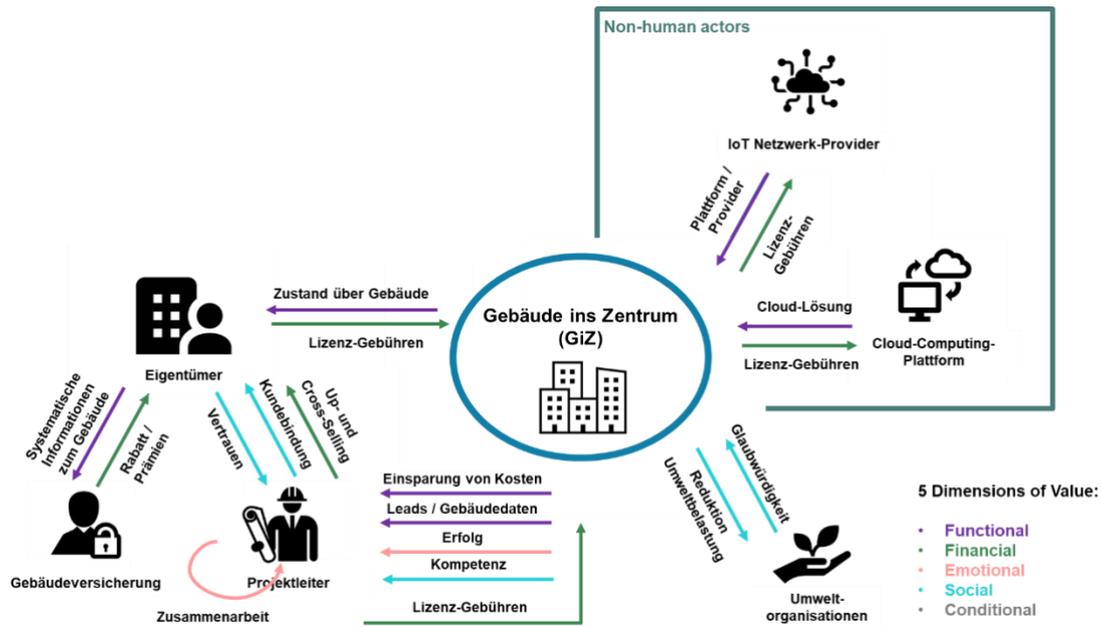
Source: Own illustration

3. Efficient and effective project management in building management industry

The more connected the world is, the more important thinking in networks becomes. GiZ builds networks for building data and thereby connects buildings, humans, and machines.

- Project manager:
- GiZ provides the project manager with all relevant information and data about the building – as well as emotional and social components (e.g. success and competence). In return, the project manager pays a license fee.
- Building owner:
- GiZ provides the owner with all relevant data and information about the building. In return, the owner pays a license fee.
- Non-human actors:
- The “Non-human actors”, such as IoT network providers and cloud computing platforms, enable GiZ to create and connect the various databases, data sources and data systems. In return, GiZ pays licensing fees for the use of these platforms.

Figure 4: Ecosystem GiZ

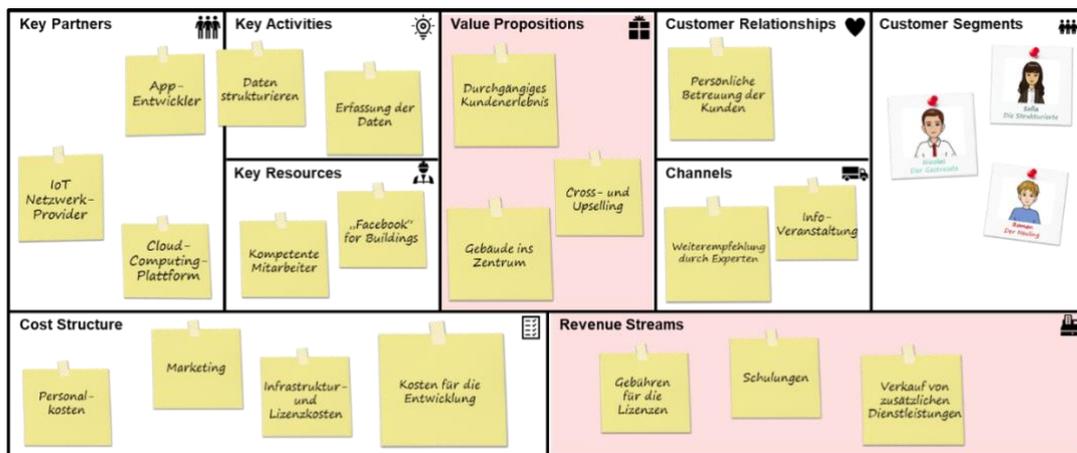


Source: Own illustration

In addition to the key elements, the Business Model Canvas also shows the critical hypotheses:

- Hypothesis 1: the customer is willing to spend CHF 40,000 to 50,000 annually for the service.
- Hypothesis 2: the project manager succeeds in selling the customer an additional service (up- or cross-selling) in one out of five cases.

Figure 5: Business Model Canvas



Source: Own illustration

Smart Selling

Ulrike Baldenweg
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Nicola Imelli
Felix Ullmann

Abstract

Contacting customers with product and service offers is daily business in many companies. Often the contact is not successful or may even annoy the person contacted, which is not beneficial for the motivation of the advisors and for the overall sales performance. Our service “Smart Selling” aims at improving the sales performance by providing better insights into the potential of end-customers based on the use of additional knowledge. On the top of existing systems, like for example AI systems which provide a scoring of customers’ potential for a specific product, we collect inherent knowledge from the client advisors in a playful approach and use this together with additional information to improve the scoring. Doing this in a transparent way, we increase the acceptance by the advisors and keep them motivated.

Key words

Customer acquisition & retention, Explainable AI, Gamification, Knowledge management, Scoring

1. Which challenge do we solve?

This business case aims at improving the sales performance by means of optimal data usage and increased motivation. It can be applied to any industry; however, we initially concentrate on the banking industry.

Many banks already use artificial intelligence (AI) to support their sales process. Usually, client advisors get lists of clients generated by AI which suggest customers who are identified to having a high potential of buying specific products (“scorings”). However, client advisors often poorly accept these scorings because they do not understand how the scorings are generated. They also feel left out because their own knowledge of the customers was not taken into account. As a result, they are often unmotivated to contact the proposed customers, which affects the sales performance.

This is exactly where the service “Smart Selling” comes in: The service includes the knowledge customer advisors have about their clients. This knowledge is currently locked in their heads, in e-mails or notes. The inclusion of the knowledge can improve the quality of the customer potential estimation.

Furthermore, the involvement of client advisors’ knowledge also increases their motivation. They better understand how the scorings have been generated, which makes them coherent in their eyes. Through a playful approach, “Smart Selling” additionally increases the motivation of customer advisors.

The main beneficiaries of the service are sales managers leading a team of client advisors. Their sales performance will increase as a result of better scorings and thanks to a higher motivation of their team.

The value proposition canvas (see fig. 1) provides an overview of the jobs, pains and gains of the sales manager. With our service, we mainly address the pain that data input is often seen as not useful and induces unwanted customer contacts, which leads to frustration of the client advisor. By including customer knowledge to the algorithm, we want to solve this problem. Another pain is the way the results from the algorithm are presented to the sales personnel: it is perceived as insufficient. This pain can be relieved by providing transparency through good representation and explanation of the results.

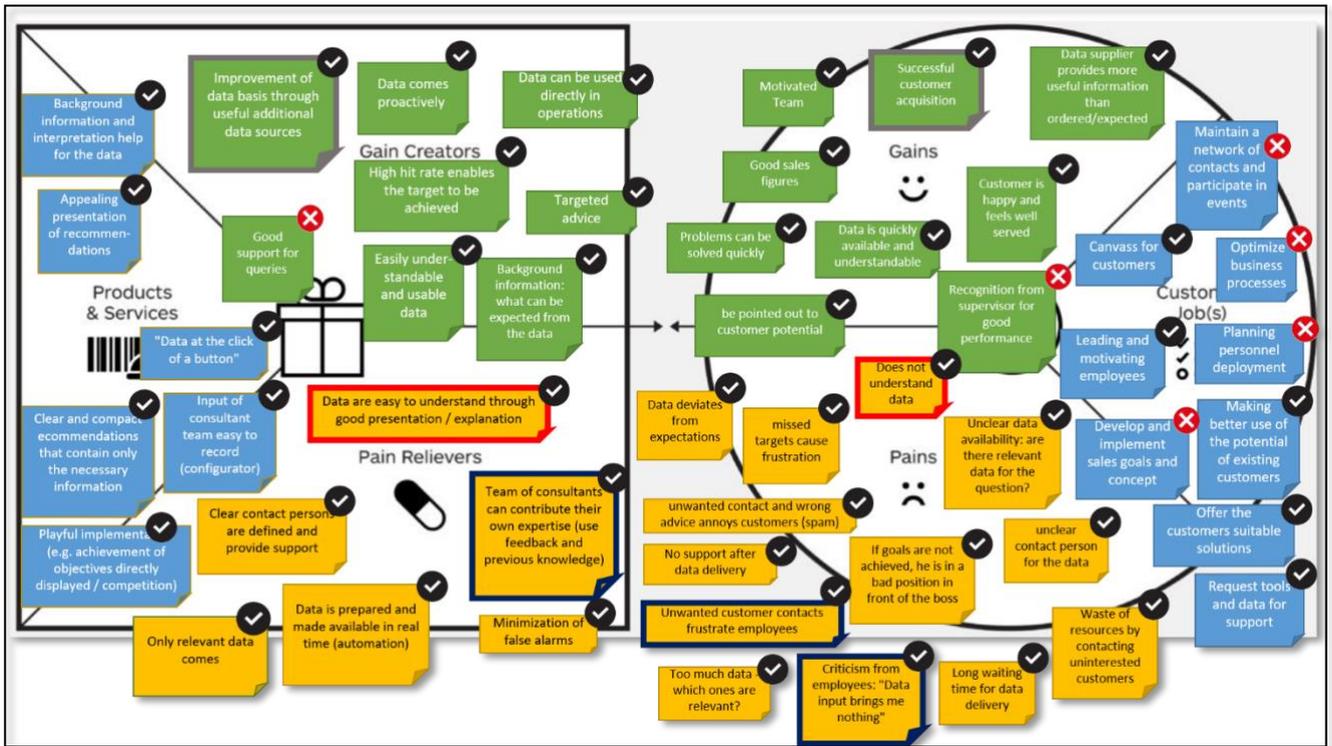


Fig. 1: Value proposition canvas

2. By which data-driven service approach do we solve the challenge?

To meet the recognized challenges, our service will deliver the following value propositions:

- Better customer target proposals through consideration of the existing knowledge of the client advisor about his customers;
- Increased motivation of the client advisors thanks to more involvement, gamification elements and a higher accuracy in terms of customer target proposals.

These two elements finally lead to an increase of sales performance which is generating value for client advisors and their superiors which are highly focused on this key figure.

To offer the stated values we have to leverage data. The main data elements and how they help to provide our service can be found in the table below:

<i>Data element</i>	<i>How we use it</i>	<i>Which value does it support</i>
Structured and unstructured data (e.g. e-mail communication) in terms of knowledge about the customer, generated by the client advisor while interacting with the customer or explicitly asked about by our service	Our algorithm tries to extract features out of this data (e.g. with "text mining" methods) which then can be used to optimize customer target proposals.	Better proposals and increased motivation (both thanks to utilization of the client advisor's knowledge)
Data generated by the "target algorithm"	We want to present only transparent proposals, and therefore we calculate for each proposal the main features which	Increased motivation (thanks to transparency and

	have influenced the algorithmic decision (by using “explainable AI” methods) and present it to the client advisor	starting points for the client advisor)
External data (matched to customers & non-matched training data)	Publicly available data (e.g. published by the customer himself, e.g. LinkedIn Profile) could be used to extract knowledge about the customer (e.g. current job position or sector) to be more accurate in determining customer needs. Furthermore, anonymized customer behavior data could be used to train and optimize the scoring algorithm.	Better proposals
Sales performance data	Sales performance data can be used to monitor the client advisor’s own performance and bring it into a team view. By using gamification elements (rewards, tips) this data can support the team to reach goals with more fun.	Increased motivation (thanks to team involvement and gamification)

To give a better feeling about our service working in practice we worked with a Storyboard and some mockups:

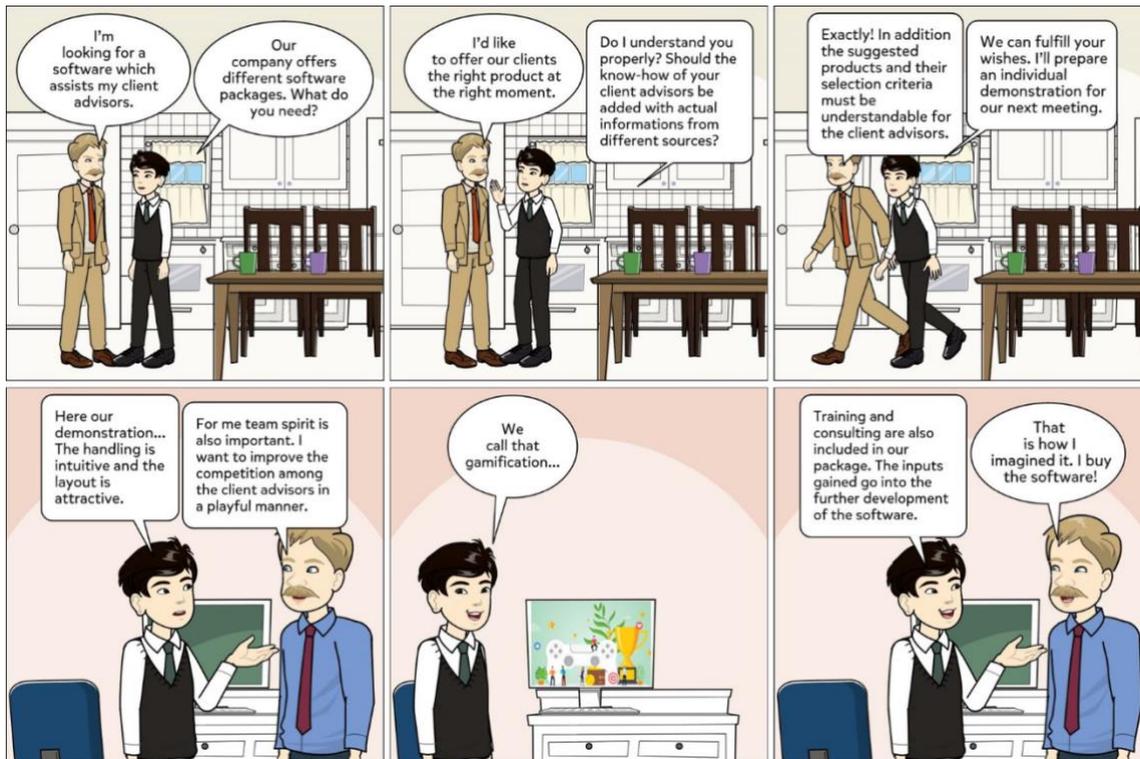


Fig. 2: Storyboard

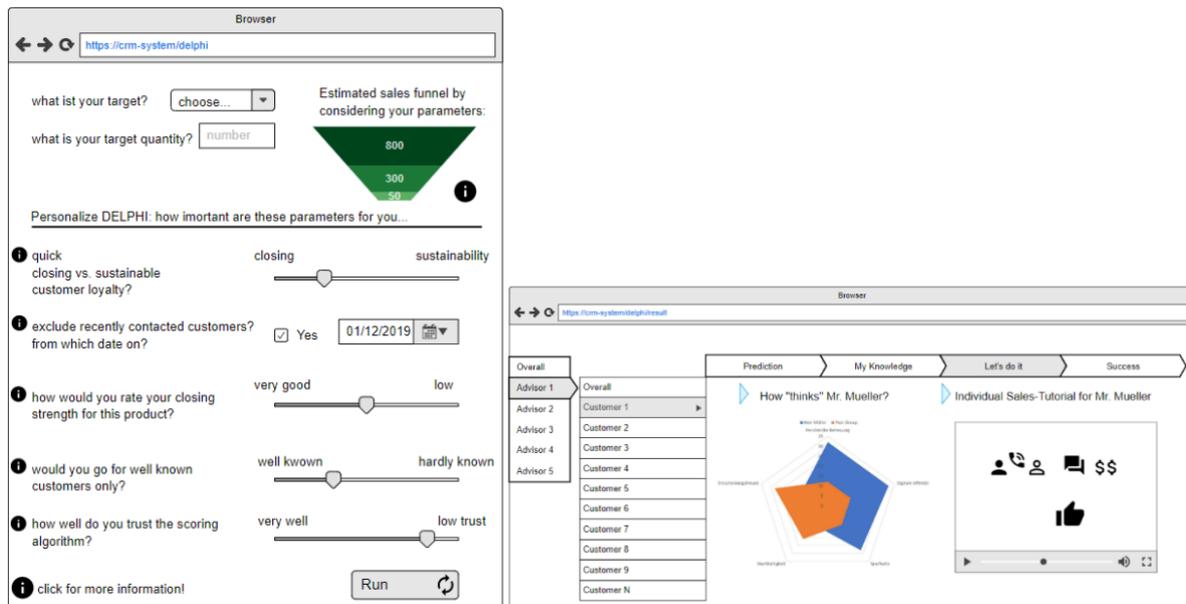


Fig. 3: Low-fidelity mockup

3. What does our target service system look like?

Our target service system can be visualized according to the following **service blueprint**, outlining key steps of the customer journey, our visible and backstage activities, as well as 3rd party service providers that will be needed. Since the value we propose to our customers becomes more tangible when having a closer look to the utilization phase, this phase is additionally shown separately.

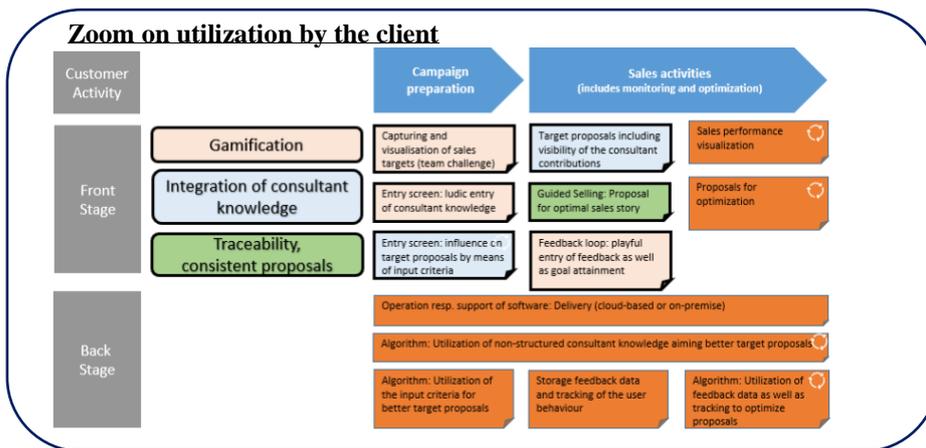
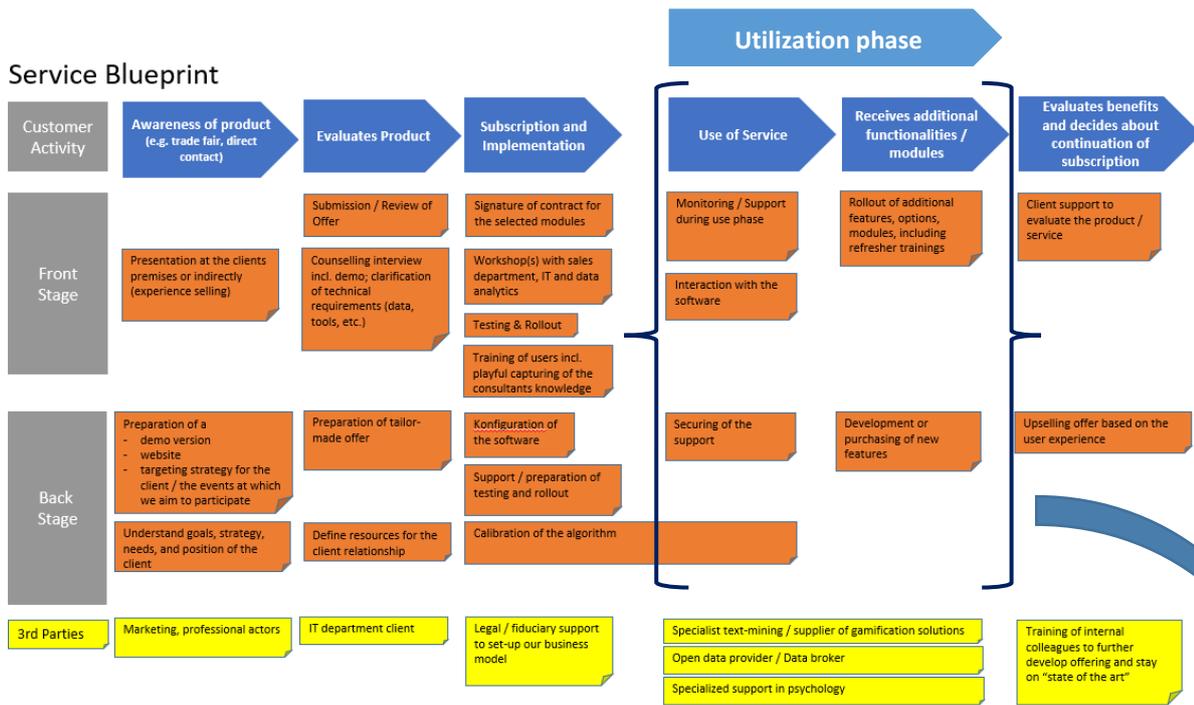


Fig. 4: Service Blueprint (incl. zoom)

In the service blueprint, external data providers are listed as 3rd parties. These could be open data sources, but also shared personal data sold by data brokers. The external data must be loaded into a consolidated analytics platform (e.g. data lake) and can then be used, together with the internal data, to train and/or to run the scoring algorithm. This loading and integration task can be managed through specialized interfaces (e.g. REST API) and data integration software.

This model creates value for the customer in the following manner:

- Enhancement of AI-based algorithm by human knowledge and experience. The job of sales consulting becomes more valuable and interesting since it leads to more positive client interactions and less frustration.
- Through guided selling: client advisors get good background information which allows them to propose the most appropriate product to their clients.
- Interactions with end-customers will be optimized, i.e. reduced to meaningful ones. There will be less end-customers who feel annoyed or disturbed.

- Gamification: higher “fun@work”-factor thanks to a graphically attractive interface to enter, retrieve, view data in relation to the sales campaign.
- Sales performance of any client advisor is visible to the team. This stimulates the competition among team members and supports them to reach goals in a playful manner.

As shown by our ecosystem (see fig. 5), the financial value for the service provider consists in the generation of subscription fees. But there is much more than that. For example, the development of our service gives us satisfaction as we support sales organizations in providing their consultants or sales personnel a much better work experience.

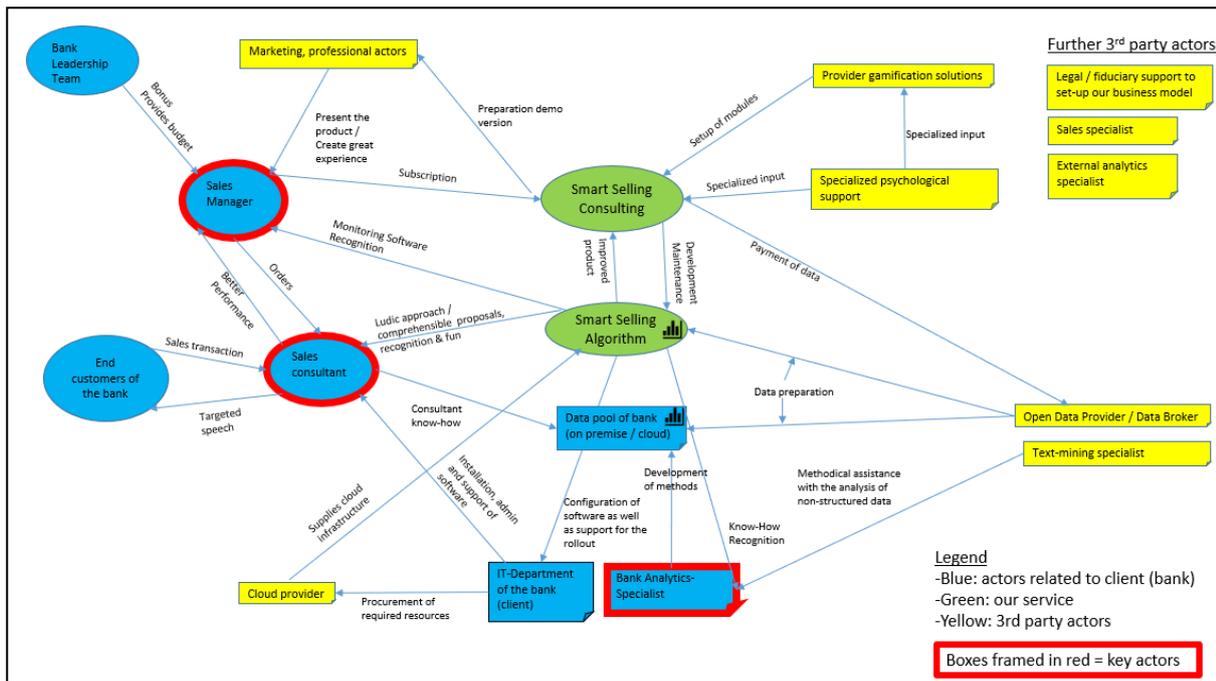


Fig. 5: Ecosystem

Our business case is based on several assumptions which need to be tested. The most important hypothesis assumes that sales consultants are most motivated when they can bring their own knowledge and experiences into the sales process. We test our assumption by giving to test consultants the opportunity to comment algorithm-generated scorings by describing how, where and when they bring in own knowledge. Simultaneously, their emotion curve and personal level of satisfaction is reported. We consider our hypothesis as correct if half of the consultants select a different order than the algorithm and if at least 50% of the test population attest this was a great experience for them.

Test Card @Strategyzer

Name: _____ Deadline: _____

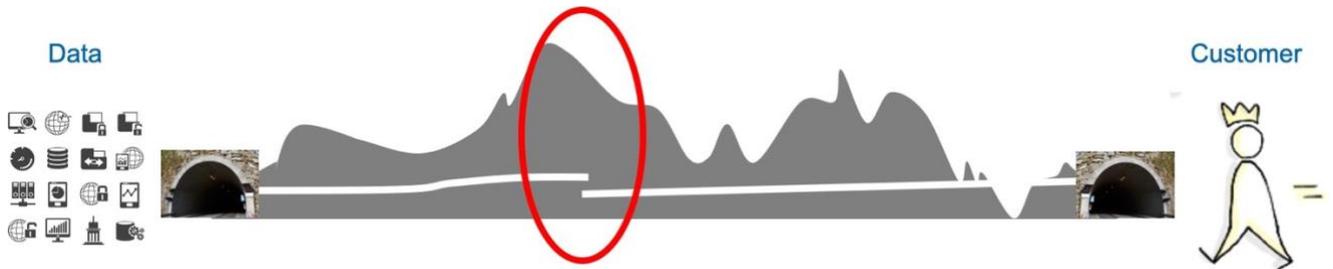
Beratermotivation & Wissen Duration: _____

STEP 1: WERD ZIELS
 We believe that _____
 ... die Motivation der Berater verbessert werden kann, wenn sie ihr eigenes Wissen in den Verkaufsprozess einbringen können.

STEP 2: TEST
 To verify that, we will _____
 ... werden wir dem Berater manuell die Möglichkeit geben, das Scoring zu kommentieren und zu beschreiben, wie/wo/wann er sein eigenes Wissen einbringen wird.

STEP 3: MESSUNG
 And measure _____
 ... die Einstufung der Berater (woll. durch Aufzeichnung) ... den subjektiven Lernaus / die Zufriedenheit der Berater (Skizzen mit einer Skala (Bewertung, Skalen: 1-10)).

STEP 4: BEWERTUNG
 We are right if _____
 ... die Hälfte der Berater Kunden in einer anderen Reihenfolge / andere Kunden priorisiert die vorgeschlagen ... die 100% der Berater mit guten Content Labels belegt haben.



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