User Narratives in Experience Design for a B2B Customer Journey Mapping

Thomas Ludwig[1], Xiaoyu Wang[1], Christoph Kotthaus[1], Simon Harhues[2], Volkmar Pipek[1]

Institut für Wirtschaftsinformatik, Universität Siegen[1]
Robert Bosch Packaging Technology GmbH[2]

Abstract

Enterprises are increasingly starting to apply a user-centric perspective in their product and service development processes. This paper uses the concept of customer journey mapping (CJM) to visualize customers' needs and perceptions throughout all of their relationships with an enterprise to improve development processes. Currently, CJM focuses more on business-to-consumer (B2C) relationships than on business-to-business (B2B) settings. In contrast, we here examine how to conceptualize a CJM template for B2B relationships by researching Bosch Packaging Technology – Business Unit Pharma, a large pharmaceutical packaging company. We employ user narratives from expert interviews, design workshops, and customer interviews/observations to visualize knowledge about customers in a CJM.

1   Introduction

Modern enterprises are today increasingly emphasizing the user-centric perspective in their product and service development processes. To improve the usefulness of products and related services, it is necessary to focus on customers' needs in the early stages of product development as well as throughout the entire product life-cycle. However, knowledge about customers' needs is usually acquired by experts within an enterprise and often can be neither externalized nor distributed to other teams due to organizational structures, wherefore misapprehension among the stakeholders is therefore often inevitable.

A customer journey helps to enhance mutual awareness within an enterprise and maintain customer relationships. Customer journey mapping (CJM) illustrates customers' processes, needs, and perceptions throughout all of their relationships with an enterprise (Temkin et al., 2010). By analyzing customers' perceptions and behaviors at each touch point with an enterprise, CJM helps to discover the strengths and weaknesses of current work processes, which can improve the quality of the products and services offered.

CJM has focused mainly on business-to-consumer (B2C) relationships, in which an enterprise sells products or services directly to consumers. In contrast, CJM in the business-to-business

(B2B) context (which involves the exchange of products or services between enterprises) is largely unexplored. To help fill this gap, this paper examines the large enterprise Bosch Packaging Technology GmbH and offers suggestions for creating and evaluating a CJM template for its B2B relationships. Beside this case study, the added research objective is to analyze the methods to create a CJM and the concept of CJM itself in a B2B environment and compare such mapping with B2C. We conducted an empirical study to gain insight into the enterprise's internal knowledge regarding customers and their touch points with Bosch. We used interviews with internal experts and customers to uncover knowledge about customer processes and both observations and interviews to create customer stories. We then employed design methods to visualize the fragmented knowledge about customers in a journey map.

2   Background and Related Work

Researchers already discovered the positive effects of stories on human memory in the early 1930s. Gibbons (2017) argues that stories can be an effective communication tool for learning about user experiences (UX) and for summarizing user research, generating ideas, conveying abstract concepts, persuading an audience, and evaluating designs. Connelly and Clandinin (1990) argue, "the study of narrative is the study of the ways humans experience the world." They elaborate the value of narratives in contexts of educational studies and detail the criteria, narrative inquiry methods, and inputs required for constructing narrative plots using stories (Connelly & Clandinin, 1990). To understand UX, narrative inquiry theory and (narrative analysis) methods have been developed and applied within different domains (Clandinin & Huber, 2010).

Narrative techniques occupy an important position in UX design. Personas, scenarios, storyboards, flow charts, service blueprints, and customer journeys have been used by designers for years and are already essential to design practice. Creating stories enables designers to explore the world of imaginary users, ground their work in the real context, and more deeply understand the UX (Quesenbery & Brooks, 2010). User stories provide an emotional connection to information and thus connect users to a larger picture (Cajolet et al., 2014). Temkin et al. (2010) define CJM as "documents that visually illustrate customers' processes, needs, and perceptions throughout their relationships with a company." CJM reveals customer insights and improves product and service quality (Richardson, 2010) and strategic management processes (Rosenbaum et al., 2016). Human-computer interaction experts are also using it to investigate influences on UX from a user-centric perspective (Nenonen et al., 2008). As a service tool, CJM plays a vital role in human-centered design and is appropriate to use in the UX design of technologies to find touch points containing room for improvement of the UX (Lee et al., 2015). However, most of the literature about UX and user narratives focuses on B2C relations. Although there are common findings, B2C and B2B settings are usually different and separately evaluated (Kumar & Reinartz, 2012; Lemke et al., 2011).

3   Research Approach

We aimed to examine B2B processes to create a CJM template and uncover long-term potential for improving products and services. Our research context was Bosch Packaging Technology GmbH, a leading provider of process technology and packaging solutions for the pharmaceutical industry. Its portfolio includes single units, complete lines, and integrated systems for manufacturing and processing liquid and solid pharmaceuticals.
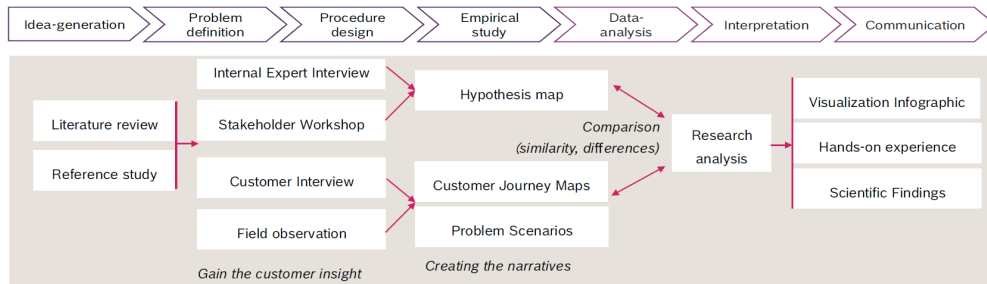

Figure 1: Research Approach

The first step was to understand – to the extent possible – the context in which customer touch points and experiences as well as relationships between customers and Bosch occur. This was not a trivial challenge, as predicting all customers' experiences would be impossible. Our research approach (see Figure 1) was based on a usual research process (Graziano & Raulin, 2010). We conducted an extensive empirical study that consisted of internal expert interviews and design workshops as well as customer interviews and field observations during factory acceptance tests (FAT) at the assembly hall of Bosch. During customer interviews, we employed narrative inquiry to collect stories (Connelly & Clandinin, 1990; Clandinin, 2007). The results were visualized as a CJM.

4   Empirical Study: Internal Experts

We used semi-structured expert interviews to better understand the business of Bosch and identify touch points and assumed customers' emotional states in their journey from a Bosch internal perspective. We performed three rounds of interviews: (1) *Rough inquiry:* In the initial interviews, participants had a theoretical understanding of entire processes and rich knowledge of pharmaceutical production (E00-E04). (2) *Detailed inquiry:* The second interview round was intended to gain insights into each phase; as such, the participants selected all had direct contact with customers (E05-E08). (3) *Design review:* The last round aimed at reviewing the hypothesis map and collecting internal insight for further improving the journey (E09-E12).

No.	Department	Role	No.	Department	Role
E00	Project Management	Senior project manager pharmaceutical system	E10	Product Management	Product manager
E01	Product Management	Product manager, competition analysis, strategic sales tools	E11	Strategic Engineering	Engineer training, development and technology coordination
E02	Product Management	Product manager, qualification strategy, sales support	E12	Project Management	Process owner, site coordinator

E03	Strategic Sales	Business strategy, trend scout	W01	Strategic Sales	Business strategy, trend scout
E04	Product Management	Product manager	W02	Product Management	Product manager
E05	Project Management	Project manager	W03	Engineering	Group administration, engineering, design
E06	Sales Support	Supply of materials and parts, overview of license orders	W04	Engineering	Engineering and development, system for quality control
E07	Service	Marketing, projects documentation,	W05	Engineering	Pharmaceutical expert
E08	Service	Service Marketing, sales support	W06	User Experience	UX designer (pharma unit)
E09	Service	Regional area manager, field service, service sales	W07	User Experience	UX designer (central department)

Table 1: Interview and Workshop Participants

We also participated as facilitators and observers in a design thinking workshop for creating new pharmaceutical packaging machinery. The participants came from departments of different functions and were involved in customer projects or had direct/indirect contact with customers. The workshop's purpose was to build a current model of customer-enterprise partnership and identify strong ties, weak ties, and missing links. The interviews and the design thinking workshop resulted in a hypothesis map (Figure 2), which lists all stakeholders and their level of involvement. The hypothesis map shows how the enterprise's actors perform different kinds of activities to support customers within the entire lifecycle of products and services. Its element include: (1) *Contact phases* along a product's lifecycle; (2) *Touch points* where customers have direct/indirect interaction with a product or service (which entails not only contact channels but also every interactive matter in the business, such as kick-off meetings, reference visits, and design review meetings); (3) *Company actor and activities* that have direct/indirect customer contact and meet customer needs in different ways in each phase; (4) *Customer actors and activities* and what must be done to meet their goals; (5) *Supposed customer emotional valences,* which reflect expert perspectives on customers' emotional fluctuations during their journey; and (6) *Pain points*, which are the shortages and weaknesses in the larger project processes (as discussed by the project manager).
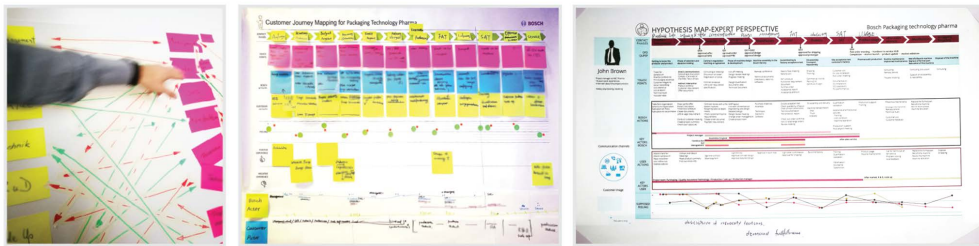

Figure 2: Stakeholder Map (left), Draft of Examples (middle), Hypothesis Map (right)

5   Empirical Study: External Customers

Clearly, the perspectives of internal experts alone cannot comprehensively represent customers' actual perceptions and needs. To gain insights from the customer perspective, we conducted narrative customer interviews and field observations using seven companies from six

different countries. The interviewees came from different functional areas (e.g., product management, production, and engineering), which provided us with different views.

No.	Role	Location	Project Stage
C01	Product Manager	Central America	Factory Acceptance Test
C02	Project Leader	East Asia	Factory Acceptance Test
C03-1	Maintainer	Central Europe	Factory Acceptance Test
C03-2	Electric Specialist	Central Europe	Factory Acceptance Test
C04	Process Leader	North America	Factory Acceptance Test
C05-1	Product Leader	South Europe	Factory Acceptance Test
C05-2	Validation	South Europe	Factory Acceptance Test
C03-3	Operator	South Europe	Factory Acceptance Test
C06	Quality	South Asia	Mockup
C07	Engineer	South Europe	2. Factory Acceptance Test

Table 2: External Customer Participants

We used laddering questions to acquire a range of stories and understand customers' emotional state regarding Bosch. We also observed the customers' behavior for an entire day to investigate how they communicate with each other, how they solve problems, and how their emotions changed during gripping machinery tests. The basic results included several initial maps that encompass the customers' individual journeys and positive and negative experiences (in the form of user stories). We focused on customers' emotional experiences and tried to illustrate abstract matters in a comprehensible form that enabled the information to be transferred to the stakeholders visually (which was accomplished by formulizing the stories into data and utilizing the data to tell a story). Using Plutchik's (2001) wheel of emotions, we asked customers to describe their emotional states for each project stage. The data were then connected to emotional valences that visually reflect the emotional fluctuations in a journey. Making detailed inquiries into the high and low points allowed us to give customers an opportunity to share more detailed experiences and thus to collect customer's actual feedback in each contact phase.
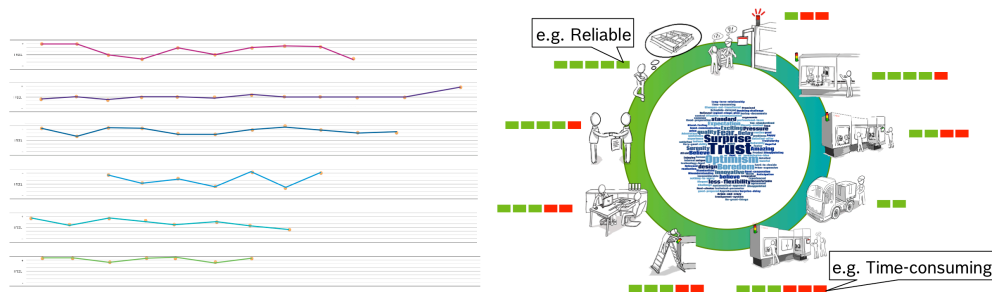

Figure 3: Example of Emotional Valence and Customer Feedback

The green blocks in Figure 3 represent the positive experiences mentioned by customers, such as receiving detailed quotations and enjoying effective communication in the business negotiation phase and dealing with a trustworthy and professional team during FAT. In contrast, the red blocks represent negative evaluations, such as a lack of flexibility in the design and development phase and time-consuming discussions regarding offers and testing. The data obtained were narrated into user stories that address both the contact processes between customers and Bosch and customers' positive and negative communication experiences.

6   Creation of the Customer Journey Map

To generate a CJM from the customers' perspective, we asked during the interviews customers to describe the touch points and contact phases that they had experienced. We then used the collected descriptions to make an affinity diagram that classified the items into the categories that form the basis for building a CJM. Phrases mentioned by more than one customer were categorized into groups. The red frames indicate the moments that interviewees stated could influence an entire project.
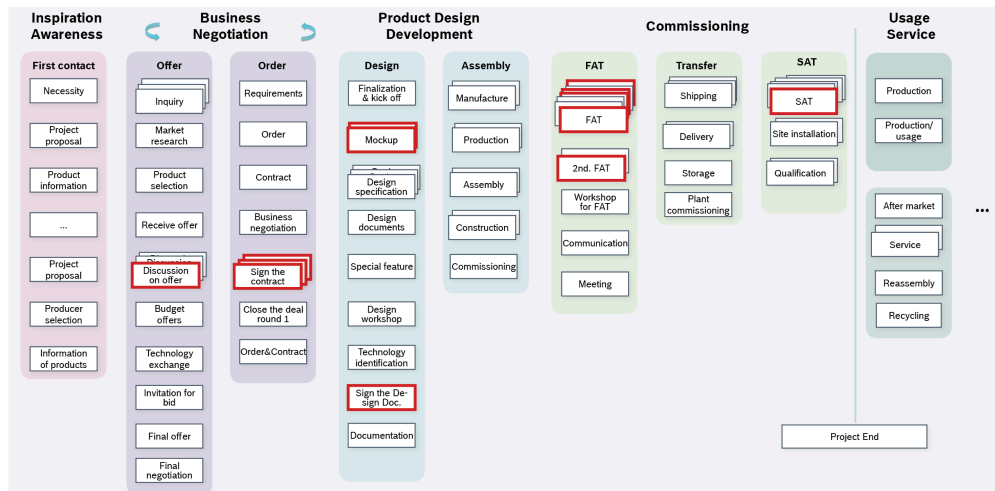

Figure 4: Affinity Diagram

As the research was conducted only during the FAT and mockup phase, the participants were mostly in charge of a specific project development phase. We therefore obtained limited information about product usage and after-sales service. To overcome this problem, the second round of expert interviews aimed at learning details about marketing, sales, and after-sales service. Using the affinity diagram, we then construct a CJM from the perspective of both internal experts (drawing on the hypothesis map) and customers (through the customer interviews and field observations).

Figure 5 visualizes all touch points and contact phases, present in the before mentioned CJM. Due to confidential reasons we are unfortunately not able to present the complete CJM in this paper. To provide a holistic overview of the entire project, it also illustrates the purchase and product development processes. This CJM reveals that a customer's journey is not linear and is to some extent cyclic. This journey includes eight phases, each of which has multiple touch points and involves different people. When an initial purchasing impulse arises, customers request basic product information; this leads to the *project planning* phase, when the company drafts a project proposal. In the *business negotiation phase* (which entails consideration and decision-making), customers compare offers from several suppliers and may even decide to purchase a machine that integrates third party equipment. After a contract is agreed, the machine is designed and built. During this *machine design and development* phase, design specifications are discussed iteratively over an extended period of time. Before the machine starts being used in

pharmaceutical production, *commissioning* should be done both internally (FAT) and on site (site acceptance testing) to ensure it is installed properly and fulfills all requirements. During the long *product usage* phase, customers still have contact with the supplier to receive advice on technical or software matters and routine or unplanned *maintenance*. In some cases *reassembly* also happens (e.g., replacing a format part or reselling/relocating a machine). The last phase, *scrapping & recycling*, usually no longer entails any touch points between the customer and supplier.
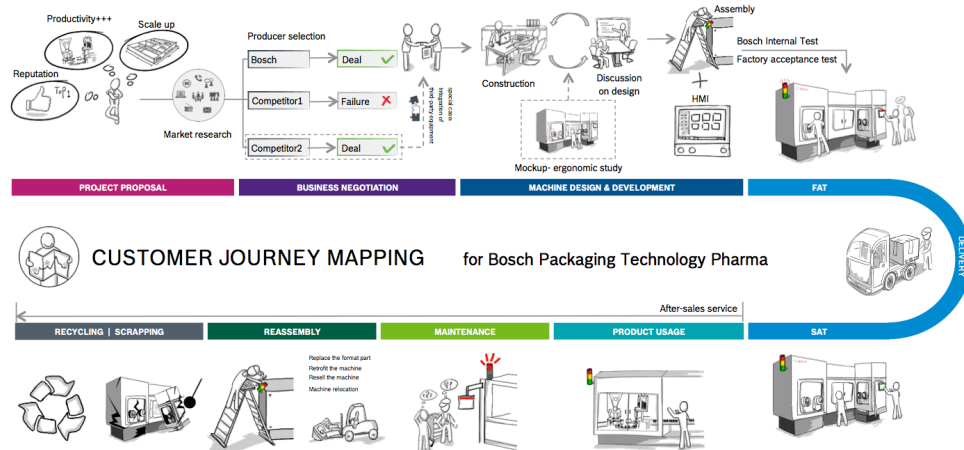

Figure 5: Customer Journey Mapping (Customer Perspective)

7   Discussion

Unanticipated challenges arose in conducting this study and generating a CJM in B2B settings (as opposed to in B2C settings), as shown in Table 3. The empirical findings suggest that such challenges will arise in other complex, project orientated B2B settings as well. While the generic B2C CJM focuses on the journey of a certain user or user group, we see substantial differences in a B2B setting. As mentioned previously, in the B2B context stakeholders are associated through a common project but have unique areas of responsibility in the different project phases (Figure 2, stakeholder map); this increased the difficulty of mapping them into one journey. On the one hand, we should understand the unique characteristics of business customers in different user groups; on the other hand, we should become familiar with the duties of internal stakeholders and arrange them into the correct tracks. Whereas B2C journeys have relatively short lifecycles and simple channels of communication in a linear process, B2B journeys (not only for pharmaceutical customers) are long, include more uncertain factors (e.g., who will assume responsibility), and go through multiple communication channels. Our interviews with international customers and internal experts also revealed that cultural factors, barriers, and behavioral patterns must be considered to avoid conflicts in international B2B projects.

	CJM in B2C settings	CJM in B2B settings
Customer role	Single purchaser persona along the entire journey	Stakeholders from multiple functional areas (varies by stage), with complicated nexus and level of involvement
Touch points	Simple/single channels; interaction with platform/medium	Multiple channels; direct/indirect interaction with contact persons, many-to-many communication/multi-to-multi relationships
Customer expectation	Unchanging during the entire journey	Not unified, varies according to stakeholder roles in each stage
Contact/ Buyer phases	Linear process; sequential and simple swim lane processes	Closely associated to project processes; unique, negotiable, and partially iterative; complex swim lane processes
Buying lifecycle	(Relatively) short time period	Long duration
Emotional state	Measurable and describable; fluctuates along the journey	Different evaluation criteria for each person; incomparable
Focuses	Satisfaction; focus on current experience	Commitment and confidence; remain long-term relationship

Table 3: Comparison Table: CJM in B2C and B2B Settings

Customer emotions are closely connected to certain factors in B2C journeys that can be measured and described using customer surveys. A customer's emotional fluctuations can be visualized as an emotional valence. Nevertheless, in a B2B project, each stakeholder has different evaluation criteria – which may be incompatible. For instance, a customer's project manager rated a failed FAT positively as the overall project was going well, while an operator from the same company rated the next FAT (which was successful) negatively as the customers were not satisfied with the Bosch expert's professional level. A stakeholder's mood can also be influenced by uncertain factors, such as jetlag after business travel.

8   Conclusion

Our paper has examined CJM within a large company in the pharmaceutical B2B sector. By applying different empirical methods, we have derived a CJM from both internal and customer perspectives. While the resulting CJM is obviously only valid for the case study presented, the authors are confident, that the used methods of inquiring internal experts and users in several iterations are transferrable to other B2B settings in general. The map shows the diverse touch points between an enterprise as well as a (business) customer that go beyond the purchasing process and focus on long-term commitment and confidence instead of the short-term customer experience, which is believed to be typical for a B2B setting. In B2B relationships, numerous stakeholders are involved in the process and need to be mapped to the customer journey. Our study of course has some limitations. In particular, our access to business customers and insights into their daily practices over a long period of time was limited and we were unable to cover all stakeholders on the customer side. We plan to make the entire process transparent to all involved stakeholders, which will enable us to refine the map and use it for connecting stakeholders and fostering collaboration.

9   References

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