Supporting redesign of C2C services through customer journey mapping

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Abstract

It is challenging for service companies to obtain a detailed overview of their customers' end-to-end service delivery processes. This paper extends previous work on a structured approach for modelling customer journeys to encompass complex, technology-driven service systems. We report on how the approach can support documentation and analysis of service delivery from a customer perspective, and present a case study of a consumer-to-consumer (C2C) service in an eMarket company. The case study involved mapping of the service process as intended by the service provider (planned journey), as well as customer journeys as experienced by users (actual journey). Our results reveal that the approach supported the eMarket company in obtaining a detailed overview of the service process, and in understanding the customers' experiences. Deviations between planned and actual journeys uncovered user issues and gaps in the service delivery, pointing to parts of the journey that were prone for improvements and redesign.

KEYWORDS: visual language, customer journey, touchpoint, case study, CJML

Introduction

eCommerce and consumer-to-consumer (C2C) sales grow rapidly. In the second quarter of 2015, eBay alone had $4.38 billion in revenue[1], and it is expected that the US, Western Europe, and China will generate over $800 billion in online sales in 2015[2]. With increased popularity of these types of services comes increased competition among service providers. Users of C2C services tend to easily switch to another C2C platform, taking with them both their merchandise and their social networks (Chen, Zhang, & Yunjie Xu, 2009). Providing superior customer experience and building mutual trust is therefore of major importance for such services (Chen et al., 2009; Mangiaracina, Brugnoli, & Perego, 2009).

To deliver great services, service companies need to cope with several challenges. They need genuine insight into the people who will use their service, insight into the process of interacting with the service, and an understanding of the quality of the end-to-end customer experience. However, companies often have insufficient knowledge about their end-to-end service delivery processes, particularly in silo-organized companies (Polaine, Løvlie, &

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[1] http://www.statista.com/statistics/266189/ebays-quarterly-net-revenue/

[2] https://www.forrester.com/The+eCommerce+Globalization+Playbook+For+2015/-/E-PLA700

Reason, 2013; Rawson, Duncan, & Jones, 2013). Numerous methods and tools have been developed to support service providers in getting such insight, such as customer journey maps, service blueprint, mobile ethnography, and desktop walkthrough (Stickdorn & Schneider, 2011).

Service blueprints are a commonly used technique for specifying and detailing each individual aspect of service (Stickdorn & Schneider, 2011). While service blueprints comprise both the onstage and backstage service processes, customer journeys only concern the customer's perspective. Customer journey mapping is one of the most used visualization techniques within service design (Segelström, 2013). It describes a service from the customer point of view (Stickdorn & Schneider, 2011), and is helpful for both design and analysis of complex experiences and processes connected to different touchpoints (Mangiaracina et al., 2009). Halvorsrud and Kvale (2009) have pointed out the importance of considering both "planned" and "actual" customer journeys. A planned customer journey reflects the service process that a service provider expects a customer to go through. An actual customer journey is the real journey of a customer and its mapping requires insight into customer data. Although both internal resources and customer data are needed for comprehensive mapping of customer journeys (Goverment, 2007; Halvorsrud, Kvale, & Følstad, in press), case studies involving both planned and actual journeys are rarely reported in the literature (Følstad, Kvale, & Halvorsrud, 2013).

We still lack an in-depth understanding of how service design might benefit from understanding deviations between planned and actual customer journeys. Furthermore, we need visual tools that enable researching complex, technology-driven services governed by a service delivery network (Tax, McCutcheon, & Wilkinson, 2013). This paper extends previous work on modelling customer journeys by visual notations needed to capture interactions in complex technology-driven service systems, and by evaluating this approach in the context of eMarket C2C service.

The next section introduces CJML and the development of the extensions. This is followed by a case study where CJML has been applied for analysis of a recently introduced C2C service in an eMarket company. Particularly, the paper proposes a means for uncovering the gaps between service providers' view on service usage and customers' experiences. Finally, we discuss how this approach can prove valuable in the process of redesigning and improving services.

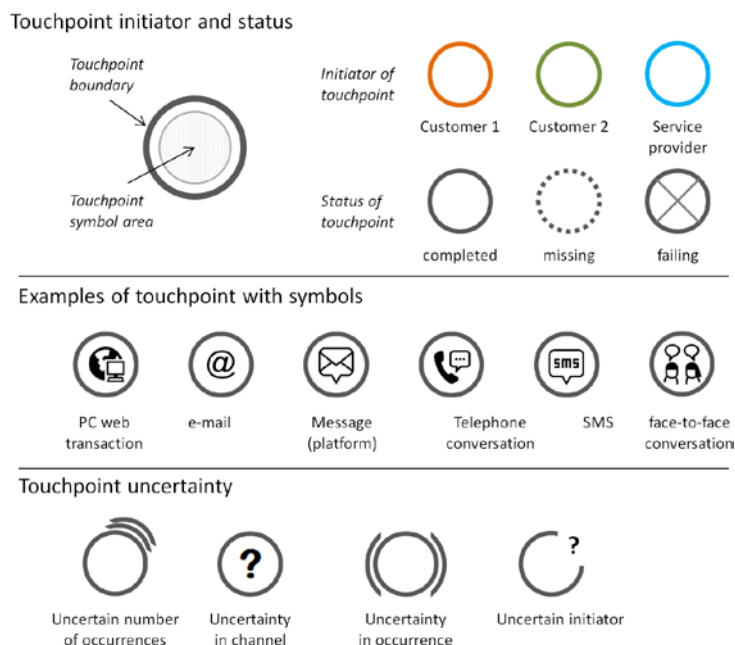## Extending the Customer Journey Modelling Language (CJML)

CJML is a formal language for modelling and visualizing service delivery in terms of customer journeys. The basic units of CJML are the observable communication events or touchpoints that form the "least common denominator" of the service delivery process. It enables a detailed specification of the service delivery process from the perspective of the customer, and its basic components are described in (Halvorsrud, Lee, Haugstveit, & Følstad, 2014). With its formalized language and notation, CJML contrasts the rich and often anecdotic description format of other customer journey approaches. It is particularly suited for transactional- or technology-based services governed by well-defined tasks connected through a logical sequence, rather than experience-centric or human-intensive services.

The following section presents the new features in the visual notation that was needed to characterize the interaction pattern between multiple actors in a complex service system enabled by a technology-driven platform.

Visual elements of CJML

Touchpoints in CJML[3] are defined as instances of communication or interaction between a customer and a service provider, representing communication events in line with the Shannon-Weaver model (1963). The source of communication, referred to as the *initiator* or *sender*, transmits a message through a *channel* to the *receiver*. The channel may be digital (like an e-mail or a SMS) or verbally mediated (like a face-to-face conversation). Touchpoints are represented as circles with the boundary colour carrying information about the initiator, see Figure 1. For the C2C service described in this paper, the two target actors are represented by the colours orange and green, respectively. Touchpoints initiated by the service provider have a blue circumference. Information about the status of a given touchpoint is of special interest in actual journeys. A completed touchpoint is represented by a solid line, while a missing touchpoint has a dashed line. A failing touchpoint is marked with a cross. The symbol inside a touchpoint represents the channel that mediates the communication process.

By virtue of connecting users through a technology-driven platform, a C2C service process contains touchpoint uncertainties, as seen from the service provider's point of view. The lower part of Figure 1 illustrates four types of touchpoint uncertainty and their accompanying visualization formats: 1. uncertainty in the number of touchpoints being exchanged between two actors; 2. uncertainty in the choice of communication channel for a given touchpoint; 3. uncertainty in the occurrence of a touchpoint; or 4. uncertainty in the initiator of a given touchpoint.
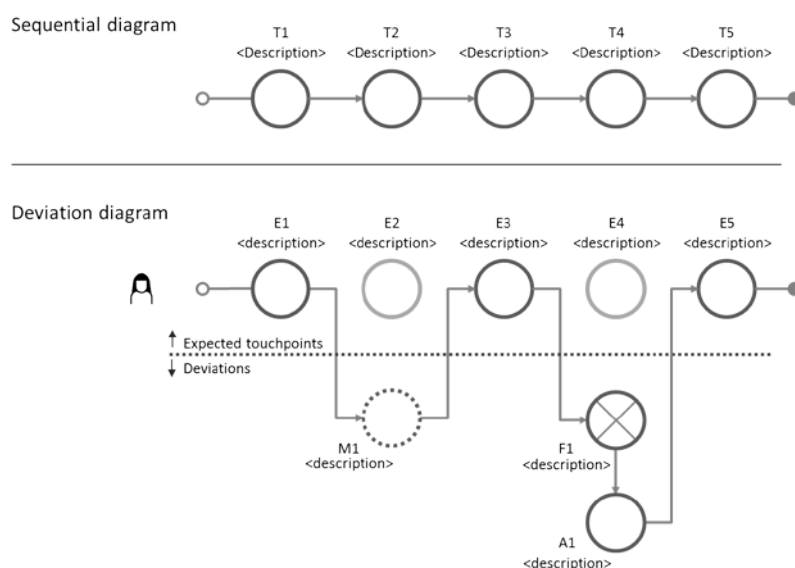

Figure 1 Visual representation of touchpoints.

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[3] In a recent version of CJML, a touchpoint typology has been developed, distinguishing four classes of basic elements in a customer journey. In this paper we refer to the terminology as it was used during the case study.

Customer journey diagrams

Shostack (1982) introduced a distinction between a service in its *static* state as in a hypothetic representation, and in its *dynamic* state when encountered by a customer. CJML is built on this important distinction, and refers to the two states as the planned and actual customer journey, respectively. The planned customer journey is the hypothetical state of a service process, resulting from the underlying service system. This label is used independent of whether the service process has been deliberately planned or designed, or merely results from an ad-hoc development process. On the other hand, actual customer journeys are representations of the service process in terms of the events that occurred in a real situation with an individual customer.

Two different types of customer journey diagrams have been developed to visualize planned and actual journeys, see Figure 2. A *sequential diagram* simply represents the touchpoints in order of appearance along a horizontal line. The touchpoints are labelled consecutively with a unique identifier and a text description. This diagram is useful for representing planned customer journeys. A planned journey may branch into sub-journeys in the case of multi-channel services (Sousa & Voss, 2006) that for example allows the customer to choose between two alternative channels. This may result in a branching of the planned journey into several alternative paths, corresponding to Shostack's "executional latitude" (1987). In such cases it is thus necessary to provide the conditions under which the sequential diagram is representative. The sequential diagram can also be used to represent actual journeys. This is useful when the planned journey is governed by unstructured processes or when the planned journey is unknown. The *deviation diagram* is designed to emphasize the gap between the planned and an actual journey. Here, touchpoints that are not part of the planned journey are displaced vertically under the preceding touchpoint for easy comparison. Deviations may represent touchpoints that are missing (e.g. an e-mail that never reached the customer), failing (e.g. a self-service ticket machine out of order), or ad-hoc (e.g. customer contacting the call centre). The deviation diagram allows service providers to identify gaps in their service processes by comparing actual journeys with the planned journey (Halvorsrud et al., 2014). However, deviations from the planned journey do not necessarily imply an unfortunate customer experience.
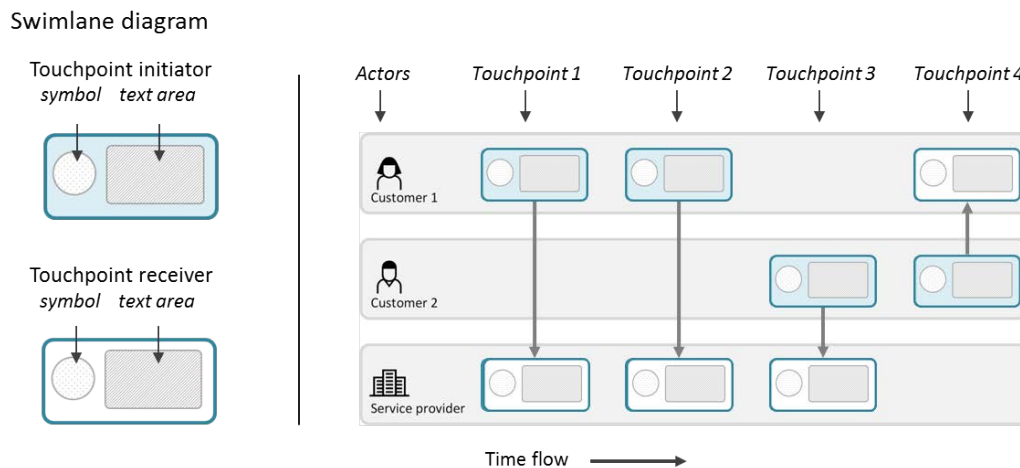

Figure 2 A sequential customer journey diagram for both planned and actual journeys. A deviation diagram reveals the delivery gap for actual journeys.

Touchpoints may be labelled with unique identifiers for easy referral, and a touchpoint description may also be added in the form of a short text. Identifiers for touchpoints of planned journeys are T1, T2, T3, etc. For actual journeys, the first letter of the identifier depends on the status of the touchpoint. We differentiate between the touchpoints that are planned or expected (E), missing (M), failing (F), or ad-hoc (A).

Swimlane diagram

In the case of services involving a network of actors, the service delivery network approach introduced by Tax (2013) is a convenient concept. CJML has been extended with a customer journey swimlane diagram to represent service delivery networks, see Figure 3. Here, each actor has a separate swimlane to better distinguish the message flow through the network. Time extends in the horizontal direction, and each touchpoint is replicated in the swimlanes of the involved actors. The swimlane diagram, with its horizontal paths reserved for each actor, must not be confused with a service blueprint (Bitner, Ostrom, & Morgan, 2008), which encompass back-end systems or support processes that do not intercept any of the actors[4].
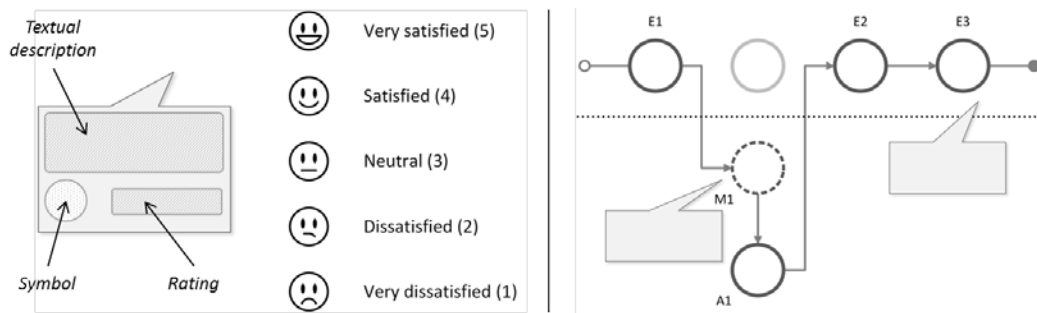

Figure 3 Swimlane diagram for journeys with multiple actors

Customer experience for customer journey diagrams

In CJML, customer experience is conceptualized according to research from the human-computer interaction (HCI) domain; as a subjective, dynamic and context-dependent phenomenon (Law, Roto, Hassenzahl, Vermeeren, & Kort, 2009). Customer experience in CJML is associated with actual journeys only, based on self-reported input from the individual user. Customer experience is visualized for actual journeys as a speech bobble containing the customer's account of a given event. This is achieved through an empirical study of user experience over time, as will be described below. The notation allows free-text input, as well as measurements of the experience, see figure 4.

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[4] There exists a variety of service blueprint formats, see for example
http://www.slideshare.net/apolaine/blueprint-developing-a-tool-for-service-design

Figure 4 Visualization of customer experience in a deviation diagram

CJML diagrams can be helpful in giving service providers an overview of their planned journeys, and also in mapping actual journeys of real customers, which can lead to detection of weaknesses or errors in the service delivery process. The following section will provide an example of how CJML, in a case study for an eMarket company, was used to map planned and actual journeys for one of their new services.

Case study application of the CJML

The case study was carried out in June to September of 2014 in a Norwegian eMarket company that facilitates a platform where individuals and businesses can exchange products and services. The C2C service is intended for the private market. A person (referred to as Job Advertiser), may advertise for help to complete casual work and connect with potential workers (referred to as Job Performer). Examples of jobs are house cleaning, waste management, painting jobs, and similar. The actors connect through a technology platform, and most of the touchpoints are automated. The service allows the actors to choose from several parallel communication channels, some controlled by the technology platform (e.g. chat system, e-mail system), and others that were out of the service provider's control (e.g. private e-mail address, SMS, phone, face-2-face communication). Each user of the service had to register a user profile, where one could fill in information about oneself, and where reviews from other users would appear.
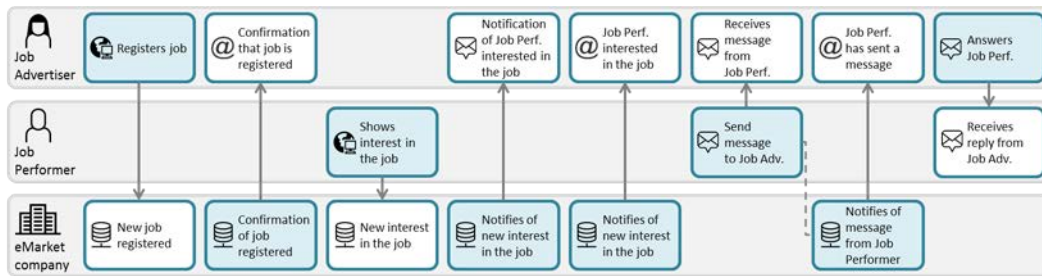
The aim of the study was to map the service in detail, find areas for improvements, and facilitate increased up-take of the service. The responsible eMarket team wanted to gain knowledge of *what* their customers experienced when using the service, as well as *how* they experienced it. The company was particularly interested in Job Advertisers' experiences.

The case study involved mapping of the planned customer journeys for both Job Advertisers and Job Performers. For the actual journeys, only the Job Advertisers' journeys were analysed. In the following, we describe the methods and approaches used in the case study.

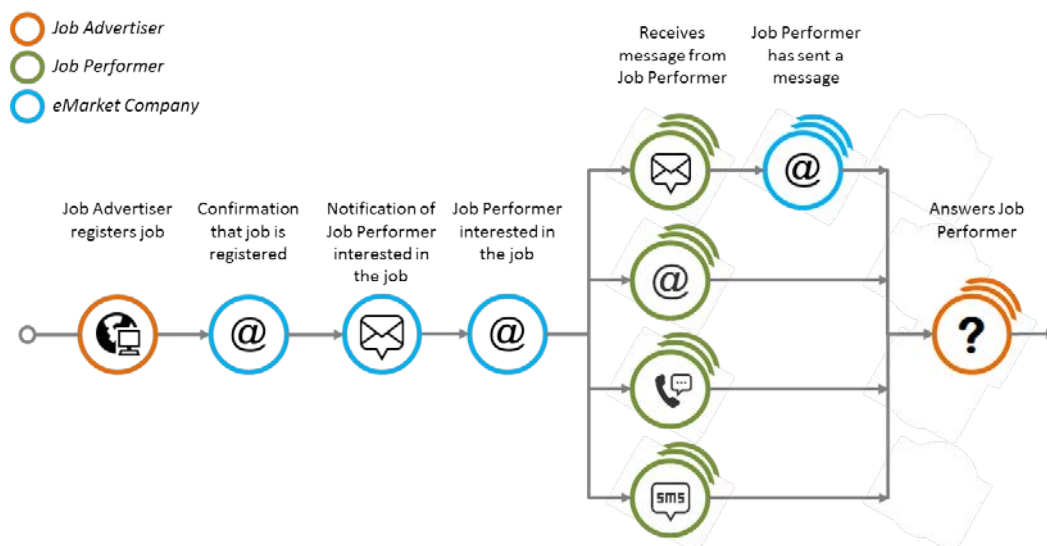## Mapping of planned customer journey

The mapping of the planned customer journey involved two steps. First, the eMarket company provided us with sketches of what the customers were to go through when using their service. From this, we were able to make an initial visualization of the planned customer journeys. Second, to validate the initial model of the planned journeys we applied mystery shopping method. Mystery shopping is a method commonly used to gain specific

information about a service or product. The method has a customer-centred focus, as it solely focuses on the events that can be experienced by the customer (Cook et al., 2002). Two researchers took the roles of Job Advertiser and Job Performer, and completed the complete process twice. The results of the mystery shopping was visualised through the swimlane diagram, providing a holistic view of both Job Advertiser and Job Performers journey in connection to each other and the eMarket Company. Figure 5 shows parts of the swimlane diagram from one of the mystery shopping sessions (the journey is slightly simplified).

Figure 5 Swimlane diagram from mystery shopping session

The mystery shopping contributed first-hand experience with the service and helped fill in gaps and touchpoints that were missed in the initial sketch of the customer journey provided by the eMarket company. Based on this gained knowledge, we were able to map the planned customer journey for the service. A customer journey diagram was used for this purpose. Figure 6 shows parts of the planned customer journey for Job Advertiser, including the complex set of possible communication channels between Job Advertiser and Job Performer and also notation for uncertainty in channel and number of occurrences. The touchpoints in Figure 6 are the same as the touchpoints shown for Job Advertiser in the swimlane diagram shown in Figure 5.

Figure 6 Part of Job Advertiser's planned customer journey

Implications of mapping the planned journey

The mystery shopping revealed several gaps in the initial customer journey model of the eMarket company. The company had not been used to, nor had a specific way, of mapping

customer journeys for the different market places they facilitate. During meetings and by e-mail exchange, the eMarket company reported on the perceived value provided by the planned customer journey models, and the usefulness of having a common language to describe customer journeys. Feedback was gathered right after the study was completed, and also a year later.

The mapping of the planned customer journey gave the eMarket company a holistic overview of the touchpoints involved in their service, and made them aware of the details of their planned customer journey. While some touchpoints were carried out in a well-known way, touchpoint characterised by uncertainty in number of occurrences and mediating channel were harder to keep track of. The visual diagrams enabled the eMarket company to get an initial overview also of these touchpoints that could vary and be carried out differently from one journey to another. Notation for uncertainty is especially relevant for C2C platform service providers. It enables them to describe the service as correctly as possible, given the uncertainties that are inherent in the service process.

The mapping of planned journeys revealed some unnecessary touchpoints and touchpoints that had been misplaced in the initial model. As a result, the company adjusted the service delivery process and eliminated excess touchpoints. Furthermore, the eMarket company has used the customer journey maps as a basis when considering future changes to the service and features for added value. They particularly mention the usefulness of having an overview of what and when information is sent out to the customers, and to use this as a basis for assessing the consequences of reorganising touchpoints and functionality. Also, the eMarket company has found value in using the visualisations when communicating with external companies that intercepted their overall customer journey. The planned journey map has been used when, together with externals, deciding where in the journey external touchpoints shall be placed and what information they shall contain. One employee said:

> In meetings with [external company], we have been using the planned customer journey map to uncover where we should include the partner's content and information, and what we should inform our customers about at various stages of the customer journey. The customer journey map makes it much easier to identify what to include where.
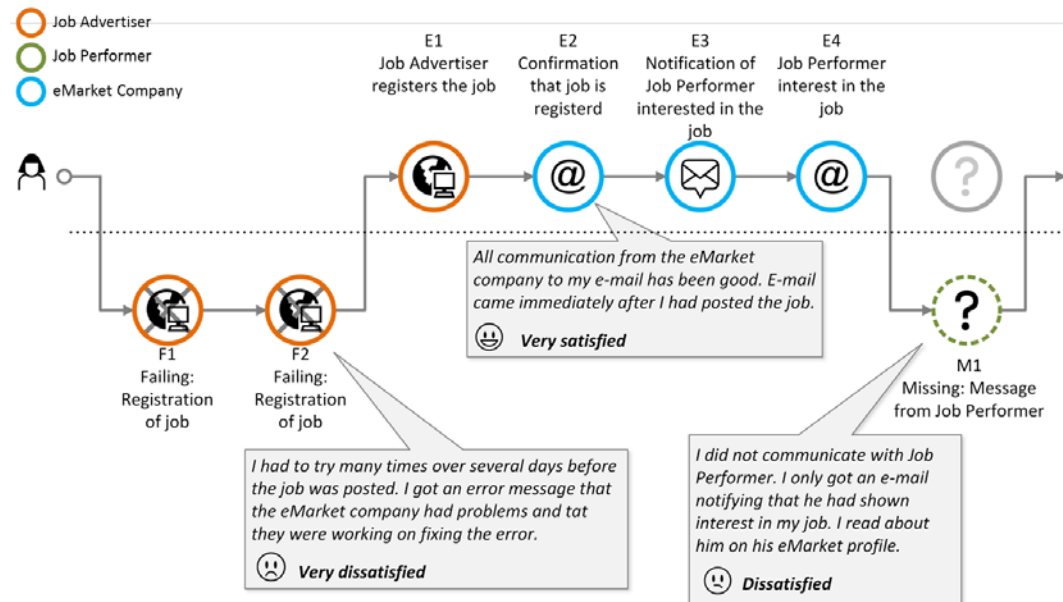
Mapping of actual customer journeys

Mapping the actual journeys of Job Advertisers was achieved by recruiting end-users during their initial use of the service. We mapped the journeys of actual customers, and compared and analysed deviations between the actual journeys and the planned journey.

In order to map actual customer journeys, we contacted 65 Job Advertisers that had very recently advertised a job and provided them with information about its purpose of the study and remuneration for participating. Of these, eight people (two males and six females, age 28-52 mean; 36 years) took part in the study. Based on the complexity of the service and usability evaluation recommendations claiming that five is a sufficient number of users for identifying the majority of the most important issues, we assumed that eight users would be adequate. For a more detailed discussion, see Lazar, Feng, & Hochheiser (2010). We sent these participants an electronic documentation form to fill out during their encounters with the service. In the form, participant were asked to document service related interactions that had occurred, the date and time of each interaction, and to give a description of what had happened and how they experienced this. They were also asked to rate their satisfaction with

each interaction on a Likert scale from one to five, one being "very dissatisfied" and five being "very satisfied". Participants were to describe every touchpoint from the point of registering the job online, until the job was completed or they for any reason ended their customer journey. Completed forms were then returned, and the customer journeys visualised. Two researchers carried out the visualisations of the customer journeys and analyses of the participants' documentation. Figure 7 shows the beginning of one of the actual customer journeys, including visualization of the customer experience.

Figure 7 Actual customer journey and user experience

Most of the customers were quite satisfied with the service, despite some minor deviations from the planned journey. Key numbers from the analysis of actual journeys are summarized in Table 1.

ID Job Advertiser	Journey status	Journey duration	# TP in total*	# TP missing	# TP failing	# timing errors	Mean satisfaction
ID 1	Completed	25 days	30	3	-	-	4,9
ID 2	Completed	15 days	26	3	2	-	3,9
ID 3	Completed	10 days	25	6	-	1	3,6
ID 4	Aborted	-	4	-	-	-	5,0
ID 5	Completed	10 days	31	2	-	-	4,8
ID 6	Completed	18 days	28	5	-	-	4,2
ID 7	Completed	22 days	28	5	2	-	3,9
ID 8	Completed	1 day	11	2	-	1	4,3

*) This is the minimum number of touchpoints that were extracted from the analysis, and more touchpoints are probably exchanged directly between the two actors.

Table 1 Summery of key numbers for the actual journeys

In total, seven out of eight Job Advertisers completed their journey and the duration varied from one to 25 days. The total number of touchpoints in a given journey can only be estimated, as the service connects the two actors directly and some interactions happen out of the service provider's control. The total number of touchpoints thus represents a minimum number. On average, the actual journeys consisted of 23 touchpoints with a range from 11 to 31 (discarding the journey that was aborted). All the completed actual journeys included deviations from the planned journey in the form of missing touchpoints, with a range from two to six. Most of these represent lack of response from a Job Performers who had shown interest in the job, or missing reviews after the job was done. Two journeys also has two failing touchpoints and one journey included a timing error. Timing error denotes situations where a touchpoint occurs before or after it should, that is, when permutations occur in the touchpoint sequence. In this case study, timing error was due to the fact the Job Advertiser forgot to register, and thereby signalizing others, that the job was taken until after the job was carried out.

Despite numerous deviations, mean satisfaction was high and all participants intended to use the service again. However, analyses of actual journeys provided insight to the eMarket company about how to improve the service.

Implications of mapping the actual journeys

Feedback on the usefulness of the study for the eMarket company was collected through meetings and e-mail exchange with the service team right after the study was conducted, but also after one year. In the following, we report on the perceived usefulness of the study and the language. Analyses of the feedback were conducted in relation to how employees viewed the value of CJML for mapping and analysing the service in a real context with user experience feedback from actual customers.

The mapping of actual customer journeys provided insight to *what* customers actually went through, and *how* they experienced the different touchpoints. Potential gaps and deviations between the planned and actual journeys were investigated, some that were already known and some that were new. The objective of this investigation was to identify potential patterns of deviations which may inform the redesign process of the service. Examples of such deviations are occurrence of failing touchpoints, missing touchpoints and timing errors (Halvorsrud et al., in press). Also, patterns in customer experience were identified.

In all, the eight Job Advertisers were quite satisfied with the service process, as they did not experience the deviations as serious. Compared to other studies (Halvorsrud et al., in press), the deviations can be seen as minor. However, the journeys involved some tendencies that for the eMarket company was worth taking a closer look at.

Even though the customers were highly satisfied with the service, it became evident that there were some parts and touchpoints of the journey that were prone for improvements. Several of these regarded the communication between the Job Advertiser and the Job Performer. For example, some Job Performers who had signalized interest in the job did not take additional action to contact the Job Advertiser to provide information about themselves and their previous work experience (see Figure 7, customer experience for touchpoint M1). These touchpoints appeared as missing touchpoints, as referred to in the section above. Some of the participants suggested that it should be the eMarket company's responsibility to take a more active part in motivating Job Performers to provide Job Advertisers with this

information. Another example relates to trust in the C2C market. Participants in our study reported that they wanted a way of confirming the identity of the person they were in contact with. Recently, to deal with this issue, the eMarket company has introduced a process for verified ID. Information about verified ID will appear on the corresponding user's profiles, which may enhance the reassurance. Trust among users of C2C eCommerce platforms is of high importance, as it can affect the users' trust in and loyalty to the platform (Chen et al., 2009).

The customers' experience with different touchpoints generated by the eMarket company provided valuable insight into how the users interpreted the information that was sent to them. For some touchpoints, the information was perceived as unclear. The eMarket company are currently improving the information content to make it easier to understand, thus guiding the user and clarifying details that are important for the individual user.

Discussion

Mapping of planned and actual journeys provided the eMarket company with new insight about the C2C service. Since the service was quite new, re-design of the customer journey was ongoing, and the customer journey mapping gave guidelines as to how to make the service more attractive and easy to use. Today, several touchpoint and features in the customer journey has been redesigned, in parts based on the case study results.

Through the case study described in this paper, and through other studies conducted to develop the CJML, the language has proven to contribute value to several aspects of service development. First, service providers have reported to find great value in having a common language for describing customer journeys. CJML is considered to be intuitive and easy to understand for all company employees, regardless of role or educational background. One employee for the eMarket company stated that

> *A common language for identifying the various customer journeys in our company will streamline product development across the different departments.*

The importance of a shared understanding of how to understand customer journeys was emphasised. Furthermore, the CJML is believed to be valuable in finding synergies across a company's departments and marketplaces, so that the users will perceive that the company provides a unified eMarket platform. Second, detailed mapping and documentation of the existing service and customer's planned journey contributes a holistic overview of the service delivery process. In addition, it can provide a useful foundation for re-design of services. One service provider stated the following:

> *The planned journey has been useful as an overview of the customer journey, and I have used it when I have considered changes or value-added features of the service.*

As described in this paper's case study, the planned journey map has also proved helpful when deciding what and when information is sent out to the customers, either it be information from the service provider itself or from external service providers that are part of the overall service process. Third, through analysis of actual customer journeys and gathering knowledge and feedback from real execution of the service delivery process, service providers are able to identify problematic parts of the customer journey. One employee from the eMarket company says:

Through the actual journey maps, we found holes in our customer journeys (e.g. absent touchpoints from our part), and some places where we see that it is possible to misunderstand what we expected the users to do. We gathered this insight and addressed the issues.

Conclusion and future research

In this paper we have described an extended version of the Customer Journey Modelling Language for analysis of planned and actual customer journeys. The application of the language and its ability to inform the re-design of services has been exemplified through a case study in a Norwegian eMarket company facilitating a technology-driven C2C marketplace.

Future research will concentrate on further development of CJML's expressiveness, as well as on structured evaluation of the language. Efforts will be made to develop tools for easy modelling of customer journey diagrams (currently, diagrams can be modelled in Visio and PowerPoint).

Acknowledgment

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