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Improving Service Quality through Customer Journey Analysis

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Abstract

Purpose – The purpose of this paper is to propose a framework based on customer journeys for a structured portrayal of service delivery from the customer's point of view. The paper also introduces customer journey analysis (CJA) for empirical investigation of individual service experiences in a multichannel environment.

Design/methodology/approach – The paper presents case studies for onboarding new customers on broadband services. CJA starts with modeling of the service process in terms of touchpoints. The individual customer journeys are reconstructed through methodological triangulation of interviews, diary studies, and process tracking.

Findings – The paper provides empirical insights into individual customer journeys. Four types of deviations during service delivery are identified: occurrence of ad hoc touchpoints, irregularities in the sequence of logically connected touchpoints, occurrence of failures in touchpoints, and missing touchpoints. CJA seems effective in revealing problematic and incoherent service delivery that may result in unfavorable customer experiences.

Practical implications – For a service company, the proposed framework may serve as a unifying language to ease cross-departmental communication and approach service quality in a systematic way. CJA discloses the gap between the planned and actual service delivery and can be used as a tool for service improvement.

Originality/value – The framework provides concepts, definitions, and a visual notation to structure and manage services in terms of customer journeys. CJA is a novel method for empirical studies of the service delivery process and the associated customer experience.

Keywords: Customer journey, Customer experience, Service quality, Empirical study, Service improvement

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Introduction

Providing customers with quality experiences has been proven to be a sustainable, competitive advantage with a clear financial impact for companies (Fornell et al., 2006). With the rise in the service economy, the success of service providers now depends on their ability to provide customer-centric services (Gustafsson and Johnson, 2003). The importance of perceived service quality (Edvardsson, 1998, 2005) and customer experience (Walter et al., 2010) is widely acknowledged. However, customers' encounters with service providers often represent fragmented and frustrating experiences that manifest as repeated customer service inquiries, low customer satisfaction, and lost revenues (Meyer and Schwager, 2007).

This fragmentation of the service experience has been accentuated by the rapid adoption of electronic distribution channels by service providers in recent years. Services that used to rely on customer interactions with company employees, like banking and travel planning, have largely become online self-services through various types of interfaces and devices. Customers now interact with service providers in a multichannel environment (Sousa and Voss, 2006). They use multiple channels in parallel and frequently switch between them (van Dijk et al., 2007). With the growing tendency of outsourcing elements of the service delivery process, a customer often engages with several complementary service providers (Laing and Hogg, 2008; Tax et al., 2013). The delivery and consumption of services have changed dramatically with profound consequences for all the actors involved (Bitner et al., 2000, 2010; Lin and Hsieh, 2011; Rayport and Jaworski, 2004; Sandström et al., 2008). Consequently, new approaches are needed, not only for the design of services (Stone et al., 2002; Patrício et al., 2008; Bitner et al., 2008) but also for the analysis of service quality (Seth et al., 2005; Ladhari, 2008).

Analyzing services from the customer's point of view

In support of service design, management, and evaluation, various approaches have been suggested to describe and analyze the process of service delivery from the customer's point of view. Over the last three decades, service blueprinting has been commonly acknowledged as a valuable approach for mapping the processes that constitute a service, including the customer's process (Shostack, 1987; Bitner et al., 2008). More recently, the customer journey approach has emerged, whereby the process of service delivery is mapped from the perspective of the customer only (Stickdorn and Schneider, 2011). The customer journey approach is seen as complementary to service blueprinting because blueprinting represents what "an organization plans for a customer, [whereas] touchpoints and journeys represent what actually happens from the customer's point of view" (Zomerdijk and Voss, 2010). This argued complementarity highlights a possible gap between the service delivery process as it is planned by the service provider (and modeled in service blueprinting) and the same process as perceived by the customer (and mapped in the customer journey approach). The discrepancy between planned and actual service delivery is conceptualized in the influential gap model introduced by Parasuraman et al. (1985). This "service performance gap" may be mitigated in several ways (Bitner et al., 2010). However, service providers need insight about the dynamic, subjective experiences of individual touchpoints and the way in which the overall experience is shaped to alleviate customer dissatisfaction (Meyer and Schwager, 2007). Therefore, modeling service delivery from the customer's perspective is an important topic for service providers seeking to improve their services (Teixeira et al., 2012; Tseng et al., 1999).

Contribution of this paper

This paper presents customer journey analysis (CJA), an approach designed to support an integrated study of the service delivery process as planned for the customer by the service provider and as actually experienced by the individual customer. Drawing on the process-oriented nature of customer journeys, CJA represents a new method for an empirical study of the service delivery

process and the associated customer experience. In particular, CJA supports analysis of the gap between the planned and actual process of service delivery, something that is not supported in current service blueprinting or in customer journey approaches. To enable a structured analysis process, CJA is based on the customer journey framework (CJF), which is also presented for the first time in this paper. Through CJF, we extend the notion of customer journeys toward a structured instrument for investigations of service delivery from the perspective of the customer. CJF introduces a conceptual framework for modeling customer journeys in terms of touchpoints. In particular, CJF offers a visual representation of the instrumental, observable dimension of customer journeys, supporting visual modeling of service delivery processes as planned by service providers and as they actually unfold in a real-life setting.

CJA and CJF are the results of research activities and operative experience in Telenor, a global telecommunication company. We demonstrate the applicability of CJA through analysis of service quality in this service organization. The next section introduces related work and the foundation for developing CJF. This is followed by a presentation of CJF, its terminology, and visual notation. After introducing the CJA procedure, the method is applied and exemplified through a case study concerning onboarding new customers on mobile broadband (MB). Finally, we discuss the results and summarize the contributions of CJA, along with suggestions for further research.

Background

Interactions between a customer and a service provider are conceptualized and portrayed differently across academic disciplines. With the growing demand for high-quality service, the concept of customer experience has become increasingly essential. However, there are diverging views on the interpretation and scope of customer or user experience (Palmer, 2010; Johnston and Kong, 2011; Law et al., 2009). One reason for this might be that user experience can be viewed as a phenomenon, a field of study, and a practice of designing user interfaces (Law et al., 2009). A service encounter always results in an experience, regardless of how ordinary or mundane the service may be. Thus, customer experience should not be attributable only for experience-centric services that are designed to engage (Sandström et al., 2008; Johnston and Kong, 2011). In fact, a customer's experience can be satisfying by virtue of being trouble-free and, hence, reassuring (Meyer and Schwager, 2007). User experience research shows that experiences may vary over time depending on the user's internal state and the context in which the artifact is experienced (Law et al., 2009). Consequently, an experience is subjective, dynamic, and context-dependent. Despite the growing activity in user experience research, methodological challenges in capturing the dynamic nature of experiences remain to be resolved (Karapanos et al., 2009). In particular, these methodological challenges concern the need to take into account both the contextual aspects of the service, as well as the sequencing of the events in the service process and how these are perceived and interpreted by the customer (Palmer, 2010). Moreover, because multichannel perspectives on digital services are not prominent in the human-computer interaction (HCI) literature (van Dijk et al., 2007), there is a need to broaden the perspective when addressing long-term experiences in multichannel service environments. The customer journey construct, which focuses on the customer's experiences and explicitly addresses the multichannel nature of services, should therefore be especially suited for the analysis of service quality in multichannel environments.

Service blueprints and customer journeys

Understanding the service delivery process from a customer's perspective is key to the successful design and management of services. The importance of such an understanding has been voiced for decades in the field of service design, which is an interdisciplinary approach to the design and management of services anchored in human-centered and user-participatory methods (Mager, 2009; Stickdorn and Schneider, 2011; Polaine et al., 2013). In particular, Shostack's (1982) pioneering work

on service blueprinting has been important in shaping how the service delivery process is understood and analyzed in service design. Service blueprinting is a method based on flowcharts that visually clarifies the steps involved in a service delivery process. In a blueprint, the process steps being encountered by the customer are visually separated from the backstage process steps, of which the customer may be unaware, but which nevertheless may be crucial for service delivery. As a method, service blueprinting has evolved significantly from its original provider-centric perspective to better emphasize the customer's perspective (Gummesson and Kingman-Brundage, 1992). The versatility of blueprints is evident in the way the methodology has been consolidated with guidelines, case studies, and directions of use (Bitner et al., 2008) and is also extended to support the multichannel nature of modern services (Patrício et al., 2008).

In spite of the versatile character of service blueprints, the customer journey approach has come to represent a complementary, customer-centric perspective on service delivery. The concept of "customer journeys" has spawned a wide range of approaches aimed at following a customer throughout a service delivery process, that is, a "walk in the customer's shoes" (Holmlid and Evenson, 2008). Customer journeys (or alternately, customer journey maps) are visual representations of events or touchpoints depicted chronologically, often accompanied by emotional indicators. Customer journeys are one of the most used visualization techniques within service design (Segelström, 2013) and have been used extensively in recent years in the design of public and commercial services (Crosier and Handford, 2012).

Despite the widespread use of customer journeys, few publications have addressed a formalization of the methodology, apart from the contribution by Koivisto (2009). Existing approaches to customer journeys in the literature appear quite diverse and are focused more on anecdotes and emerging customer stories rather than methodology (Segelström, 2013). When we refer to "the customer journey approach," then, we mean the commonalities these diverse approaches have in the goal of following the customer through the service delivery process. Currently, the customer journey approach appears to serve as an inspirational approach for fostering customer orientation rather than as a validated tool to support the design and assessment of services.

Other process-oriented methods

The critical incident technique (Bitner et al., 1990) has been widely adopted in studies of service encounters. Here, customers are interviewed about particularly satisfying and dissatisfying events to identify the drivers and underlying patterns of customer (dis) satisfaction. The sequential incident technique (SIT) considers the process dimension of services and also includes noncritical service encounters (Stauss and Weinlich, 1997). In SIT, the sequence of incidents or "customer path" is established through a survey of former customers, and then other customers assess the incidents through retrospective interviews. Sequence-oriented problem identification is a related approach that emphasizes negative incidents (Botschen et al., 1996). Further, service transaction analysis (STA) is an alternative process-oriented approach based on service walkthroughs for examining services from the customer's perspective (Johnston, 1999). The identification of process steps is necessary for comparative studies of service experiences among individuals. SIT accommodates a common set of process steps, whereas in STA, the steps are defined by the individual customer and thus might suffer from recall bias, the influence of critical moments, or the omission of essential parts of the service from the analysis.

Methods from the HCI domain are pertinent when investigating interactions and experiences that extend over time. The iScale method enables users to sketch their experience of a product over time (Karapanos et al., 2010) but is based on a retrospect approach. In studies adopting the day reconstruction method, participants record their activities on a daily basis using a diary (Kahneman et al., 2004). This bypasses potential recollection problems but has a wide scope and is labor-intensive for participants. A recent review reveals that most empirical user experience methods rely on

retrospective evaluation (Bargas-Avila and Hornbæk, 2011) and are not accommodated for long-term experiences in multichannel environments.

The need for a new approach

Ideally, because a customer journey map is a representation of the service delivery process as experienced by the customer, it should overlap with the customer and onstage actions of a detailed service blueprint. However, deviations are common in a service delivery process, and so there may be substantial discrepancies between what is planned by the provider and what is actually experienced by the customer. In her seminal paper on the design of services, Shostack (1982) emphasized the need to distinguish two different states of a service: the potential state described by the blueprint and the kinetic state, that is, the actual rendering of the service, which will be referred to hereafter as the static and dynamic states, respectively. Distinguishing the two states is important when assessing deviations from a blueprint during execution of a service. Blueprinting enables preemptive problem solving through the identification of potential fail points (Shostack, 1984). However, though the service blueprint provides valuable support for analyzing the static state of a service, blueprinting does not support analysis of the actual rendering of the service on an individual level. Rather, as advised by Bitner et al. (2008), in service blueprinting, a service should be mapped in the way it happens most often.

Within the customer journey approach, there is a lack of support for analyzing the actual rendering of a service and comparing this rendering to its potential state. In the current literature, customer journey maps for existing services tend to represent hypothetical or aggregated journeys rather than the service process as experienced by individual customers (Crosier and Handford, 2012; Trischler and Zehrer, 2012). Though customer journey maps typically include information on the emotional experience of the customer throughout the service delivery process, this information is not typically associated with the service delivery process as it has unfolded for an individual customer.

The Customer Journey Framework (CJF)

Principles and modeling approach

CJF was developed through an iterative process. It was based on design principles derived from needs identified in the previous section and combined with experience accumulated through operative work and case studies. This development process represents a design-science approach (Hevner et al., 2004); the development is grounded in the need for a purposeful and formally represented artifact, in the form of a modeling approach, to find an effective solution to a specific business challenge. Further reflecting the guidelines of design-science, CJA aims to contribute research rigor by its methodological triangulation. Evaluation of CJF is provided through a case study approach where the usefulness of CJF is demonstrated. The design principles governing CJF are summarized in Table I.

The process-oriented portrayal of services is particularly beneficial for standardized services that are repeated in high volumes (Lillrank, 2009) as it enables decision-makers to explicate and control existing process (Shostack, 1987). Some form of abstraction is inevitable when modeling a service. Service companies often conceptualize service delivery as customer journeys consisting of interconnected touchpoints (Zomerdijk and Voss, 2010). However, the granularity and constituents of each touchpoint are highly variable, and they are far from standardized. With CJF, we introduce a new approach to customer journeys, where commonalities in the service process form the basic units in regard to observable communication events toward the customer. Describing a service process in terms of its “common denominator” promotes unambiguity in service characterization and brings rigor and formalism to customer journeys. It serves as a reference body, against which service execution can be measured. This will be elaborated in the following sections.

Principle	Description
Principle 1: Be customer-centric	CJF is based on the customer's perspective. CJF encompasses service delivery as it is experienced by customers.
Principle 2: Be precise	CJF relies on precise definitions and models of customer journeys and touchpoints.
Principle 3: Distinguish planned and actual customer journeys	CJF distinguishes the static and dynamic states of a service, corresponding to planned and actual customer journeys, respectively. CJF enables the identification of gaps between planned service delivery and actual delivery on an individual level.
Principle 4: Distinguish objective and subjective factors	CJF distinguishes conceptually between the objective, observable attributes of a journey and the subjective, context-dependent customer experiences evoked during the journey
Principle 5: Provide visual representation	CJF is supported by a visual notation that encompasses the instrumental properties of the journeys and aims to ease communication and cross-departmental understanding in a service organization.

Table I. Design principles governing CJF

As mentioned earlier, customer experiences are inherently personal and unique; it is therefore highly important to model customer journeys on the level of individual customers. CJF is a conceptual framework that allows for comparison of an individual journey against the planned journey and comparison across a sample of individual journeys.

CJF was developed for the modeling of transactional services governed by well-defined tasks connected through a logical sequence. Such services are denoted as technology-based services (Sandström et al., 2008) or supplier-dominated services (Fließ and Kleinaltenkamp, 2004), in contrast to experience-centric and labor-intensive services (Zomerdijk and Voss, 2010). CJF primarily targets the service delivery process (Edvardsson and Olsson, 1996) that precedes or encompasses the service outcome.

Terminology

Touchpoints, channels, and customer journeys are the building blocks of services (Parker and Heapy, 2006; Stickdorn and Schneider, 2011; Clatworthy, 2011). While the term “touchpoint” is commonly used among practitioners, it was introduced quite recently into the academic literature (Bitner et al., 2008), often as a substitute for “service encounter,” which was introduced in the 1980s by Surprenant and Solomon (1987). Zomerdijk and Voss (2011) described touchpoints as “moments of contact between the customer and the organization.” The term is sometimes used interchangeably with “communication channel,” although the interpretation of touchpoint as an event seems to dominate (Clatworthy, 2011). Terms like “contact point” (Stauss and Weinlich, 1997), “service event” (Lillrank, 2009), “moment of truth,” (Carlzon, 1989) and “service moment” (Koivisto, 2009) appear as synonyms for touchpoints.

Service providers communicate or interact with their customers through the use of customer channels (Osterwalder, 2004; Sousa and Voss, 2006) or alternately, service interfaces (Rayport and Jaworski, 2004). CJF adopts the term channel to denote a medium used to convey communication and interaction between a customer and a service provider. Examples of customer channels are call centers, e-mail, SMS, chat, and face-to-face conversation. Channels are the carriers of touchpoints, and they can be digital (e.g. e-mail), human-served (e.g. a desk in a shop), or a combination of the two.

In CJF, we define touchpoint as an instance of communication between a customer and a service provider. The touchpoint must meet the following criteria: it must be visible to the customer, that is, if the customer does not encounter it in any way, it is not a touchpoint; it must be a discrete event

that can be appointed in time; and it must involve communication or interaction between the customer and a service provider. A touchpoint is characterized by a set of attributes (see Table II). The initiator of a touchpoint is the customer or the service provider, but it can also be a complementary service provider involved in the service delivery. A touchpoint is a discrete event that takes place at a certain time. This attribute reflects the time of the customer's encounter, which for asynchronous channels may differ from time of dispatch. A touchpoint is mediated by a customer channel that can be specified. Most touchpoints leave some kind of trace, like any physical or digital content emerging as the result of the touchpoint (e.g. an entry in the call log of a cell phone). With the given definition of a touchpoint, communication originating from a company must be directed toward an intended receiver. This excludes elements like advertising and broadcast commercials from being "true" touchpoints in CJF, although we acknowledge that such activities may be highly influential on the customers' behaviors and experiences. Touchpoints, as defined in CJF, represent discrete communication events, much in line with the influential communication model introduced by Shannon and Weaver (1963), where a sender (CJF: initiator) transmits a message (CJF: touchpoint) to a receiver through a channel.

Term	Definition
Touchpoint	Instance of communication between a customer and a service provider Touchpoint attributes - Initiator: customer, service provider, or subcontractor - Time: time when a touchpoint is encountered by the customer - Channel: carrier/mediator of a touchpoint - Trace: content emerging as a result of a touchpoint
Customer journey	Customer's interactions with one or more service providers to achieve a specific goal Customer journey types - Planned journey: the hypothetical journey reflecting the service delivery process (static state) - Actual journey: the individual journey that occurs during execution of a service (dynamic state)

Table II. CJF terminology

Customer journeys are interpreted in different ways in the literature, for example, as an "engaging story" about user's interaction with a service (Stickdorn and Schneider, 2011), or as an illustration of how a customer "perceives and experiences a service interface along the time axis" (Miettinen, 2009). Customer journeys are also described as a series of interconnected touchpoints (Koivisto, 2009). Despite the prevalent use of the term, there are not many definitions in the literature. In CJF, a customer journey is defined as a customer's interactions with one or more service providers to achieve a specific goal. It is often used as an intuitive metaphor for a customer's perspective of a service process. A customer journey is modeled as a sequence of consecutive touchpoints; in terms of duration, it can be short (hours) or long (weeks), depending on the service being investigated.

CJF distinguishes planned customer journeys and actual customer journeys, corresponding to the potential and kinetic state of a service, respectively, as suggested by Shostack (1982). The planned customer journey reflects the service process as it has been planned by the service provider. Here, we have adopted a normative modeling approach (Lillrank, 2009) to reflect the service process as it has been implemented in the company, regardless of whether it has been deliberately designed or evolved through an ad hoc approach. In the static state, several alternative journeys often serve customers' goals due to parallel channel choices or decision points resulting in branching of the process flow. This corresponds to the "executional latitude" of (Shostack, 1987) or the "permutation of journeys" in Rawson et al. (2013). During execution of the service, the actual journey is instantiated as the service unfolds in time. In this dynamic state, touchpoints are denoted "expected" when reflecting the corresponding touchpoint in the planned journey. Oppositely, an "ad hoc"

touchpoint denotes an unexpected touchpoint or deviation. A touchpoint with an unwanted outcome is called a "failing touchpoint." A second type of deviation is when a touchpoint is absent in the journey; these are referred to as "missing touchpoints."

Visual notation

Visualizations are used extensively in service design to translate data into insights and as a communication tool (Segelström and Holmlid, 2009). Visual representations differ from textual languages in that they encode information using spatial arrangements of graphic elements and are effective because the information is processed in parallel by the human visual system (Moody, 2009). The visual notation in CJF was developed through an explorative approach, aiming to represent both planned and actual journeys in a simple and intuitive way and to emphasize potential gaps between them. The notation governs the instrumental, objective part of a customer journey. The notation thus represents observable communication events as a chain of touchpoints which a company can manage and control. As will be demonstrated in this paper, rich qualitative data on customer experience are captured by CJA during actual journeys, but these data are kept separate from the visual notation. However, hints about customer experience may be seen implicitly in the notation in the form of failing touchpoints, sequence errors, and other deviations.

Gustafsson and Johnson (2003) offered an early visual representation of a service as a chain of interconnected circles. The CJF notation is a refinement of this notation. Touchpoints are represented as circular elements, and touchpoint status and attributes are codified in the boundary style and the enclosed circle area. The color of the touchpoint's circumference reflects the initiator of the touchpoint: the customer (orange) or the service provider (blue) (see Figure 1). Generally, the use of color is cognitively effective in coding information (Moody, 2009), although other visual cues may be provided to distinguish actors when needed. The symbol in the interior of the circle represents the communication channel mediating the touchpoint. We chose intuitive symbols offering an immediate association as to what type of touchpoint was represented. Although the effectiveness of the chosen symbols has not been formally evaluated, the assumption that consistent use is more important than the choice of symbol itself (Brown, 1988) has been justified through operative experience. In the case of repeated occurrences of similar symbols, contextual cues in the form of subsymbols were added. An overscored touchpoint was used to indicate a failure, such as a missing letter or an unsuccessful installation attempt.

Figure 1. Visualization of touchpoints

Figure 2 shows a principal sketch of planned and actual customer journeys in CJF. Planned journeys are shown as an interconnected sequence of touchpoints (Figure 2a). The touchpoints are labeled consecutively with an identifier (T0,T1, etc.) according to the order in which they are planned to occur. For an actual journey, the dynamic state is emphasized by a gray horizontal arrow, which extends in the direction of time (Figure 2b). As the journey unfolds in time, the expected touchpoints are superimposed onto the arrow, and deviations that occur are displaced vertically under the preceding touchpoint for easy comparison. The actual journey proceeds as expected through the three first touchpoints, then an ad hoc touchpoint occurs as a deviation (D1). Deviations from the planned journey are immediately available as a gap in the vertical direction.

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A timing error occurs when a touchpoint occurs before or after it should, that is, when permutations occur in the touchpoint sequence. The visual notation for timing errors is exemplified in the case study (see Figure 6). Different diagrams were used to express factors such as timing. Here, the touchpoints were separated in a horizontal direction, proportional with the timing. For simplicity, subcontractors are not distinguished from the main provider in the diagram. When the exact timing of the touchpoints is essential, the representations may be changed so that the inter-touchpoint distance in the horizontal direction becomes proportional to the elapsed time. The presented notations do not support the concurrency of touchpoints.

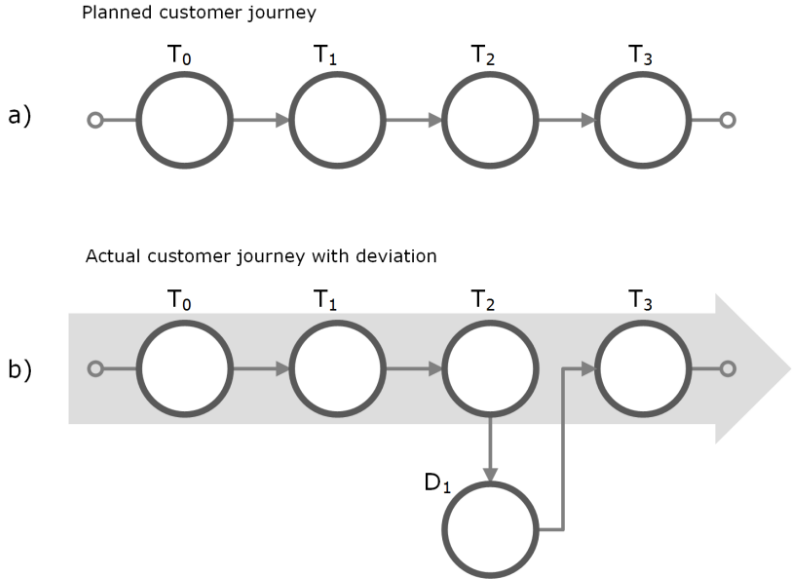

Figure 2. Visualization of customer journeys: a) planned journey; b) actual journey

Customer Journey Analysis (CJA)

CJA has been developed for empirical investigations of service delivery processes from the customer's perspective, and it adopts CJF's concepts and modeling approach. CJA draws on a case study approach (Yin, 2009) involving an examination of experiences and phenomena in their natural context using multiple data sources, and it emphasizes qualitative data and analysis (Lazar et al., 2010). The CJA procedure is divided into five phases, as illustrated in Figure 3. Phases 1 and 2 establish a common understanding of the target of the analysis, and to identify and model planned journeys. Phases 3 and 4 concern data collection and reconstruction of the corresponding actual journeys. Finally, Phase 5 is devoted to systematization of results and deviations across the study.

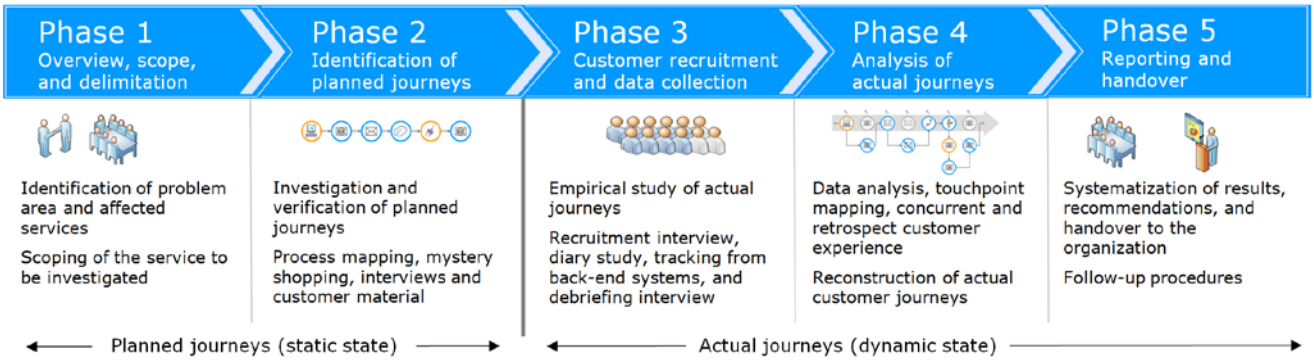

Figure 3. The five phases of the Customer Journey Analysis (CJA) procedure

Phase 1: overview, scope, and delimitation

The objective of Phase 1 is to establish an overview of the case, as well as its scope and delimitation. Phase 1 starts by investigating the circumstances or symptoms that elicited the need for CJA together with representatives of the units involved in the delivery, operation, and support of the service. Variability of the target service process, such as parallel channel options, is explored on a high level to gain an overview of parallel or related customer journeys. The scope of the analysis is gradually formed as target customer segments, channels, or other criteria are established. Start and endpoint of the target journeys are defined, and support from the operative units are established, if needed.

Phase 2: identification of planned journeys

The objective of Phase 2 is to identify the relevant journeys as seen from the perspective of the service provider. That is, CJF is used to identify, model, and verify the service delivery process in terms of planned customer journeys. The service is investigated from an outside-in perspective through interviews, with, for example, representatives from customer service and customer relationship management (CRM), walkthroughs of customer-facing material like e-mails or letters, as well as mystery shopping (van der Wiele et al., 2005). In parallel, a structural walkthrough of the back-end processes is carried out through workshops with experts on system architecture and operations. Methods like basic flowcharting, service blueprinting (Bitner et al., 2008), or more general process analysis (Lillrank, 2009) are used. In the case of complex and highly divergent services, perhaps even encompassing subcontractors, the service process may be investigated on a higher level of abstraction, as long as entities in direct contact with the customer are in focus. Nevertheless, this insight is used for establishing appropriate routines when monitoring the progress of the actual journeys during Phase 3.

Phase 3: customer recruitment and data collection

The objective of Phase 3 is informant sampling and data collection. Customers satisfying case-specific selection criteria are recruited by interview to participate in the study shortly after they have encountered the journey's initial touchpoint (T0), as shown in Figure 4. The sampling strategy will be dependent on the case in question. For example, if a key objective of the case is to identify typical problems and customer pain points in the journey, a relative low number of informants is required. In the field of HCI, it has been shown that usability evaluations even with as few as ten informants may serve to identify the majority of relevant problems in an interactive system (Hwang and Salvendy, 2010), though some evaluations may require more informants due to greater variation in the population (Schmettow, 2012). Likewise, identification of key problems in a customer journey, as basis for insight needed for change, may require relatively few informants. However, if the objective of the case rather is to provide a conclusive overview of typical experiences for a given customer journey, data saturation may require larger samples.

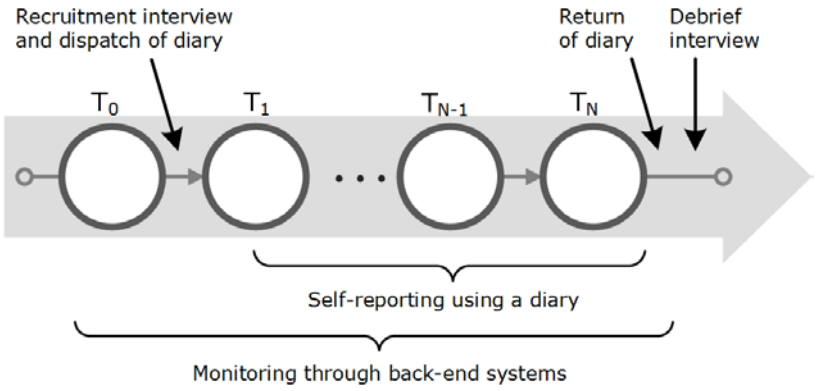

Figure 4. Principal sketch of the CJA method

The recruitment interview enables inquiries concerning the first touchpoint(s) and the customer's expectations toward the journey ahead. It is crucial to explicitly communicate that any outcome of their journeys is relevant and valuable, which prevents informants from leaving the study if they chose to abort their journey. For the same reason, remuneration for their efforts must be provided independently of journey outcome. For the remaining journey (T1-TN), an event-triggered (Wheeler and Reis, 1991) diary study is conducted, in which informants report when a defined event occurs. The informants are not asked to address "touchpoints" literally, but to report on "any sort of events or communication with the company." The diary should support separate input fields for touchpoint attributes (date, time, and channel), description of the event, rating of each event, and suggestions for improvement. A diary approach is selected, as customers may not recall all the steps involved in a long-term process (Chase and Dasu, 2001). The diary study is complemented with service process data from back-end systems. Each informant's journey progress is monitored. Finally, the actual journeys are reviewed in detail through a debriefing interview. This enables a comparison of the immediate assessments from the diary with the retrospect assessment collected during the debriefing interview, allowing for triangulation between these two data sources.

Phase 4: analysis of actual journeys

The objective of Phase 4 is to analyze and model the data collected in Phase 3. A separate model of the actual customer journey is established for each individual informant, for comparison with the planned journey. During analysis, data from the recruitment interview, the diary study, back-end systems, and the debriefing interview are triangulated. The touchpoints are modeled in the order they occur for the particular customer, supplemented by instrumental properties (initiator, time, and channel), and collated with the corresponding diary entries and scores, comments elicited in the debriefing interview, and the retrospect scores. Together, this information provides a detailed model of the actual course of the service process on an individual level, both in terms of instrumental attributes (visualized) and in the customer's own words. Deviation from the planned journey can be readily seen from the visual notation. The visualization may be augmented with key customer comments.

Phase 5: reporting and handover

In Phase 5, potential gaps between the planned journeys and the actual journeys are further investigated across the study. The objective of this investigation is to identify potential patterns of deviations across the informants. Patterns of deviations are revealed as appearance of ad hoc touchpoints at specific places in the journeys (type 1), deviations in the sequence of touchpoints caused by timing errors (type 2), repeated occurrence of failing touchpoints (type 3), and repeated occurrence of missing touchpoints (type 4). Potential correlations between these types of deviations are also addressed, for example, if a failing touchpoint is followed by inquiries to the call center. Each pattern of deviation is analyzed with the objective of identifying underlying issues and suggesting mitigations.

The reporting from the analysis contains a model of the planned journeys, models of individual journeys and the underlying qualitative data, key issues and systematic deviations observed across the study, and a list of prioritized issues with explanations and suggested mitigations. Prioritizing among deviations is done on the basis of assumed frequency and severity of the issues, as well as assumed feasibility of mitigation. When presenting and handing over the results to the recipients, follow-up procedures are established in order to track and assess the impact of the company's implementation of recommendations.

Application of CJA for service improvement

Telenor serves customers through several parallel channels such as retail stores, call centers, websites. Some of the onboarding journeys are complex, as they involve multiple channels and take

place over an extended period of time. Since 2009, a number of CJA studies have been conducted in Telenor to establish the "as-is" picture of the service delivery as a foundation for service improvements and future redesign. The motivation behind most studies has been to reveal reasons for a high number of customer inquiries, or a high churn rate.

The following section contains a detailed walkthrough of a case study in which the CJA procedure is adopted with regard to onboarding new customers on a MB service in a Scandinavian market. The results of this study and methodological considerations are discussed. The intention is to demonstrate the appropriateness of a model-based approach to customer journeys and, in particular, the applicability of CJA for service improvement. Key numbers from this case study is presented in comparison to a similar case study that was conducted on a fixed broadband (FB) service.

Analysis of the mobile broadband (MB) journey

Phase 1: overview of MB onboarding and scoping of the analysis.

The lack of FB infrastructure, especially in rural areas and emerging markets, represents a major revenue opportunity for telecom operators. The expected growth in the uptake of MB motivated the company to use CJA. The purpose of the analysis was to detect potential weak points in the onboarding journey for new MB customers. This purpose was seen as particularly critical, as the service delivery process governing MB was known to be complex and thus potentially prone to customer issues. MB in this context refers to wireless internet access delivered to a portable PC through a USB device containing a SIM card.

When visiting a retail store, prospective customers acquire all the necessary components simultaneously: the USB modem with an installation guide, a SIM card to be inserted into the modem, and a PIN code. For journeys commencing from the call center or the online shop, the physical equipment and material is distributed through e-mails, letters, and postal packages. These journeys were more challenging in terms of duration and the number of touchpoints involved. The call center was chosen as the target, by virtue of the high volume of sales. To ensure a homogeneous sample of journeys, the following criteria were set: consumers only, new customers only, and no product bundling. The scope of the analysis was set from the point of purchase until one week after installation.

Phase 2: identification of MB planned journeys.

The service delivery process was found to be complex, as it consisted of a number of touchpoints, some of which involved a subcontractor. Examination of the planned journeys started with a structured walkthrough of the service process with the product owner group. The drafted journey was refined in an iterative manner with supplementary information obtained by consulting representatives from the call center, the CRM and operation groups, and the system architects. The model was further complemented with insight acquired through mystery shopping activities.

Figure 5 shows the planned MB journey commencing from the purchase through the call center (marked by T0). After the purchase, a customer encounters seven separate touchpoints before installation can be completed, all initiated by the service provider or a subcontractor. These touchpoints are steps taking customers through confirmations, dispatch of material needed, and installation. First, customers receive e-mails that confirm both the purchase and the dispatch of hardware, respectively. A welcome letter informs about price plans and the process ahead. Next, a letter containing the SIM card is expected. The accompanying PIN code is provided in a separate letter. This is followed by a package containing the modem and an installation guide. A separate invoice for hardware and freight is then received. The journey is finalized as the customer installs the product and goes online with the newly established MB connection. Two of the touchpoints

emerging from the subcontractor (T2 and T7) were not identified through process mapping with the main provider. They were revealed through mystery shopping.

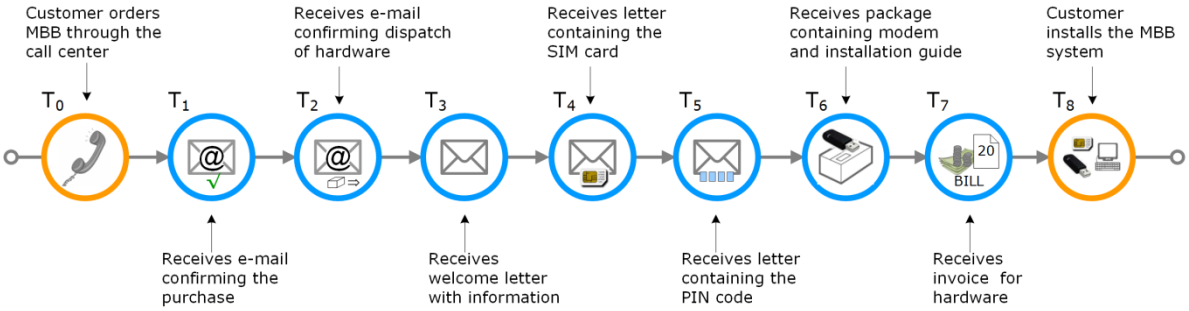

Figure 5. A model of the planned customer journey for mobile broadband (MB)

Phase 3: recruitment of MB customers and data collection.

Recruitment interviews were conducted by telephone 12-24 h after the purchase to gain insight into the customer's motivation, expectations, and activities in close proximity to the purchase. A semi-structured interview technique with follow-up questions was used (Lazar et al., 2010). Informants were invited to make chronological notes in a paper-based diary throughout the remaining journeys, and remuneration was offered in the form of universal gift cards. The individual journey's progress was monitored through back-end systems by systemizing information from call center logs, dispatch logs, and internet traffic data.

Through a debriefing interview, the actual journeys were reviewed and reconciled with diary notes. The interview was initiated with an informal dialogue where customers could express immediate thoughts and possible frustration. This was followed by a structured walkthrough of the journey from T0 in a forward chronological order. Touchpoint attributes were collected together with experiential data, rating of perceived touchpoint quality, and suggestions for improvement. Contextual follow-up questions were used to supplement incomplete diary entries and to elicit information about ad hoc touchpoints. The last part of the interview addressed cross-channel consistency and overall impression of the onboarding process.

Customers matching the target criteria were contacted by telephone in the first 12-24 h after their purchase (T0). In all, 39 customers were recruited for diary studies. The age distribution ranged from 22 to 71 years, and the average age was 48 years. The gender distribution was even. Approximately 59 percent of the informants (23 of 39) returned their diaries and were interviewed a second time. Among the 23 actual journeys researched, 16 journeys were completed in the sense that the customer relationship with the company persisted throughout the onboarding period with an established subscription line.

Phase 4: analysis of MB actual journeys.

The actual journeys were reconstructed on an individual level by triangulating data from the interviews and the diaries. Data fragments were transcribed and compiled into a spreadsheet. Touchpoints were extracted and sorted chronologically according to the time they were encountered by the customer. The touchpoints were then collated with the corresponding diary fragments (concurrent experience and scores) and debriefing comments (retrospect experience and scores). The instrumental part of the journeys was visualized with reference to the planned journey for easy detection of deviations.

Figure 6 shows a model of the actual journey for a 49-year-old female customer who experienced several deviations and timing errors. Table AI provides excerpts from her diary and the two interviews. Here, we emphasize the deviations with reference to the planned journey as shown in Figure 5. The journey proceeds without any problems through the first-three touchpoints, but she

does not receive the welcome letter (D1) that explains the procedure ahead. The SIM card arrives as expected; however, a timing error occurs and she receives the package with the modem before the PIN code is made available for her. After receiving the invoice, she fails in her attempt to install the system (D2) due to the missing PIN code. Next, she contacts the call center (D3) and receives the PIN code. The second installation also fails (D4). She brings her laptop and the technical components to a local electronic retail store (which is not involved in the service delivery) to seek assistance (D5). A service-minded employee successfully installs the product (D6) on her computer. Later, a new problem occurs as the customer tries to update the PC software, and she cannot go online again (D7). The same day, she receives the delayed PIN letter. The MB subscription line is re-established, again aided by the retail store (D8 and D9).

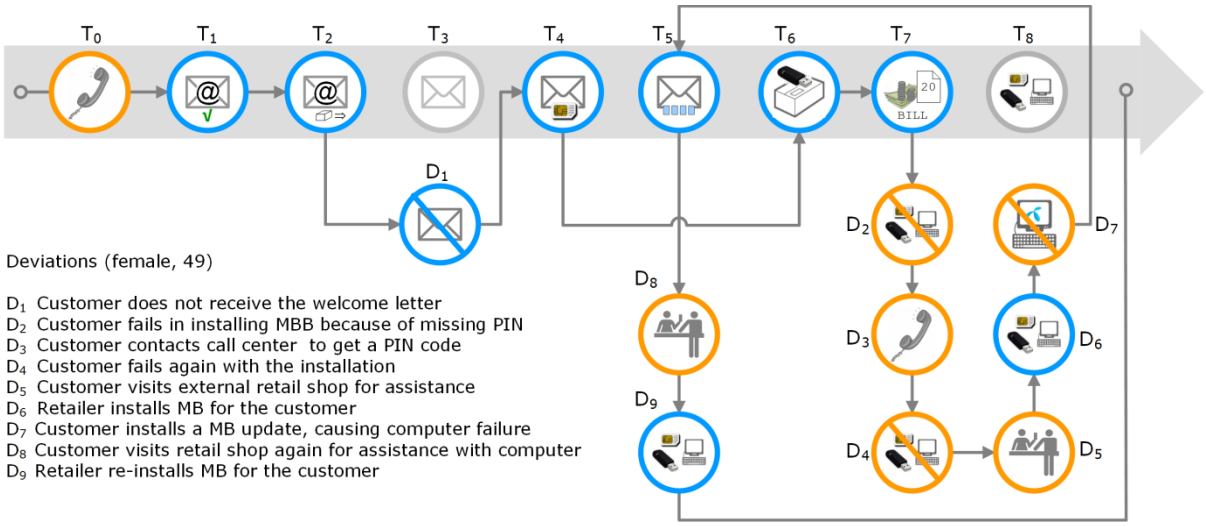

Figure 6. A model of an actual MB journey with several deviations and timing errors

The duration of the journey from purchase until the first successful installation is only five days. During the debriefing session, the customer rated the overall service experience "good" on a three-point scale (good/medium/poor), although several individual touchpoints were rated "poor." She was also satisfied with the individual touchpoints except the SIM letter (rating: medium), which failed to mention the PIN code, and the phone call to customer service, which she found frustrating (rating: poor). The root cause of the problems in this journey was primarily the missing welcome letter (which would have explained that a PIN code was needed for installation) and, to a lesser degree, the delayed PIN letter.

Phase 5: reporting and handover of the MB case study.

In all, 23 individual customer journeys were reconstructed in this study. A total of 270 touchpoints were identified. The mean journey duration was 12 days for the 16 individuals who completed their onboarding process. Figure 7 shows an overview of the completed journeys. The average number of touchpoints in these journeys was 12 (range 9-19), corresponding to an extra three ad hoc touchpoints per customer.

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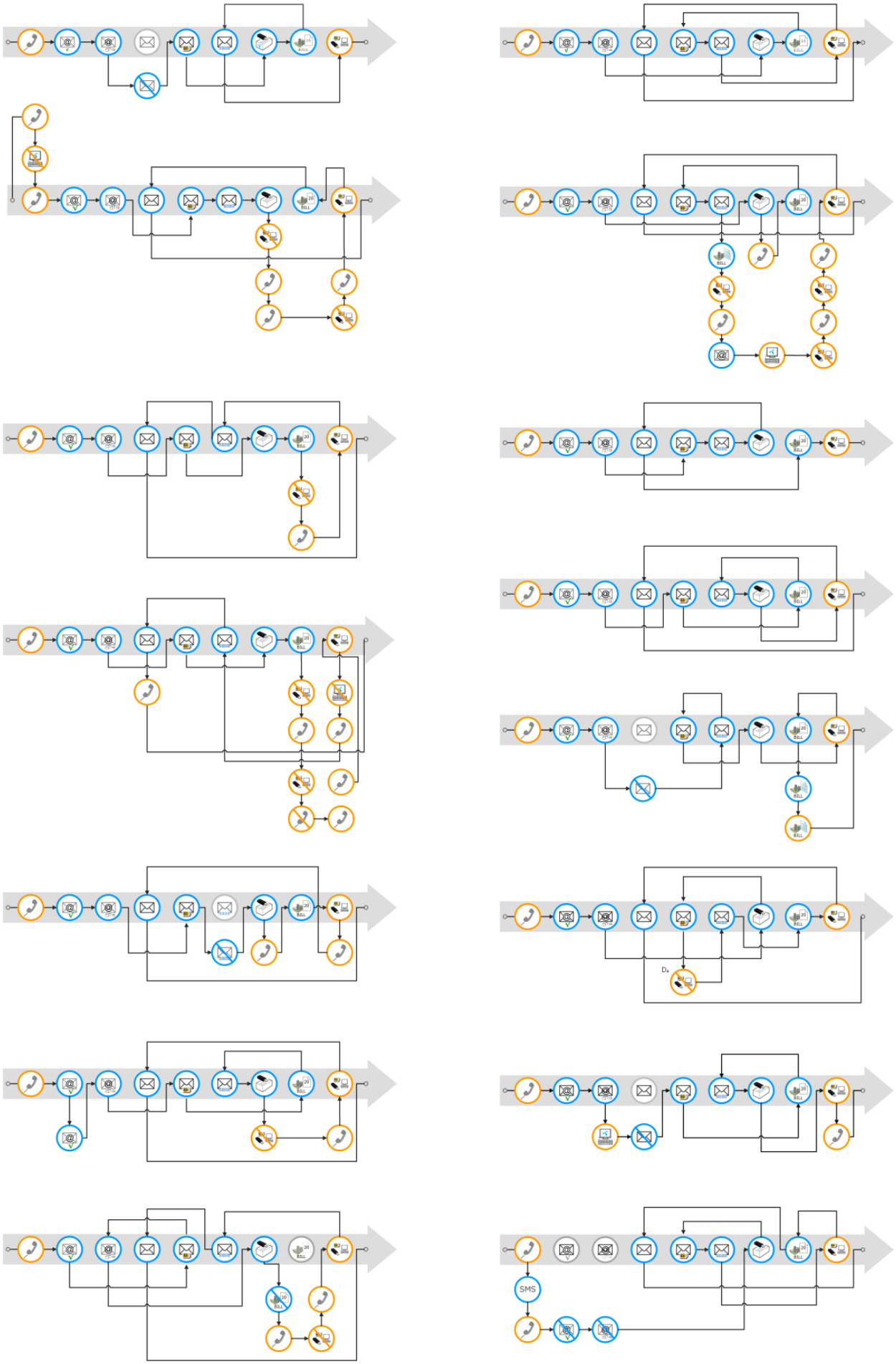

Figure 7. An overview of the individual journeys in the MB case

The actual journeys were characterized by the numerous deviations from the planned journey in terms of ad hoc touchpoints and timing errors. Remarkably, all the customers experienced deviations, and none of the journeys was consistent with the planned journey. Furthermore, none of the journeys were mutually consistent, that is, all the actual journeys were unique. Patterns of systematic deviations were identified from the models. Ad hoc touchpoints occurred during installation, as about half of the customers contacted the call center for assistance (type 1). Timing errors occurred in most cases, as the welcome letter were delayed substantially (type 2). Repeated occurrence of failing touchpoints, as half of the customers experienced failure during installation (type 3). Only a few customers experiences deviations of type 4, in the form of a missing welcome letter. The high occurrence of ad hoc touchpoints was strongly correlated with timing problems in the journeys. On average, each journey had more than three timing errors. The analysis revealed an error in the dispatch procedures governing the welcome letter, which led to a consistent delay. As a result, the customers were not informed about how or when to receive the PIN code, with unsuccessful installation attempts as a consequence. In all, 23 customer inquiries were made to the call center (1.4 per customer), and most of these were related to the delayed welcome letter or a missing PIN code. Despite these difficulties, the majority of the customers found the overall experience satisfactory: 11 of 16 customers rated the experience "good," four rated it "medium," and one customer rated it "poor." About two-thirds of the customers perceived the journey flow as satisfactory, although many commented that it was "too much information" or "too many steps."

General results

The procedure of the MB case study was also applied to a similar onboarding service concerning FB. Key numbers from these case studies are summarized in Table III. In all, 32 customers (16 in each case study) completed their onboarding journeys. While the planned FB journey consisted of seven touchpoints, the actual journeys ranged from 7 to 15 touchpoints. Correspondingly, the planned MB journey consisted of nine touchpoints, and the longest actual journey included 19 touchpoints. On average, the actual journeys consisted of 9.5 and 12 touchpoints, which corresponded to an extra 2.5 and three ad hoc touchpoints per customer in the two case studies, respectively. Only one single journey across these cases was consistent with the planned journey.

	Journeys mapped	Journeys completed	Journeys consistent	# TP[1] in the planned journey	# TP in the actual journeys (range)	# TP in the actual journeys (mean)	Journeys with timing errors
MB case study (mobile broadband)	N = 23	16	0	9	9–19	12	22
FB case study (fixed broadband)	N = 21	16	1	7	7–15	9.5	5

1) #TP = number of touchpoints

Table III. Key numbers from two customer journey analyses of mobile and fixed broadband services

Timing errors in the touchpoint sequence were abundant in the MB case and were found to correlate with the occurrence of ad hoc touchpoints. In general, the consequences of timing errors strongly depended on the context in which they occurred. Some timing errors were harmless (e.g. the sequence of two confirmation e-mails), while others caused customer frustration and need for assistance (e.g. the PIN code arrived after an installation attempt). From a general point of view, we argue that the observed variability in the instrumental properties, e.g., deviations and timing errors, is not beneficial but merely a symptom of suboptimal service delivery processes.

Customers did not retrospectively experience all deviations from the planned journey negatively. Bitner et al. (1990) have demonstrated that service failures can be turned into a satisfying experience when carefully compensated by employees. With services characterized by self-service and automated processes, however, a company may lose the "personal touch" that can smooth over deviations and failures during service delivery. Consequently, a satisfactory service experience becomes even more dependent on a well-designed and consistent delivery system.

Impact of the case study

A comprehensive case report documenting cross-study results and in-depth description of the individual journeys was presented to all units involved in management, delivery, and support of the service, as well as to management groups at various levels in the company. A cross-departmental task force was appointed to clarify process ownership and to mitigate fail points and systematic deviations. One of their immediate actions was to ensure a correct dispatch of letters and improve routines for handover between the involved units and subcontractors.

Perhaps the most important outcome of the analysis was an increased awareness of the lack of customer focus and insight into the overall service experience, as well as the lack of a deliberate design of the service. The following quote from a product owner was typical of the responses we received: "CJA clearly shows what the customers really experienced and makes it possible to make conscious choices of how to respond." The following quote from a customer service representative is also illustrating: "Finally we can understand what customer experience is, and approach it in a systematic way." A re-investigation of the MB onboarding journey a year later revealed a significant decrease in timing errors and a reduced number of customer inquiries to the call center, thus eliminating pain points for the customer and reducing cost for the telecom operator.

Methodological limitations and opportunities

Reconstruction of individual customer journeys relies on a methodological triangulation of interviews, diary studies, and process tracking from back-end systems. A challenge with paper-based diaries is to achieve sustained documentation throughout the reporting period (Carter and Mankoff, 2005). In general, we observed under-reporting of touchpoints throughout our studies, and the wordiness of the entries was quite variable. In the MB case study, we found that 54 percent of the touchpoints were accounted for in the diaries. However, when considering ad hoc touchpoints in isolation, the corresponding coverage increased to 70 percent. This indicates that the deviations from the planned journey were perceived as more memorable than the planned touchpoints. Particularly, the ad hoc touchpoints were associated with higher levels of dissatisfaction when compared with the planned touchpoints. These findings accord with the fact that people who experience a sequence of events tend to recall only a few significant moments, especially problematic moments (Chase and Dasu, 2001). Clearly, the use of a customer diary in isolation would be insufficient to reconstruct actual journeys. Nevertheless, the diary was essential in revealing ad hoc touchpoints that did not intercept the back-end systems.

In particular, the use of diaries provided an opportunity to compare a customer's immediate touchpoint experiences with the retrospect evaluation obtained through the debriefing interview. In the MB case, 49 touchpoints were evaluated twice. Approximately 25 percent of the touchpoint ratings were inconsistent in the two evaluations, with a clear tendency toward being less negative in the retrospective evaluation. Interestingly, we observed customers experiencing quite problematic journeys but still being very satisfied when addressing their overall experience. This can be explained by the fact that global evaluations of past episodes are biased toward the final experience (Fredrickson, 2000).

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Discussion

In this paper, we have introduced CJA as a novel approach for the analysis of service delivery processes, supporting comparisons of the delivery process as planned by the service provider with the delivery process as experienced by the customer. Furthermore, we have presented CJF, which provides the conceptual basis for CJA.

We have used CJF for analysis of two industrial cases. However, in future work, CJF could possibly be applied for purposes of theory building or validation. For example, one could envision research designs where different types of service processes were compared in terms of planned and actual customer journeys, or research designs where different customer segments were compared in terms of their customer journey deviations.

In this section, we will consider how CJA and CJF contribute new perspectives for cross-disciplinary research on service design, service quality, and the dynamic aspects of customer experience, and also how they might support service companies aiming for service improvement and a stronger customer focus.

Modeling of customer journeys

CJF constitutes a radically new approach to customer journey methodology, allowing for the systematic modeling of individual customers' journeys and the comparison of these to the service delivery process as planned by the service provider. This approach enables a detailed and unambiguous specification of the service delivery process from the perspective of the customer while supporting the systematic analysis of individual journeys to identify common patterns of deviation.

Previously, it has been argued that service design, in spite of the profusion of tools, lacks unifying frameworks (Saco and Goncalves, 2008). In the literature, the term "customer journey" is used both as a metaphor and as a technique in service design. As a method, however, it suffers from several weaknesses because it lacks commonly agreed terminology, a visual language, and a robust methodological framework. Hence, the formalization of customer journeys in CJF represents a significant contribution to the field of service design. In particular, CJF improves objectivity, by modeling observable events; reliability, by providing detailed definitions and frameworks, supporting consistency across cases; and nuancing, in its distinction between the static and dynamic states of a customer journey.

Service quality

The CJA approach draws on principles from user experience research but extends them to encompass a long-term perspective. CJA has been introduced as an instrument for the assessment of service quality, and it has proven effective in revealing problematic and incoherent service delivery that results in unfavorable customer experiences. The customer journeys investigated with CJA concern service processes that extend over time, where the customers and service provider interact through e-mail, web, SMS, letters, and phone calls.

It is well established that a formalized procedure for service development is a prerequisite for good services (Shostack, 1984; Johnson et al., 2000). However, service providers are often guided by an operational focus, adopting an ad hoc service development process (Shostack, 1984; Menor et al., 2002; Zomerdijk and Voss, 2011). New service delivery systems often "inherit" the architecture of established systems, and extra complexity is added when subcontractors are involved. CJA provides a systematic approach to examining services governed by complex service systems. As it is founded on the customer's touchpoints, potential problems in service delivery and customer experience may be examined without in-depth knowledge of the service systems. In terms of the service quality gap model (Bitner et al., 2010; Parasuraman et al., 1985), CJF contributes to closing the design and

standards gap through the analysis of planned journeys, and to closing the service performance gap by targeting service performance on an individual level.

It is commonly agreed that service experience is to be understood on the level of the individual customer. In particular, the subjective experience of a customer will depend not only on the service process but also on the background, context, and expectations of the customer. In our presented case study applying CJA, we have demonstrated that individual service experiences may also be significantly different on the level of observable events, though this was not intended by the service provider. By modeling the individual journeys, we were able to demonstrate the variability in the customers' service processes, but also to identify several patterns of deviations that may result in pain points. Such pain points may also be identified through the failure point analysis of service blueprinting (Shostack, 1984). However, our models of journey deviations provide rich insights into the complete service process from the perspective of each individual customer while at the same time providing a sufficient overview for deviation analysis across individual customer's journeys. In particular, CJA complements and extends the fail point analysis by modeling a number of actual journeys on an individual level to reveal potential patterns in the deviations caused by systematic failures in the dynamic state of service, providing a stronger basis for identifying and designing recovery mechanisms, and communicating incoherent service delivery and mitigation needs to decision-makers.

Researching the dynamic customer experience

There is consensus across academic disciplines that a customer's expectations, perceptions of quality, and associated satisfaction vary over time. This is clearly influenced by the sequence of events during service consumption (Chase and Dasu, 2001), although alternative hypotheses exist to account for how one event influences the remaining events (Stauss and Weinlich, 1997; Bitner et al., 2008). The CJA approach suggested in this paper integrates existing methods from usability and HCI to obtain an in-depth insight into the temporal and situated customer experience. CJA opens up possibilities for in-depth studies on how service experiences are shaped over time, and discretizing the service into touchpoints enables the study of subtleties in individual experiences. The presented approach also complements methods from the HCI domain, which lacks multichannel perspectives (van Dijk et al., 2007) and often relies on retrospective evaluation (Bargas-Avila and Hornbæk, 2011). Traditional approaches for addressing customer satisfaction or perceived service quality are often limited in that they only reach out to customers who have completed their goals or onboarding journeys (Rawson et al., 2013). Thus, the customers' pain points and root causes of churn may go undetected by the service provider. CJA represents an instrument to investigate the circumstances evoking churn.

Managerial implications

Service provisioning through multiple electronic channels has become a permanent requirement for most service companies. One of their main challenges is to prevent service delivery channels from being run as isolated units with separate organizational and technical structures. To mitigate these challenges, we have introduced CJF as a lens for viewing services from the perspective of customers. Through case studies in a global telecommunication company, we have exemplified how CJF can be used to model and examine service delivery. In particular, we have demonstrated the effectiveness of CJA in revealing inconsistencies during service delivery through a longitudinal analysis of customer experience on an individual level. CJA, by modeling individual journeys, reveals systematic deviations in touchpoint sequences, the occurrence of ad hoc touchpoints, the occurrence of failing touchpoints, and correlations between these.

The case studies raised internal awareness in the company that stronger customer and service orientations were needed. In particular, a knowledge gap was identified on two levels. First, there

was a lack of awareness in the service organization in regard to the planned journeys. CJA exposed touchpoints in the planned journeys, which were unknown to the company because they had been elicited by subcontractors. Consequently, none of the units involved in the service delivery had sufficient knowledge about the end-to-end service delivery process. This "single-channel mindset" of service provisioning is a risky, albeit well known, practice (Polaine et al., 2013; Rawson et al., 2013). Second, there was a lack of awareness about the dynamic state of the service process. The analysis of actual journeys offered entirely new insights into the objective and subjective properties of individual customer's experiences. The illustrations of the individual, actual customer journeys with the numerous deviations, accompanied by rich documentation from the qualitative analysis, clearly revealed the lack of internal coordination among the involved groups. In particular, when collating all the individual journeys for a given case, the large variability in service delivery became evident.

Furthermore, loss of revenue and increased cost were derived from the deviations between expected and actual journeys. Between 2008 and 2012, CJA was performed on six additional onboarding journeys. These analyses revealed that 90-100 percent of the actual journeys deviated from the planned journeys. An average of approximately 80 percent of these deviations led to extra expenses due to factors such as extra calls to the call centers or less income as a result of churn. These economic facts, accompanied by the CJF visualizations of actual customer journeys with many deviations, were compelling arguments for making organizational changes to become more customer centric. A CJF toolbox with guidelines, template visualization kits, and case examples was developed to make CJF readily available for practitioners across the company. CJF is gradually becoming a dynamic capability in Telenor, applied as a routine to "integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997). As a global company with operations in 13 countries, Telenor is now in the process of implementing CJF as a common tool in all international markets as a practical approach to strengthening customer focus and examining multichannel service delivery in an immediate and systematic way. From a business perspective, CJF serves as:

- a unifying language to ease communication and cross-departmental understanding;
- an analytic tool to expose the gap between service delivery "theory" and "reality";and
- an effective tool for service improvement, cost reduction, and prevention of churn.

Conclusion and future research

We have introduced CJA, a novel approach that integrates existing methods from usability and HCI for the purpose of analyzing individual service experiences over time in a multichannel environment. CJA differs from other process-oriented methods in the following ways: it is based on a formalization of the process steps, supporting precision, and reliability; it enables analysis of individual service experiences in comparison to planned service delivery, and it supports analysis of how service experiences are shaped in time by capturing both concurrent and retrospective customer experiences. CJA has proven to be effective in detecting inconsistencies during service delivery, and reveals systematic deviations in touchpoint sequences, the occurrence of ad hoc touchpoints, the occurrence of failing touchpoints, and correlations between these.

CJA is grounded in a framework which models service delivery from the customer's point of view in terms of observable communication events. This has turned out very useful for portrayal of service processes characterized by well-defined tasks that are connected through a logical sequence and repeated in sufficient volumes. CJF promotes unambiguity in service characterization and brings formalism to the fragmented approaches to customer journeys.

CJF and CJA are the instruments that can easily be used to increase company-wide awareness about end-to-end service experiences. Sousa and Voss (2006) noted that research on service quality tends

to take a single-channel perspective, and there is obviously a call for quality measures that encompass the overall customer experience. Recent business reports have also emphasized the problematic "single-channel mindset" of service companies, which diverts attention away from the overall service experience (Stone and Devine, 2013; Rawson et al., 2013). With a lack of internal awareness about the end-to-end service delivery process, service providers can excel in individual interactions but still provide a less-than-satisfactory overall experience.

The terminology and visual notation of CJF represent a starting point for establishing a theoretical framework for customer journeys. Further research is needed to refine, extend, and optimize CJF. In particular, the visual notation should be evaluated and further improved. Further research should be conducted to optimize the data collection in CJA. The wordiness of the diary entries in our case studies was quite variable. To obtain richer and more frequent input on concurrent experiences, exploring apps, and social media platforms as a complementary data collection method would be particularly interesting. This research was limited to investigation of telecommunication services characterized by logically connected steps and a low degree of freedom during execution. Further investigation is needed to determine whether CJF is an effective approach for services of more variable nature. It would be particularly interesting to explore the idea of a pattern language (Alexander et al., 1977) dedicated for service processes in general, and how CJF and CJA could contribute in capturing best practices for service delivery in a multichannel environment.

From a business perspective, prediction and prevention of churn are essential. CJA represents an opportunity to investigate circumstances evoking churn, as it typically includes informants who do not complete their onboarding journeys. One approach could be to investigate potential patterns in the occurrence of ad hoc touchpoints to identify unfavorable experiences increasing the risk of churn. There is also a need to explore whether observable attributes during service delivery could provide valid predictions about the associated customer experience. In that case, one could effectively detect critical points that require intervention, thus circumventing the more resource-demanding empirical investigation.

Acknowledgment

CJF is the result of work that was initiated in 2007, and draws upon academic research, empirical studies, operational experience, as well as close interaction with several of Telenor's international operations. The authors would like to thank all the involved persons for their contributions and support in developing the customer journey framework and the toolbox. The work in preparing this manuscript was funded by Explore, a research collaboration between Telenor Research and SINTEF ICT, Telenor's partnership in Center for Service Innovation funded by the Research Council of Norway (RCN), and SINTEF's participation in the VISUAL project funded by RCN (Project No. 219606).

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Appendix

Table A1. Excerpts from the qualitative data accompanying the MB actual journey described in Figure 6

Journey summary	The customer did not receive the welcome letter and failed to install the software due to a missing PIN code. The call center provides a PIN, but the customer is still not able to connect. The local retail store assists in installing mobile broadband. After updating the PC software, the Internet connection is broken. The subscription line is re-established after a second visit to the retail store.
Experience and quotes	The female customer (age 49) rates the overall experience as "good" on a 3-point scale (good/medium/poor). Suggestions for improvement: "You should inform us to wait for the PIN." "Why don't you send all the material at once?"

Touchpoint description	Diary note	Rating	Debrief note	Rating
T_0 Customer orders MB through the call center	<not described>	n/a	Got the information I needed.	good
T_1 Receives e-mail confirming the purchase	I looked it over, and it seemed OK.	good	Easy to understand.	good
T_2 Receives confirmation about dispatch of hardware	I read it and thought it was OK. Nice to know what was sent.	good	Easy to understand the content.	Good
D_1 (missing) welcome letter	n/a	n/a	I may have received it, but I can't remember.	n/a
T_4 Receives letter containing the SIM card	Got a letter, left it unopened until next day.	good	It should be mentioned that the PIN code will arrive later!	Medium
T_6 Receives package with modem	Got a package from the mail service and left it unopened because of other work load.	good	I opened it the next day.	Good
T_7 Receives invoice for hardware	<not described>	-	Not sure, I think it was a fee.	-
D_2 (failure) Customer fails to install MB	I inserted the SIM card into the modem, and then into the PC. I followed the instructions on the screen. It was easy. Got a question about PIN, but did not find it.	poor	You should have informed us that the PIN came later.	-
D_3 (ad-hoc) Customer calls customer service	I called 05000, an agent guided me through a lot of steps to get a PIN code.	poor	I did not have a PIN. Got instructions.	good
D_4 (failure) Customer fails to install MB	Did not succeed, had to insert a "lock".	poor	Not able to finish	medium
D_5 (ad-hoc) Customer visits retail store	I went to the store to get help	-	I consulted NN at the store.	-
D_6 (ad-hoc) Retail store installs MB	He helped me to access the Internet	good	He helped me	good
D_7 (failure) Internet connection is broken	PC got stuck during software update	-	My PC got stuck when updating.	-
T_5 Receives letter containing PIN	Found the letter with the codes. I already got a pin, will archive it. I now see that I should have waited with the installation.	good	Did not read it, as I already had got the PIN	n/a
D_8 (ad-hoc) Re-visits the retail store	I visited NN at the store	-	I went to the store again.	-
D_8 (ad-hoc) Retail store re-installs MB	NN updated Windows to the newest version.	good	Got help to upgrade Windows (has a PC warranty support).	good

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