

# Improving customer experience through customer journey analysis (CJA) of mobile and fixed broadband services in Egypt.

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## Keywords

customer journey analysis, touchpoints, customer experience.

## Abstract

*The purpose of this paper is to present Customer Journey Analysis (CJA) for empirical exploration of individual service experiences of mobile and ADSL fixed broadband services in Egypt. The qualitative data is collected through 17 semi structured interviews, the interviewees are customers of WE mobile broadband services, and TEdata ADSL fixed broadband services. The two providers represent the broadband arms of the integrated services provider Telecom Egypt Group. Each customer is asked to describe his/her actual journey that he/she passes through the installation process. Findings represent the visual notation of the actual installation journey, key problems, descriptions and classifications. Four types of deviations are found in service delivery: occurrence of ad hoc touchpoints, missing touchpoints, irregularities of the sequence of logically connected touchpoints and occurrence of failures in touchpoints.*

## 1. Introduction to Customer Experience

Trends in the service economy recommend that experience is a key development in today's business field (Voss and Fellow, 2004). It is remarkable that the concept of experience is not novel and has been covered by various disciplines. Richins (1997) theorized that consumption embraces experiential effects. The utilization of customer experience to create value has been known as the experience economy (Pine and Gilmore, 1998). Experiences create emotional ties that are privileging tool for making brand value and differentiation. Voss and Fellow (2004) compose that in a domain where we have perpetually refined clients, those organizations that convey memorable customer experiences reliably, create superior value and competitive advantage. Customer experience is utilized to enhance the competitive advantage that is hard to be imitated (Pine and Gilmore, 1998). Setting focus on customers "experiences" helps organizations to make and keep loyal customers who move toward becoming advocates and revenue-generating customers for a considerable length of time by integrating the voice of the customer into their organizations (Responsetek, 2010). The concept of customer experience has been considered across a range of business conditions, including the online business, tourism, retailing and service delivery (Arnold et al. 2005; Bonnin 2006; Jones 1999; Quan and Wang 2004).

## 2. Definitions of Customer Experience

A definition differs according to a definer. The key feature probably in every definition is interaction. Meeting a customer is all the time a moment of human interaction, as there is a moment of truth that indicates the accomplishment of that meeting.

*"Customer experience is the internal and subjective response customers have to any direct or indirect contact with a company. Direct contact generally occurs in the course of purchase, use, and service, and is usually initiated by the customer. Indirect contact most often involves unplanned encounters with the representation of a company's products, services, or brands and takes the form of word-of-mouth recommendations or criticisms, advertising, news reports, reviews, and so forth".*

(Meyer and Schwager, 2007).

Leppänen (2007, cited in Olenius, 2013) emphasized the importance of thinking about the quality of service provided by organizations and assured that customer expectations and prior experiences are affected by the quality of service.

### 3. Service Experience versus Customer Experience

The literature revealed that the terms namely: service experience, customer service experience and customer experience have been usually utilized in many researches. The significant difference between the two concepts can be summarized in terms of the subject of the experience. Despite the fact that the idea of service experience refers to customers (and/or any actor) who experience the service, the notion of customer experience addresses customers as the experience actors.

Helkkula (2011) states that service experiences, in addition to customers, include service provider reps who experience the service as well, and other individuals in the social experience network, therefore characterizing it as occurring in multi-stakeholder network, where the customer experience is described mostly the same as internal and subjective reaction of the customer (Meyer and Schwager, 2007). It concentrates on customer's personal perception, assessment, interpretation and subjective response to holistic interaction (Jain et al., 2017).

### 4. Service blueprints and customer journeys

Service blueprinting is a method anchored in flowcharts that visually clarifies the steps engaged with a service delivery process (Shostack's, 1982, cited in Halvorsrud et al., 2016; Gummesson and Brundage, 1992; Bitner et al., 2008; Patrício et al., 2008 and Holmlid and Evenson, 2008). The notion of "customer journeys" has generated a wide range of approaches went for following a customer through a service delivery process, as a "walk in the customer's shoes" as the approach of customer journey originally focused more around emerging customer stories rather than methodology (Koivisto, 2009 and Segelström, 2013). Customer Journey Framework (CJF) is a conceptual framework that takes into consideration the comparison of an individual journey versus the planned journey and comparison crosswise a sample of individual journeys which basically focuses on the service delivery process that goes before or includes the service outcome (Hevner et al., 2004; Zomerdijk and Voss, 2010; Sandström et al., 2008; Fließ and Kleinaltenkamp, 2004; Edvardsson and Olsson, 1996 and Bitner et al., 2008).

The term "touch point" is commonly utilized among practitioners however, there are other terms seems to be synonyms (Stauss and Weinlich, 1997; Carlzon, 1989; Lillrank, 2009; Koivisto, 2009). Service providers communicate with their customers throughout the use of customer channels such as; call centers, SMS, chat, e-mail, and face-to-face conversation (Rayport and Jaworski, 2004; Sousa and Voss, 2006). While the customer journey has been characterized as the unique story of each customer (Stickdorn and Schneider, 2011 and Koivisto, 2009) and consists of static state settled by the service provider and the dynamic state seen by the customers (Shostack, 1987, cited in Halvorsrud et al., 2016; Lillrank, 2009 and Rawson et al., 2013).

### 5. The customer journey framework CJF

CJF is a conceptual framework that takes into consideration the comparison of an individual journey versus the planned journey and comparison crosswise a sample of individual journeys. Services are meant as technology-based services (Sandström et al., 2008) or provider dominated services (Fließ and Kleinaltenkamp, 2004), rather than experience focused and labor-intensive services (Zomerdijk and Voss, 2010). CJF basically focuses on the service delivery process (Edvardsson and Olsson, 1996) that goes before or includes the service outcome. "touchpoint" is commonly utilized among practitioners, it was brought as quite recently into the academic literature (Bitner et al., 2008). Service providers communicate with their customers throughout the use of customer channels or service interfaces (Rayport and Jaworski, 2004, Sousa and Voss, 2006)).

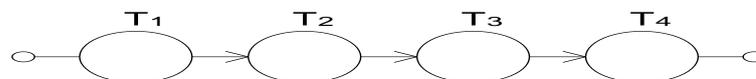
CJF receives the term channel to sign if a medium used to pass on interaction and communication between a customer and a service provider. For instance, customer channels can be: call centers, SMS, chat, e-mail, and face-to-face conversation. Channels represent the carriers of touchpoints, and they can be advanced (e.g. e-mail), human-served (e.g. a work area in a shop), or both. In CJF, touchpoint can be defined as a moment of communication between a customer and a service provider (Zomerdijk and Voss, 2011). Speaking about a customer journey which can be modeled as a sequence of back to back touchpoints; in terms of duration, it can be either short (hours) or long (weeks), depending on the service being explored. CJF recognizes planned customer journeys (static) and actual customer journeys (dynamic), corresponding to the potential and potential state of a service, respectively, as recommended by Shostack (1982, cited in Halvorsrud et al, 2016). Customer journey approach is proffered to be interpreted and represented visually through the visual notation and this will be obviously clarified through the next section.

### 5.1. Visual notation

Visualizations are utilized widely in-service design to make an interpretation of data into insights and as a communication tool (Segelström and Holmlid, 2009). Indications about customer experience might be seen certainly in the notation in the form of sequence errors, failing touchpoints, and other deviations. As it presented by Gustafsson and Johnson (2003), they offered an early visual portrayal of a service as if it is a chain of interconnected circles.

Touch points are represented as circular components, and touch point status and attributes are arranged in the boundary style and the encased circle area (Brown, 1988, cited in Halvorsrud et al., 2016). An over scored touch point was utilized to indicate a failure, for example, a missing message on an unsuccessful installation attempt. Figure (1) reveals a principal draw of planned and actual journeys in CJF. Planned journeys are drawn as an interconnected sequence of touch points (Figure 1a) while, the touch points are labeled with an identifier (T0, T1, ..., Tn) due to the order in which they are planned by the provider to occur. (Figure 1b) illustrates the actual journey. The dynamic state is emphasized, which reaches out in the direction of time. As the journey unfolds in time, the expected touch points are placed over the arrow, and deviations are displaced vertically under the preceding touchpoints.

(A) Planned journey



(B) Actual journey

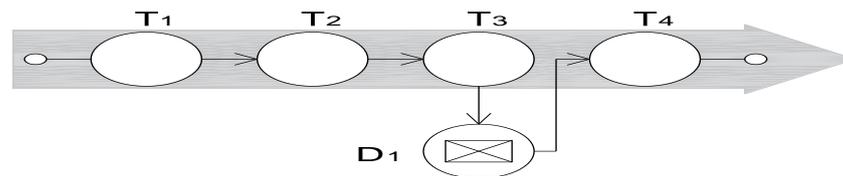


Figure (1): Visualization of customer journeys

Notes: (a) Planned journey; (b) actual journey

## 6. Customer journey: approach, phases and analysis

Customer journey approach concerns the customer's view point and adopts CJF's concepts and modeling approach. (Yin, 2009) assessed that the approach of customer journey has drawn in a case study. While, Lazar et al. (2010) involved a study of experiences by utilizing multiple data sources, and emphasized qualitative data and analysis as this approach depends originally on the customer experience of the provided service.

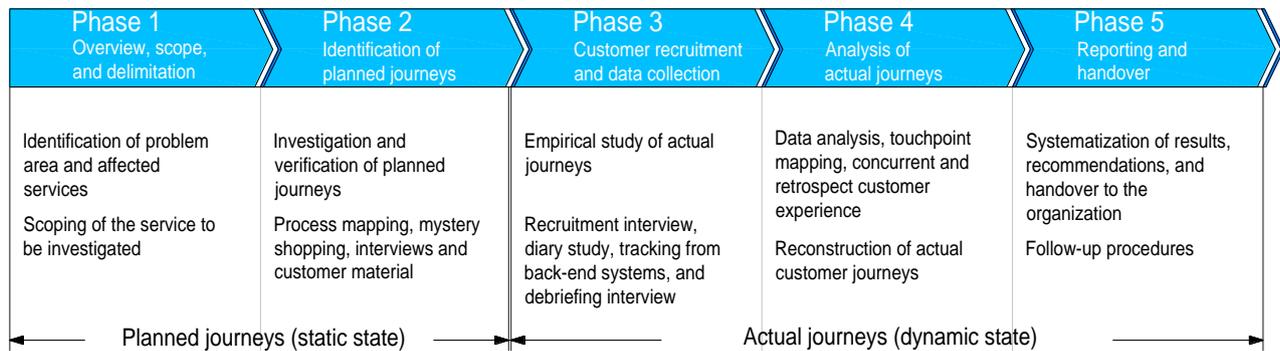


Figure 2: The five phases of the customer journey analysis (CJA) procedure.

Source: Yin (2009, cited in Halvorsrud et al, 2016).

## 7. Customer journey analysis (CJA)

CJA has been produced for empirical researches of service delivery processes as seen from the customer's point of view, and it receives CJF's concepts and modeling approach. (Yin, 2009) argue that CJA draws on a case study approach by linking an assessment of experiences using multiple data sources, and it emphasizes in its nature the qualitative data and analysis (Lazar et al., 2010). The CJA procedure consists of five phases, as shown in figure (2). Phases 1 and 2 set up a common comprehension of the target of the analysis, and to recognize and model planned journeys. Phases 3 and 4 deal with data collection and reconstruction of the comparing actual journeys. Finally, Phase 5 is dedicated to systematization of results and deviations over the study (Halvorsrud et al., 2016).

### 7.1 Application of CJA for service improvement

With more than 160 years of operational Telecom history, Telecom Egypt Group (TEG) is the largest service provider of fixed line services in the Middle East and Africa. TEG as a governmental telecommunication company only controls Egypt's fixed line network, servicing both the retail voice and the wholesale demand for reliable telecommunications connections. With the initiation of market liberalization, TEG has focused on establishing a strong platform for the wholesale services to other telecommunications operators selecting to use its extensive network. TEG is the largest IP based data communications and market leader of the fixed broadband services provider with (TEdata). In September 2017 TEG launched a new mobile network (WE) with 4G LTE technology.

In the wake of launching the new services, the researcher performs this study to portrait the mobile and ADSL fixed broadband service delivery as a base for service improvements and future redesign for customer journey. The motivation behind most researches has been to reveal reasons for an elevated number of customer inquiries, or a high churn rate.

The qualitative data is collected through 17 semi structured interviews, the interviewees are customers of WE mobile broadband, and TE data fixed broadband or both. Each customer is asked to describe his/her actual journey that he/she passes through the installation process. The aim is to demonstrate the suitability of a model-based approach to customer journeys and, particularly, the applicability of CJA for service improvement.

Findings represent the visual notation of the actual installation journey compared with the blueprint of the service provider followed by comments on each case.

#### Phase 1: overview, scope, and delimitation

The purpose of the analysis was to detect the current and potential weak points in the customer journey for current fixed and new mobile broadband services. This purpose was seen as particularly critical, as this study performed in the wake of launching the WE services. The phone boutiques were chosen as the target, by virtue of the high volume of sales. To guarantee a

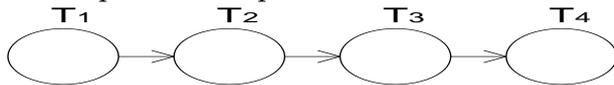
homogeneous sample of journeys, the following criteria were established: consumers only, new WE/TEdata broadband customers only. The scope of the analysis was investigating the journey of installation process in which is gradually shaped as target customer. The start and endpoint of the target journeys are characterized, and support from the operative units are set up, if needed (Halvorsrud et al., 2016).

### Phase 2: identification of planned journeys

Halvorsrud et al. (2016) argue that the target of Phase 2 is to characterize the relevant journeys as seen from the point of view of the service provider. Where, CJF is utilized to identify, model, and verify the service delivery process as far as arranged planned customer journeys. Methods like basic flowcharting, service blueprinting or other process analysis are used (van der Wiele et al., 2005; Bitner et al., 2008 and Lillrank, 2009). The drafted static journey was refined in an iterative manner with complementary information obtained by sales representatives from the front and back office of phone boutiques. The following steps are the blueprint of mobile and ADSL broadband services presented by TEG which represent the sequence of customer experience during the installation process. The direction of the procedures is illustrated by the arrows which he reader through each of the procedures.

### WE Mobile Broadband Installation Journey

These are the steps or blueprint of installation process as settled by TEG. The customer should go for either a phone boutique or one of the nearest TE data branches and start the journey as the following:



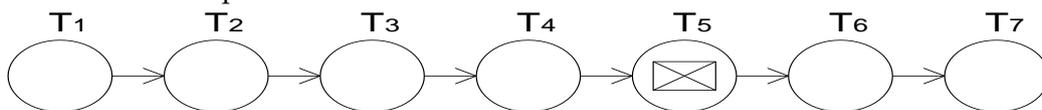
T1: The customer should prepare his/her valid personal ID and should make this in person. Then, present ID to the sales rep, in this case the customer should choose and specify the kind of service that he/she would contract with, either data only or control (voice and data) prepaid system.

T2: Signing the contract and receiving his/her copy; T3: Receiving the SIM card.

T4: Putting the SIM card into the mobile phone and receiving the activation messages to activate the service and charge. The activation should be done in no time once the customer put the SIM card into the mobile phone. If there is any problem, the customer should contact the call center.

### TEdata ADSL Fixed Broadband Installation Journey

New customer requests land line and fixed broadband services.



This customer is a new customer who has to start the journey from scratch. First, the customer should apply for a land line then data services and start the journey as the following:

T1: The customer should present the required papers to sales rep and fill an application form to obtain land-line services;

T2: Checking the technical availability for the land line services;

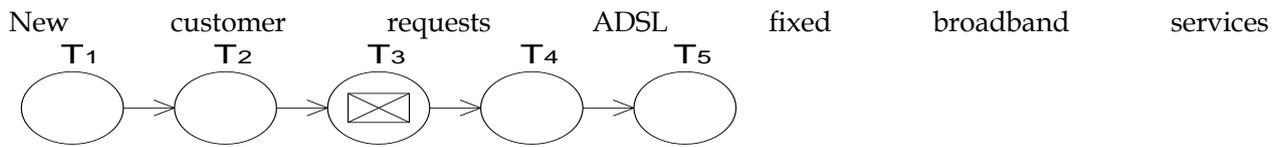
T3: Signing the contract of land line services, demanding and contracting the data services;

T4: Checking and preceding the availability of data transfer;

T5: Sending welcome SMS to inform the customer to come to the nearest branch of TE data to receive the home gate (router) also, embraces password and username concerning the land line number that will be used in the configuration;

T6: Receiving the router either by the customer in person or by sending it to the customer's address due to customer request, and offering a free visit to install and activate the service;

T7: Activating the data services.



This customer already has a land line and wants to proceed in obtaining the data services, the procedures will be as the following:

T1: the customer requests the data services and this can be done by calling the call center or go to one of TE phone boutiques or go directly to the nearest TE data branches.

T2: Checking and preceding the availability of data transfer.

T3: Sending welcome SMS to inform the customer to come to the nearest branch of TE data to receive the home gate (router) also, embraces password and username concerning the land line number that will be used in the configuration.

T4: Receiving the router either by the customer in person or by sending it to the customer’s address due to customer request, and offering a free visit to install and activate the service.

T5: Activating the data services.

**Phase 3: customer recruitment and data collection**

The goal of Phase 3 is informant sampling and data gathering. Through a semi structured interview, the actual journeys were reviewed with the interviewees. The researcher initiated the interview with an informal dialogue in order to let customers express instant thoughts and possible frustration. This was followed by asking the interviewees to draw their journey from T0 in a forward sequential order. Touchpoint attributes were gathered with experiential data, describing and rating of perceived touchpoint quality. Moreover, suggestions for improvement. The final part of the interview addressed cross-channel uniformity and overall impression of the installation process.

**Phase 4: analysis of actual journeys**

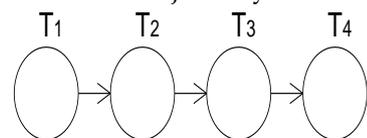
The target of Phase 4 is to analyze and model the collected data from Phase 3. A different model of the real customer journey is set up for each individual source, for comparison with the planned journey settled by the service provider (Halvorsrud et al.,2016 ). The actual journeys were reestablished on an individual level by collected data from the interviews. Touchpoints were extracted and arranged according to the time they were experiences by the customer. The involved part of the dynamic journeys was visualized and compared with reference to the static journey for easy detection of deviations.

**Visual notation of the actual journey and detection of deviations**

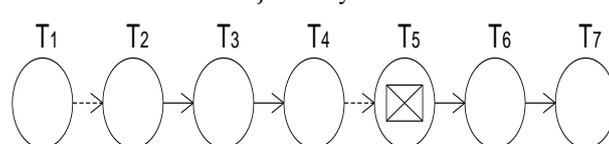
The following is the actual journey of the interviewees represented by the visual notation and then, the comment of each case.

The Actual Journey of Interviewee (1)

WE - Actual journey



TEdata -Actual journey

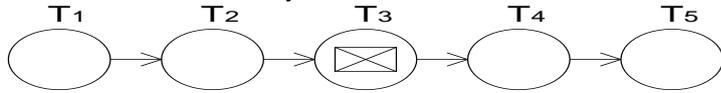


Interviewee (1): Is a customer of both mobile and ADSL fixed broadband. The mobile actual journey was as good as the blueprint so, the customer was satisfied about it but the problem was in the fixed broad band journey .Comparing the blue print by the actual journey, the dash lines located between T1, T2 represents 3weeks and T4, T5 represent 1week of waiting time. The interviewee was dissatisfied with this long waiting periods proceeding to obtain the broadband services and this is obvious through the response of the next question, when the researcher asked about the gained

experience, it seems that the customer was unhappy and dissatisfied with the experience of installation.

The Actual Journey of Interviewees (2, 3,4 ,5,11 and 12)

TEdata - Actual Journey



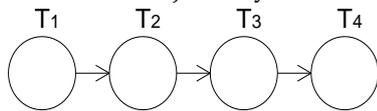
Interviewee (2): Is a customer of ADSL fixed broadband who is already has a land line, blue print (B). It is obvious that, the customer passes through a normal journey and she was satisfied with the procedures of the installation process and added, after receiving the router, the researcher continued activating the data services with the call center and they were very helpful. For interviewee (3): The customer mentioned a technician performed a home visit and expressed her good impressions with the installation journey. However, interviewee (4) was dissatisfied with the presented speed and complained about the price.

Interviewee (5): This customer is a business customer using ADSL services in this branch of the company. In such cases the proxy is the person who is responsible for contracting with the service provider .Also, the process of installation was smooth and the activation done with the call center. However, the customer complaint about the speed and stability.

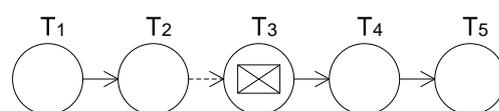
Interviewee (11) expressed positive experience of installation process of ADSL services. Interviewee (12) said that his experience was smooth and there was no problem and added that he just waited for 5 days to get the availability of data services.

The Actual Journey of Interviewee (6)

WE -Actual journey



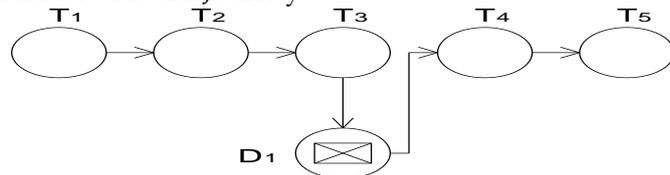
TEdata - Actual Journey



Interviewee (6): Is a customer of both mobile and fixed broadband services. Although the waiting time taken in proceeding the installation process of fixed broadband which was about 15 days, the customer considered it was a good journey. However, the customer expressed negative impressions and unhappy journey with the installation process of the mobile broadband because of the long waiting time and long queues and above all, the customer couldn't find good numbers to choose between in addition, the phone boutique was very crowded and not organized enough.

The Actual Journey of Interviewee (7, 15)

TEdata - Actual Journey

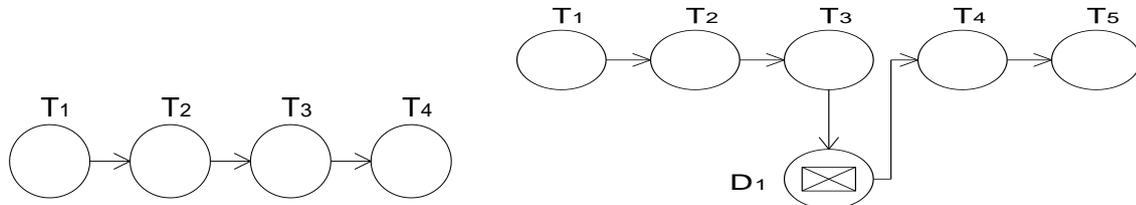


Interviewee (7, 15): Those customers did not receive SMS on his mobile phone and when calling the call center, they told them that their lines are ready and they have to go to the nearest TEdata branch to receive the home gate and complete the rest of the procedures.

The Actual Journey of Interviewee (8)

WE- Actual Journey

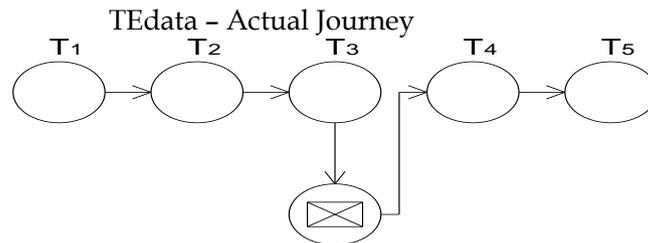
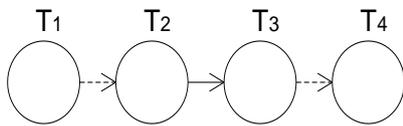
TEdata - Actual Journey



Interviewee (8): the customer passed through a normal mobile installation journey. However, did not receive SMS on his mobile phone for his fixed journey.

The Actual Journey of Interviewee (9)

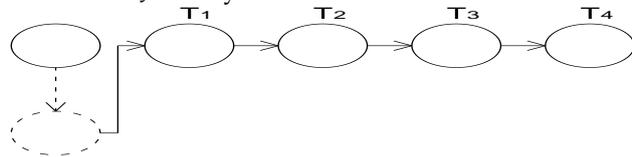
WE-Actual Journey



Interviewee (9): Describing the journey of WE, the customer had to wait 8 hours to get his SIM card and after finishing the procedures, he made several calls with the call center to activate his line which finally activated after 3 days and when he asked about the reason of this delay, the call center replied they do not know. Describing the ADSL actual journey, the customer stated that he did not receive SMS on his mobile phone.

The Actual Journey of Interviewee (10)

WE-Actual Journey



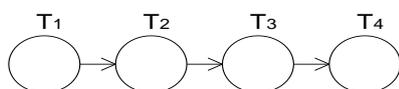
TEdata - Actual Journey



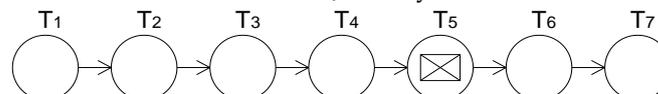
Interviewee (10): The customer described his journey with WE by that when he went to buy a SIM card from a phone boutique, the sales rep refused his ID because it was broken. Thus, he had to wait to the next day and come back with his wife and his wife bought 2 SIM cards with her valid ID and said that he is facing a problem with WE as there is a problem in coverage and another problem in activation messages on his mobile phone concerning manual setting of WE network. This customer of fixed internet blueprint (A) expressed good experience with the fixed broadband and added, he is using ADSL services operate surveillance cameras as well as follow up offers offered by other supermarkets and other companies.

The Actual Journey of Interviewee (13)

WE-Actual Journey



TEdata - Actual Journey



Interviewee (13): Is a customer of both mobile and fixed broadband, blueprint (A). This customer expressed his excellent experience with Telecom Egypt Group and stated that he did not face any problem during the installation processes.

The Actual Journey of Interviewee (14)

WE -Actual journey

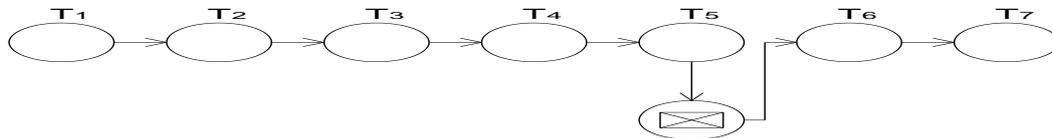
TEdata - Actual Journey



Interviewee (14): Is a customer of both mobile and fixed broadband, blueprint (B). This customer was dissatisfied with the very long waiting time taken for the availability of data for his line. Although he expressed good experience in WE journey. However, he suggested putting free WIFI in all phone boutiques to entertain customers during the waiting time and he added, that will increase the satisfaction level of customers especially the youth segment.

The Actual Journey of Interviewee (16)

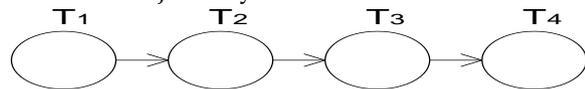
TEdata - Actual Journey



Interviewee (16): this customer of fixed internet blueprint (A). This customer did not receive SMS on her mobile phone but, she expressed smooth installation journey.

The Actual Journey of Interviewee (17)

WE -Actual journey



Interviewee (17): the customer mentioned that after the activation of WE line, the internet services were not valid so, he made so many calls with the call center and they sent the activation messages again to his number until the service were activated and above all he was dissatisfied with the installation journey.

Phase 5: reporting and handover: Halvorsrud et al. (2016) notice in Phase 5, potential gaps between the planned journeys set up by service provider and the actual journeys seen by customers are further investigated across the study. The target of this investigation is to distinguish potential patterns of deviations across the informants. To summarize the result of the 17 interviews explored above, the following table contains the key problems and descriptions found in actual journey.

Problem	Description
Very long time in WE installation process	Negative impressions and unhappy journey with the installation process of the mobile broadband were expressed because of the long waiting time and long queues to obtain the SIM card.
Activation problems with WE network	Customers had to make several calls with the call center to activate WE line which finally activated after 3 days.
Activation problem occurs with mobile broadband services	Dissatisfaction and unhappy journey was expressed because of the activation messages and creation of a virtual network in the mobile phone to activate the internet services .Another disconnection problem was detected when receiving a call. So the customer had to repeat the prior creation steps of a virtual network .
Invalid documents	When the customer went to buy a SIM card from a phone boutique, the sales rep refused his broken ID. Thus, he had to wait until the next day and come back with his wife and his wife bought 2 SIM cards with her valid ID.
Long waiting time for the technical availability in land line procedures	New customers concerning blueprint (A) complained about the long waiting time taken for preparing the technical availability in land line procedures.

SMS problem	Customers expressed serious problem with TEdata follow up system because they did not receive welcome SMS on the mobile phone informing those customers with the readiness of the line so, they should go to the nearest TE data branch to receive the router and complete the rest of the procedures.
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Table (2): Summary of the common problems and descriptions found in the actual journey

## 8. Discussion

The purpose of this paper was to investigate the proposed framework presented by Halvorsrud et al. (2016) using customer journeys as a new approach for a structured portrayal of service delivery from the customer's perspectives. The paper also presents CJA for empirical exploration of individual service experiences of mobile and ADSL fixed broadband services. Due to the performed interviews the problems summarized and classified into two types: the first type is that, problems relevant to the policy and procedures of TEG such as the invalid documents (invalid/broken ID and others) and the researcher believes that no action would be taken to solve these problems as it is mandatory for the customer to present valid and correct documents to go through the procedures as these precautions concern the national security.

However, the second type of problems relevant to the long waiting time taken for preparation and technical availability as TEG faces many problems due to the unauthorized constructions and slums, welcome SMS problem, the activation messages problem and the procedures, the researcher believes that TEG has to improve the procedures and increase the satisfaction levels. Moreover, two extremes found throughout the answers of the interviewees, the first was a woman said she purchased the SIM card of WE because of political issues as she heard from the media that WE follows the Egyptian military forces and she trust them and the second extreme was also a woman who waited more than 5 hours to buy a SIM card and when she was asked about the reason the interviewee said *"when I purchased WE. I think this is the first time for me that I feel the money which I pay for a service will be back to my pocket. WE is a national company and we should support it"*.

The dynamic journeys were characterized by the various deviations from the static journey remarkably in terms of ad hoc touchpoints and timing errors. Outstandingly, most the customers experienced deviations, and some journeys were consistent with the static journey. Further, patterns of deviations were identified: Ad hoc touchpoints occurred during installation procedures, (type 1). Timing errors (missing touchpoints) occurred in many cases (type 2). Repeated occurrence of failing touchpoints (type 3). Most of the customers experienced deviations in irregularities of the sequence of logically connected touchpoints (type 4). In conclusion, the high occurrence of ad hoc touchpoints was powerfully correlated with timing problems in the actual journeys.

The case studies advanced internal awareness in TEG that stronger customer and service orientations were considered necessary. Specifically, a gap was identified on two dimensions. *First*, there was a lack of awareness in TEG regarding the planned journeys. CJA uncovered, ad hoc and irregular touchpoints in the planned static journeys, which were unidentified to TEG because the units involved in the service delivery had insufficient knowledge and training about the end-to-end service delivery process. TEG didn't provide good estimate for the appropriate number of sales reps through the first days of launching the mobile broadband services and did not give a professional training and gave them just a simple training course for 5 days on the new system of work. This obviously caused numerous problems as the sales reps were not sufficiently familiar with the new work system.

In addition, TEG did not give the mobile broadband customers enough information about the 4G LTE provided frequencies and did not inform them if their mobile phone can cope with those frequencies or not and this caused a percentage of customer's dissatisfaction as they expressed unhappy journeys. So, they yearned for not enjoying the mobile broadband services as they had to

create a virtual network on their mobile phone to activate the internet services of WE. However, TEG faced many problems due to the unauthorized constructions and slums as this showed one of the conceptual factors affecting the quality of customer journey of the fixed broadband services. So, it is recommended to the governmental body and the top management of TEG planning, restructuring and covering these random areas with the necessary infrastructure and Multi- Service Access Networks (MSAN) within good quality.

*Second*, there was a lack of awareness on the other side occurred about the dynamic state of the service process. Numerous deviations were illustrated. When comparing all the individual journeys for a certain case, the great variability in service delivery became evident as every customer had a unique journey and all journeys were not on an equal footing. Furthermore, loss of revenue and enlarged cost were consequent from the deviations between expected and actual dynamic journeys. Due to the great competence in the telecom market in Egypt, TEG should pay more attention to the importance of engaging their customers in the development process through listening to the voice of customers.

### 9. Limitations and future research recommendations

This research was investigated in telecom field and characterized by logically connected steps with low degree of freedom during execution. Further research is needed to determine whether CJF consider an effective approach for services of more variable nature. So, the researcher recommends this approach to be investigated in other fields. Moreover, the researcher investigated and analyzed the customer journey of mobile and ADSL fixed broadband customers, further research is recommended with business customers. From a business point of view, prediction and prevention of churn are crucial. CJA represents a chance to investigate circumstances evoking churn, as it usually includes individuals who do not complete their journeys. One approach could be to examine potential patterns in the rate of ad hoc touch points to recognize unfavorable experiences mounting the risk of churn. There is a need to survey whether observable attributes through service delivery could grant valid predictions about the related customer experience.

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