



UNIVERSITI PUTRA MALAYSIA

***IMPROVING CUSTOMER BILLING TELEPHONY USING
USER EXPERIENCE (UX) APPROACH***

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USER EXPERIENCE (UX) APPROACH**

By

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DEDICATION

Alhamdulillah, my grateful and praises to the Almighty of Allah who has inspired, strengthened, guided and ease the implementation of this project. I dedicate this dissertation to my family for their countless supports through this journey to finish up the thesis as part of requirement fulfillment for Master of Computer Science. I also would like to express appreciation from my deepest heart to friends who have assisted and supported me during this postgraduate study.



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ABSTRACT

User Experience (UX) is technology that fulfils an instrumental needs which include a subjective, situated, complex and dynamic encounter. UX represent the holistic view with of the pragmatic aspect and hedonic aspect. Nowadays, UX is become important issue and has been discussed by many researchers in developing web based system. While, telecommunications industry has gone through series of development efforts to make services always available to their consumers and to provide a good quality. Generally, telecommunication industry provide two main services such as telephony and internet with involved customer registration, billing and payment. However, the challenge confronting telecommunications industry is to meet the customer satisfaction in billing system such as the accurately, easy to understand, performance and resolving billing issue. Hence, the improvement of these issues can enhance the customer satisfaction. In this research, we are focusing on the accurate billing, easy to understanding and resolving billing issue. Therefore, we propose the web design of customer billing telephony system using UX approach that consider on the customer's value experience. In order to well understand the concept, a thorough study on existing billing system is required by distributing the questionnaire to the respondent. Towards the end, the prototype will be developed and evaluation will be done by the respondent to prove the efficiency and correctness in billing process. It is expected that by implementing this approach, it will improve the customer billing telephony system and give the positive perceptions and experiences of a service lead to high customer satisfaction.

ABSTRAK

User Experience (UX) merupakan teknologi yang dapat memenuhi keperluan instrument yang subjektif, terletak, kompleks dan pertemuan dinamik. UX mewakili pandangan yang holistik seperti aspek pragmatik dan hedonik. Pada masa kini, UX menjadi isu yang penting dan telah dibincangkan oleh ramai penyelidik dalam pembangunan sistem berasaskan web. Sementara itu, industri telekomunikasi telah melalui beberapa siri usaha untuk membangunkan perkhidmatan mereka supaya ianya sentiasa dapat digunakan dan seterusnya memberikan kualiti yang terbaik kepada pengguna. Secara amnya, industri telekomunikasi menyediakan dua perkhidmatan utama seperti telefon dan internet yang melibatkan pendaftaran pelanggan, bil dan pembayaran. Walau bagaimanapun, cabaran yang dihadapi industri telekomunikasi adalah untuk memenuhi kepuasan pelanggan seperti sistem pengebilan yang tepat, mudah difahami, meningkatkan prestasi dan menyelesaikan isu pengebilan. Oleh itu, dengan penambahbaikan isu-isu ini diharap dapat meningkatkan tahap kepuasan pelanggan. Dalam kajian ini, kami telah menumpukan kepada sistem pengebilan yang tepat, mudah difahami dan menyelesaikan isu pengebilan. Oleh itu, kami mencadangkan reka bentuk web bagi sistem bil telefon pelanggan dengan menerapkan konsep UX, yang semestinya menitikberatkan nilai aspek pengalaman pelanggan. Untuk lebih memahami konsep ini, kajian menyeluruh mengenai sistem bil yang sedia-ada amat diperlukan dengan mengagihkan soalan kaji selidik kepada pelanggan. Seterusnya, sebuah prototaip akan dibangunkan dan penilaian akan dilakukan bagi membuktikan kecekapan dan ketepatan dalam proses pengebilan. Diharapkan dengan perlaksanaan konsep ini, ianya akan dapat menaik taraf sistem dengan memberikan persepsi yang positif dan seterusnya meningkatkan tahap kepuasan dan pengalaman perkhidmatan yang lebih baik kepada pelanggan.

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DECLARATION

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LIST OF ABBREVIATIONS

CBTS	Customer Billing Telephony System
CSR	Customer Service Representative
UX	User Experience
PK	Primary Key
FK	Foreign Key



CHAPTER 1

INTRODUCTION

1.0 Introduction

The telecommunications industry within the sector of information and communication technology is made up of all telecommunications/telephone companies and internet service providers and plays the crucial role in the evolution of mobile communications and the society. This industry continues to be at the epicentre for growth, innovation, and disruption for virtually any industry. Mobile devices and related broadband connectivity continue to be more and more embedded in the fabric of society today and they are key in driving the momentum around some key trends such as video streaming, Internet of Things (IoT) and mobile payments (Deloitte,2017).Since the telecommunications as the world's biggest machine which strung together by complex networks, telephones, mobile phones and internet-linked PCs, the global system touches nearly all of us. It allows us to speak, share thoughts and do business with nearly anyone, regardless of where in the world they might be. Telecom operating companies make all this happen (Investopedia, 2004).

While, telecommunications billing is the group of processes of communications service providers that are responsible to collect consumption data, calculate charging and billing information, produce bills to customers, process their payments and manage debt collection (Hunter, and J.M., Thiebaud, M.E. ,2003). Telecommunications billing system is an enterprise application software designed to support the telecommunications billing processes.

Telecommunications billing is a significant component of any commercial communications service provider regardless specialization such as telephone, mobile wireless communication, VoIP companies, mobile virtual network operators, internet service providers, transit traffic companies, cable and satellite TV companies could not operate without billing, because it creates an economic value of their business.

Telecommunication companies need an effective and accurate billing system to be able to assure their revenue.

Billing systems process the usage of network equipment that is used during the service usage into a single Call Detail Record (CDR). The billing process involves receiving billing records from various networks, determining the billing rates associated with the billing records, calculating the cost for each billing record, aggregating these records periodically to generate invoices, sending invoices to the customer, and collecting payments received from the customer. The modern digital structures provided by billing software services and products are part of what has propelled businesses into the new digital era, allowing for more productivity and greater ease of business administration in general.

1.1 Problem Statement

The hardest challenge confronting telecommunications industry is to meet the customer satisfaction in billing system such as the accurate billing, easy to understand and resolving billing issue (Ilias,S. and Panagiotis,T., 2015). Daniel et.al (2008) mentioned that many bills are poorly designed, causing needless confusion and frustration for customer and business alike. Hence, the improvement of these issues can enhance the customer satisfaction.

1.2 Objectives

1. To propose system design for customer billing telephony by implementing UX Approach.
2. To develop prototype as proof of concept for the proposed solution by identifying using the personas, telecommunication guidelines and UX in details.
3. To evaluate the proposed solution.

1.3 Scope of the Research

This study focus on the activities in billing telephony that performed by telephony customer from two (2) service providers in Malaysia such as Telekom Malaysia and

Celcom in Klang Valley. According to the Star (2017), both companies are the largest service providers in Malaysia.

1.4 Contribution

The new prototype design developed is expected can improve the quality and customer satisfaction. Aside from that, the new guidelines which are combination between ICT Qatar telecommunication guidelines and user experience guidelines is created which can give optimum utilization in the prototype.

1.5 Research Organization

This study comprises six (6) chapters, including this chapter which covers the backgrounds of the study, problem statement, objectives, and scope of the research, contribution and research structure. Chapter 2 present a literature review by covering existing customer billing telephony study and user experience approach. Chapter 3 describes the methodology which include theoretical study, study existing model, propose a system design, and build prototype and prototype evaluation. Proper planning to carry out the project is important to reduce unforeseen problem in the future. Meanwhile in Chapter 4, the analysis of existing system, UX personas and design the new prototype. Chapter 5 prototype development will be covered. Followed by result from the prototype evaluation in Chapter 6. Finally, the last chapter, Chapter 7 summarizes the thesis finding and work that can be done in future.

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