MODELING TECHNOLOGICAL CHANGE ON TELECENTER EFFECTIVENESS

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Abstrak

Perubahan teknologi (TC) adalah proses keseluruhan penciptaan berterusan, inovasi dan penyebaran teknologi yang bertujuan untuk meningkatkan prestasi teknikal. Tanpa TC, tidak akan ada pertumbuhan perniagaan dan pembangunan terutamanya di telecenter. *Telecenter* adalah persekitaran awam yang dibangunkan sebagai suatu pusat kemahiran digital untuk mengakses maklumat dan teknologi komunikasi bagi mengujudkankan pembelajaran dan mencapai keperluan khusus mereka. Matlamat utama *telecenter* adalah untuk merapatkan jurang digital antara kawasan bandar dan kawasan luar bandar, dan menyediakan perkhidmatan sokongan digital kepada masyarakat jiran. Penggunaan telecenter secara berkesan adalah isu utama kelestarian *telecenter* kerana ia telah di dapati mengalami kekurangan penggunaan. Oleh itu, kajian ini memberi tumpuan kepada mengenal pasti faktor TC yang menyumbang secara ketara kepada keberkesanan *telecenter*. Objektif pertama kajian ini adalah untuk mengenal pasti faktor penyumbang kepada TC. Objektif kedua adalah untuk membina satu model *computational* berdasarkan faktor terpilih yang diperolehi daripada objektif 1. Objektif ketiga adalah untuk menilai keberkesanan model. Kajian ini dijalankan dengan menggunakan pendekatan model *computational* melalui tiga fasa: abstraksi, perasmian, dan penilaian. Hasil kajian menunjukkan bahawa model *computational* dapat menunjukkan kesan TC yang dipilih terhadap keberkesanan *telecenter* dalam pelbagai senario. Penggunaan *telecenter* boleh menjadi lebih berkesan dengan mempertimbangkan faktor TC yang bersesuaian.

Kata Kunci: perubahan teknologi, faktor, telecenter, model pengiraan, penggunaan yang berkesan

Abstract

Technological change (TC) is the overall process of continuous invention, innovation and diffusion of technology that aims at improving the quality of technical performance. Without TC, there would be no business growth and development particularly in a telecenter. A telecenter is public environments that people develop essential digital skills to access information and communications technologies to create, learn and achieve their specific needs. The major goal of a telecenter is to bridge the digital gap between the urban and the rural areas, and provide digital support services to the neighbouring community. Telecenter effective usage is a major issue of telecenter sustainability because it has been found that there a lack of usage. Hence, this study focused on identifying TC factors that contribute significantly to telecenter effectiveness. The first objective of the study was to identify the contributing factors of TC. The second objective was to construct a computational model based on selected factors obtained from objective 1. The third objective was to evaluate the effectiveness of the model. The research was conducted using the computational model approach through three phases: abstraction, formlization, and evaluation. The results showed that the computational model was able to show the effect of the selected TC on telecenter effectiveness in different types of scenarios. The usage of telecenter can be more effective by considering the TC factors that are appropriate.

Keyword: technological change, factors, telecenter, computational model, effective usage

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CHAPTER ONE

INTRODUCTION

1.1 Background

Telecenter is commonly associated with Information and Communication Technology (ICT) (Di Stefano, Gambardella, & Verona) for development projects (Mishra, 2013). Telecenters are considered as one of the most successful projects of ICT diffusion in developing countries, particularly the poor and people living in remote rural areas (Rajalekshmi, 2007). It branded by many names likes community technology centers, multimedia community centers or cyber centers. According to Gomez, Pather, and Dosono (2012) and Razak, Hassan, and Din (2010), a telecenter is a place where ICT facilities such as computers, and Internet services, training, and Internet access are provided to the rural community. Previous findings have shown that communities have opportunity to improve their access to information, job creation, skill development, study opportunities, and increased income, due to effective utilization of telecenter (Bailey & Ngwenyama, 2013; Buhigiro, 2013; Zamani-Miandashti, Pezeshki-Rad, & Pariab, 2013). In addition, a study carried out by Ibrahim, Yasin, and Dahalin (2010) to ascertain financial sustainability among 132 Malaysian telecenters, has discovered that telecenteres were a resourceful point with the provision of Internet service for economics, academic and social development, and others utilities of the community. It also enhances

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