DIFFUSION OF TELECENTER INNOVATION IN EAST JAVA AND ITS IMPACT: A CASE STUDY OF TELECENTER SAKTI IN GUBUGKLAKAH VILLAGE

BY

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ABSTRACT

In an effort to achieve the Millennium Development Goals (MDGs), the Government of Indonesia established telecenters across several provinces in 2005 with a mission to empower rural community with access to ICT for poverty alleviation. After two years the telecenters fail to sustain except in East Java; and by 2015, 52 telecenters were established in 29 regencies and 9 cities in the province, indicating diffusion had occurred. This study uses qualitative and quantitative methods to analyze: (1) ICT development in Indonesia and East Java in the period of 2005-2015 in which telecenter diffusion occurred using the ICT Development Index, (2) telecenter innovation diffusion in East Java, and (3) Telecenter Sakti innovation-decision process in Gubugklakah Village by applying the Diffusion of Innovation theory, and (4) the impact of Telecenter Sakti towards the village community using the public ICT impact concept. This study found that access to ICT have generally increased in both rural and urban. In rural, household cellular telephone and computer ownership have raised significantly. In East Java, more rural household members own cellular telephone, and their internet access has significantly increased. Gaps remained with urban, emphasizing the importance of the availability of telecenter in villages. Telecenter innovation diffusion occurred in East Java as a result of authority innovation-decision by The East Java Communication and Informatics Agency (Diskominfo Jatim) through five stages. The knowledge, persuasion, and decision stages were inseparable from the role of Asianti Oetojo as the innovation "champion" who convinced key government officials at the regency/city level and members of the Regional House of Representatives to establish telecenter. The communication stage occurred with the agreement between the province, regency/city, and village government institutions on their specific roles in supporting the telecenter. The action stage began when the telecenter was established in the village, the management team was recruited from the local community, and an infomobilizer was deployed to help initiate adoption. Success stories of the telecenter were then communicated to other regencies and cities, which in turn facilitate diffusion of telecenter in East Java. Based on innovativeness, telecenters categorized as innovators and early adopters are mostly located in less developed regions, in contrast with late adopters and laggards. The rate of adoption was relatively fast as in just a decade's time telecenter has been established in all regencies and cities across East Java. Based on the analysis of the optional innovation-decision process of Telecenter Sakti in Gubugklakah Village this study found previous PC and internet use, occupation, social participation, household farm size and monthly expenditure influenced the degree of knowledge. The degree of persuasion is influenced by relative advantage and complexity. The degrees of decision, implementation, and confirmation are influenced by the previous stages. The relationship between the dependent variables is found to be significant and therefore support the theory. Telecenter Sakti and the availability of operator aid have facilitated users' access to ICT, information, and improved their skills in using computer and internet applications. At the community level, the local tourism awareness group (Ladesta) make use of the telecenter to develop and market agrotourism and ecotourism in the village and transformed Gubugklakah from an unknown village on the foothills of Mount Bromo to a national award-winning tourism village. Their efforts have stimulated many village economic activities such as homestays, tourist guides, transportation services, and partnership with travel agents and tourism sites, which have improved the well-being of the village households; and therefore, fulfilled the telecenter objectives of Diskominfo Jatim. Based on this evidence, the Government of Indonesia should consider telecenter as a part of the major project in the 2020-2024 Mid-term National Development Plan on digital transformation to improve village economy and prosperity.

خالصة البحث

في محاولة لتحقيق MDGs ، أنشأت حكومة إندونيسيا telecenters عبر العديد من المقاطعات في عام 2005 لتمكين المجتمع الريفي من الوصول إلى تكنولوجيا المعلومات والاتصالاتICT من أجل التخفيف من حدة الفقر. بعد عامين فقط استطاعت telecenters في جاوة الشرقية في الاستمرار ؛ وبحلول عام 2015 ، تم إنشاء telecenters 52 في جميع أنحاء المقاطعة ، مما يشير إلى حدوث انتشار. تستخدم هذه الدراسة الأساليب النوعية والكمية لتحليل: (1) تطوير تكنولوجيا المعلومات والاتصالات ICT في إندونيسيا وجاوة الشرقية في الفترة التي حدث فيها انتشار telecenter باستخدام مؤشر تنمية تكنولوجيا المعلومات والاتصالاتICT، (2) انتشار الابتكاريفي telecenter في جاوة الشرقية و (3) عملية اتخاذ قرار الابتكار ل Telecenter Sakti في قرية جوبوجكلاكا Gubugklakah من خلال تطبيق نظرية انتشار الابتكار Diffusion of Innovation، و (4) تأثير Telecenter Sakti باستخدام مفهوم تأثير تكنولوجيا المعلومات والاتصالات العامة. وجدت هذه الدراسة في الريف ، ارتفاع ملكية الهواتف الخلوية المنزلية وأجهزة الكمبيوتر بشكل ملحوظ. في جاوة الشرقية، يمتلك عدد أكبر من أفراد الأسرة في المناطق الريفية هاتفًا خلويًا، وزاد وصولهم إلى الإنترنت بشكل كبير. ظلت الفجوات قائمة مع المناطق الحضرية ، مما يؤكد على أهمية telecenter في المناطق الريفية.حدث انتشار telecenters في جاوة الشرقية نتيجة سلطة قرارات الابتكار من قبل وكالة جاوة الشرقية للاتصالات والمعلوماتية (Diskominfo Jatim).كانت مراحل المعرفة والإقناع والقرار تأثرت بدور Asianti Oetojo باعتباره "البطل" الذي أقنع عددًا من المؤسسات الحكومية على مستوى المدينة بدعم المبادرة. حدثت مرحلة الاتصال بالاتفاق بين المقاطعة والمدينة وحكومة القرية على أدوارهم المحددة في دعم telecenter. بدأت مرحلة العمل عندما تم إنشاء telecenter والفريق الإداري في القرية ، وتم نشر مشغل معلومات لبدء التبني للمبادرة. ثم تم نقل قصص نجاح telecenter إلى المقاطعات والمدن الأخرى ، مما أدى إلى انتشارها. استنادًا إلى الابتكار ، يوجد المبتكرون والمتبنون الأوائل في الغالب في المناطق الأقل نموًا ، على عكس المتبنين المتأخرين و المتخلفين. كان معدل التبني سريعًا نسبيًا حيث تم إنشاء telecenter في جميع المناطق والمدن خلال عقد من الزمن فقط. استنادًا إلى تحليل عملية اتخاذ القرار الاختيارية ل Telecenter Sakti، وجدت هذه الدراسة أن استخدام الكمبيوتر الشخصي السابق والإنترنت ، والمهنة ، والمشاركة الاجتماعية ، وحجم مزرعة الأسرة والنفقات الشهرية أثرت على درجة المعرفة. تتأثر درجة الإقناع نسبيا بالميزة والتعقيد. تتأثر درجات القرار والتنفيذ والتأكيد بالمتغيرات السابقة. تم العثور على علاقة بين المتغيرات المعتمدة لتكون مهمة وبالتالي تدعم النظرية.سهّل Telecenter Sakti وتوافر مساعدة المشغل وصول المستخدمين إلى تكنولوجيا المعلومات والاتصالات ICT والمعلومات وحسّن مهاراتهم في تشغيل تطبيقات الكمبيوتر والإنترنت.على مستوى المجتمع المحلي ، استفادت مجموعة التوعية السياحية المحلية (Ladesta) من telecenter للتسويق للسياحة الزراعية والسياحة البيئية وحولت Gubugklakah من قرية غير معروفة إلى قرية سياحية وطنية. حفزت جهودهم العديد من الأنشطة الاقتصادية والشراكة، مما أدى إلى تحسين رفاهية مجتمع القرية؛ وبالتالي، حققت أهداف telecenter ل Diskominfo Jatim. بناءً على هذه الأدلة ، يجب على الحكومة اعتبار telecenter جزءًا من الخطة التنمية الوطنية متوسطة المدى 2020–2024 لتحسين القرية وازدهارها.

APPROVAL PAGE

The thesis of Alfi Khairiansyah Machfud has been approved by the following:

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DECLARATION

I hereby declare that this thesis is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Alfi Khairiansyah Machfud

Signature ..... Date.....

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All praise due to the Almighty Allah alone. I praise him, I seek his help and forgiveness. I bare witness that there is no god worthy of worship except Allah and that Muhammad ṣallallāhu ʿalaihi wasallam is his servant and his messenger. All grand thanks and glory to Allah for giving me the strength to conduct this research. It is with Allah's permission, help, and blessings that this research has been possible.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Grounded from the belief that access to ICTs has a key role in fostering social and economic development, international bodies have embarked to bridge the digital divide —the gap between individuals advantaged by the internet and those who are relatively disadvantaged by the Internet caused by the divergence in the rates of its adoption (Rogers, 2001). In year 2000, in the United Nations Millennium Summit, world leaders committed on a global partnership to achieve eight international development goals by 2015 termed the Millennium Development Goals (MDGs). One of the targets is related to ICT; stated in Goal 8 Target 8F the Millennium Development Goals: "In cooperation with the private sector, make available the benefits of new technologies, especially information and communications technologies" (United Nations, 2014). In the same year, members of the G8 countries sign the Okinawa Charter on Global Information Society. The Charter calls both public and private sector to contribute to bridging the information and knowledge divide. The members were also committed to the principle of inclusion, that "everyone, everywhere should be enabled to participate in and no one should be excluded from the benefits of the global information society" (Ministry of Foreign Affairs of Japan, 2000).

Related to the MDGs target and the Okinawa Charter, in the subsequent events, i.e., the World Summit on the Information Society (WSIS) held in Geneva (2003) and Tunisia (2005), participating countries committed to bridge the digital divide by empowering the poor living in remote, rural and marginalized urban areas with access

to information and communication technologies (ICTs) and to use it as a tool to support their efforts to lift themselves out of poverty (International Telecommunication Union, 2005). Indonesia was among the many governments who signed the global initiatives.

Corresponding with the indicators of Target 8F of the MDGs, the Government of Indonesia established a goal that by 2015: (1) the proportion of population with fixed-line telephone is increased, (2) one hundred percent of population have mobile-cellular phones, (3) fifty percent of household have access to the internet, (4) the proportion of household with personal computers is increased (Ministry of National Development Planning of the Republic of Indonesia, 2010). In achieving the above goals, the government established the national fiber-optic broadband network (Palapa Ring project) that connects all major island in Indonesia with 497 regencies and cities. The government also provided access to telecommunications and internet services with the Universal Service Obligation (USO) to 33,184 villages with fixed-line telephone (*Desa Berdering* program) and 5,748 urban villages with internet access center (PLIK or *Pusat Layanan Internet Kecamatan*). The government also initiated the Smart Village Program (*Desa Pinter* program) which provides basic internet services to 131 villages across 32 provinces which aims to reduce the gap in educational information.

With 2015 marked the end of the MDGs program, the agenda was continued with the Sustainable Development Goals (SDGs) in which 17 development goals is targeted. In the SDGs period (2016-2030), ICT is considered as a crucial enabler and a catalyst in assisting to achieve the SDGs (International Telecommunication Union, 2016). Since the MDGs era, ICT has experienced the fastest global diffusion in history, exceeding any former technologies with the shortest time taken for the global public to adopt ICT-based applications such as mobile phones, internet, and social media.

In 2005, to accelerate the achievement of MDGs, the Government of Indonesia through the National Development Planning Agency (Bappenas) collaborated with the United Nations Development Program (UNDP) and launch the Partnership for e-Prosperity for the Poor (Pe-PP) program. The program aims to alleviate poverty by empowering poor communities to gain benefit from the availability of access to ICT for their social and economic activities. Through this initiative, telecenter innovation were then introduced in several rural and marginalized areas across several provinces: Central Sulawesi, South Sulawesi, Gorontalo, Papua and East Java. These areas were selected based on the consideration of poverty level, availability of basic infrastructure, commitment from local government, the presence of potential host organization and the possibility of synergies with other development programs (National Development Planning Agency & United Nations Development Programme, 2004).

The Pe-PP program was carried on in the period 2005-2007 and pilot telecenters were built during this time. Each telecenter was supported for two years in funding and other resources, and thereafter the telecenters were expected to self-sustain. Unfortunately, after two years of its implementation the pilot telecenters fail to sustain, all except two. Interestingly, these two sustaining telecenters were located in the same province, i.e., East Java Province. Moreover, ever since its initiation, telecenter has been replicated by the East Java Communication and Informatics Agency (Diskominfo Jatim) throughout the province; indicating there has been a diffusion of the telecenter innovation. By 2015, about ten years after the introduction of telecenter innovation, 52 telecenters had been built, covering all 29 regencies and 9 cities across the province. In addition, majority of the telecenters continue to operate and self-sustaining after the initial project support ends. On top of that, several telecenters were reported to succeed in giving desirable impact in the community.

On the other side, in 2007, the ITU held the World Telecommunication/ICT Indicators Meeting (WTIM) in Geneva whereby participating countries agreed upon the need of a global index that can measure the development of ICT and information society of countries around the world. In 2009, the ITU publishes the Measuring the Information Society Report that formalizes the ICT Development Index (IDI). In addition to measuring ICT development in a given country, the IDI was meant to measure digital gap between countries, to analyze using standardized indicators that can be compare across time and region, and to measure the potential of ICT development based on available resources and skills (International Telecommunication Union, 2016).

The conceptual framework of the ICT Development Index (IDI) explains the process of how a country to become an information society based of three stages: (1) ICT readiness, which reflect the level of access and infrastructure of ICT, (2) ICT Intensity, which reflect the degree of ICT use, and (3) ICT Impact which reflects efficient and effective use of ICT (International Telecommunication Union, 2016).

As generally known, the establishment of telecenter in rural and marginalized areas is a kind of local community development program using ICT. Its goal is to (1) empower local communities with ease of access to basic information such as market, agriculture, trade, education, and health, (2) to enhance local communities' skills in accessing information using computers through trainings, (3) to encourage them to improve local economies with community development activities using ICT, and (4) to develop partnership with relevant parties in building local community (Dinas Komunikasi dan Informatika Jawa Timur and Asosiasi Telecenter Jawa Timur, 2011). With that, telecenter becomes an integral part in moving Indonesia forward towards becoming an information society nation. Therefore, it is important to integrate the ICT