



**FACTORS INFLUENCING THE STATED PREFERENCE  
OF EMPLOYEES TOWARDS THE ADOPTION OF  
TELECOMMUTING IN IIUM CAMPUS, GOMBAK**

**BY**

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## ABSTRACT

Telecommuting is one of the Transportation Demand Management (TDM) measures that aimed at reducing peak hour traffic congestion. It allows commuters to work from home or a nearby telecommuting centre on certain days of the week. It is designed not only to help commuters to save their driving time to work, but more importantly to eliminate some vehicle trips. The purpose of this research is to investigate factors influencing the stated preference of the employees towards telecommuting adoption at the International Islamic University Malaysia (IIUM) and their perceptions on various aspects of telecommuting. The increasing number of staffs and students has contributed to the high number of private vehicles in IIUM. The increase in the private vehicle usage by the IIUM community (staff and students) is posing a strain on the capacity of the existing roads and the related infrastructure, to cope with the increasing traffic volume and parking demand within the campus. The existing traffic scenario in the IIUM has necessitated a study on the applicability of telecommuting as an alternative work arrangement. Therefore, it is necessary to investigate the level of acceptance of the telecommuting adoption and look into the initiatives of implementing it at the institutions of higher educational campuses. Particularly, the benefits that it will bring to the employees, and to address the current traffic and parking problems. Three hundred respondents participated in this study through survey questionnaire. The questionnaire included demographic profile, trip characteristics, work characteristics and perceptions of telecommuting. Three principal hypotheses and ten sub-hypotheses highlighting the relationship between the preference to telecommute and the presence of young children, married females with children, commuted distance, travel time, delay time, length of service, as well as frequency of face-to-face communication were formulated. The data collected indicate that 20.2% and 26.9% of administrative and academic respondents were very familiar with telecommuting concept. The findings of this study also show 29% and 19.2% of the academic and administrative staff preferred to telecommute while 44% and 52.5% reported that they might consider adopting telecommuting, if they were given the option. Chi-square test, Kendall's correlation coefficient and Cramer's V were conducted to test the statistical significant relationships between the preference to telecommute and demographic, trip characteristics, work characteristics and perceptions on the aspects of telecommuting. The presence and the number of young children, frequency of face-to-face communication and frequency of using emails were found to be significant factors that contributed to the propensity towards telecommuting for both administrative and academic staff. Marital status, nationality, commuted distance, travel time, delay time, commuted cost, allocation of time spent on research were significantly associated with the choice of telecommuting for academic employees. Given that the University does not have an official policy on telecommuting arrangement, some recommendations called for the penetration of telecommuting in the IIUM were proposed. Such as, (i) establish formal policy of telecommuting arrangement in the university; (ii) provide monetary assistance for necessary equipment; (iii) implement a telecommuting pilot project and (iv) monitor employees' productivity and quality of work through Key Performance Index (KPI) every half yearly.

## ملخص البحث

يعتبر العمل عن بعد أحد وسائل إدارة إحتياجات المواصلات (TDM). التي تهدف الى خفض ازدحام حركة المرور ساعة الذروة عن طريق السماح للركاب بالعمل من المنزل أو بالقرب من مركز إتصال عن بعد في أيام معينة من الأسبوع حيث إنها مصممة للقضاء على بعض الرحلات بالسيارة. الغرض من هذا البحث هو دراسة العوامل التي تؤثر في تفضيل العاملين لتبني العمل عن بعد في الجامعة الإسلامية العالمية بماليزيا و تصوراتهم حول مختلف جوانب الإتصال عن بعد. لقد ساهم العدد المتزايد من الموظفين والطلاب في زيادة عدد السيارات الخاصة في الجامعة الإسلامية العالمية بماليزيا . زيادة استخدام السيارات الخاصة في مجتمع الجامعة (الموظفين والطلاب) تشكل ضغطا على قدرة الطرق القائمة والبنية التحتية على تحمل الحجم المتزايد للمرور و مواقف السيارات داخل الحرم الجامعي. السيناريو الحالي لحركة المرور بالجامعة الإسلامية العالمية يهتم دراسة مدى تطبيق الإتصال عن بعد كبديل لإدارة العمل. ومن ثم، فمن الضروري دراسة مدى قبول تبني الإتصال عن بعد و النظر في مبادرات تنفيذ العمل عن بعد في مؤسسات التعليم العالي من الجامعات ، ولا سيما الفوائد التي سيكتسبها الموظفين مع التركيز على مشاكل المرور ومواقف السيارات الحالية. وقد استجاب 300 مشارك في هذه الدراسة عن طريق استبيان استطلاعي. المعلومات الواردة في الاستبيان هي البيانات الديمغرافية ، وخصائص الرحلة، و خصائص العمل و تصورات للعمل عن بعد . تم وضع ثلاث فرضيات اساسية و عشرة فرضيات فرعية تسلط الضوء على العلاقة بين تفضيل الإتصال عن بعد و وجود الأطفال الصغار ، أنثى متزوجة ولديها أطفال ، بعد مسافة السفر ، وقت السفر ، تأخير الوقت ، مدة الخدمة ، وكذلك تواتر الإتصال وجها لوجه. وأشارت البيانات التي تم جمعها من الاستبيان أن 20.2% و 26.9% من المستجيبين الإداريين والأكاديميين كان مفهوم الإتصال عن بعد مألوف جدا لديهم. أظهرت نتائج هذه الدراسة أيضا أن نسبة 29% و 19.2% من العاملين الأكاديميين و الإداريين يفضلون تبني العمل عن بعد بينما قرر 44% و 52.5% أنهم قد ينظرون في تبني الإتصال عن بعد اذا اتيح لهم الخيار. وقد أجري اختبار الكاي سكوير ، ومعامل ارتباط كندال و كيرمر لاختبار الدلالة الإحصائية للعلاقة بين تفضيل العمل عن بعد والبيانات الديموغرافية، وخصائص الرحلة، وخصائص العمل والتصورات عن جوانب العمل من بعد. و وجد أن وجود اطفال ، وتواتر الإتصال وجها لوجه و تواتر استخدام البريد الإلكتروني تساهم كعوامل هامة في الميل نحو العمل عن بعد لكل من الموظفين الإداريين والأكاديميين. الحالة الاجتماعية والجنسية، وبعد مسافة السفر، وقت السفر، تأخير الوقت وتكلفة الإتصال، و الوقت المخصص للبحوث ارتبطت كلها بشكل كبير مع خيار العمل عن بعد للموظفين الأكاديميين. وبالنظر إلى أن الجامعة ليس لديها سياسة رسمية لترتيب الإتصال بعد، تم اقتراح بعض التوصيات لزيادة تغلغل الإتصال عن بعد في الجامعة الإسلامية بماليزيا ، مثل (ا) وضع سياسة رسمية في الجامعة لترتيب الإتصال عن بعد. (ب) تقلص المساعدة النقدية للمعدات الضرورية (ج) تنفيذ مشروع تجريبي للإتصال عن بعد و (د) مراقبة جودة عمل الموظفين وإنتاجيتهم من خلال مؤشر الأداء الرئيسي (KPI) نصف سنويا

## APPROVAL PAGE

I certify that I have supervised and read this study and that in my opinion, it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a thesis for the degree of Master of Science (Built Environment)

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Dean, Kulliyah of Architecture  
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## DECLARATION

I hereby declare that this dissertation is the result of my own investigation, 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.

Farah Diyanah Ismail

Signature.....

Date .....

INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

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TOWARDS THE ADOPTION OF TELECOMMUTING IN IIUM CAMPUS,  
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## LIST OF ABBREVIATIONS

AIKOL	Ahmad Ibrahim Kulliyyah of Laws
CELPAD	Centre of Languages and Pre-University Academic Development
DIC	Dubai Internet City
DMC	Dubai Media City
EDU	Institute of Education
IIUM	International Islamic University Malaysia
ITD	Information Technology Division
KAED	Kulliyyah of Architecture and Environmental Design
KENMS	Kulliyyah of Economics and Management Sciences
KICT	Kulliyyah of Information and Communication Technology
KIRKHS	Kulliyyah of Islamic Revealed Knowledge and Human Sciences
KOE	Kulliyyah of Engineering
KPI	Key Performance Index
MLR	Multinomial Logistic Regression
MRR1	Middle Ring Road 1
MRR2	Middle Ring Road 2
NSF	National Science Foundation
RII	Relative Importance Index
SOV	Single-Occupancy Vehicle
SPSS	Statistical Package of Social Science
TDM	Transportation Demand Management
UAE	United Arab Emirates
USA	United States of America
UUM	Universiti Utara Malaysia

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 RESEARCH BACKGROUND**

Malaysia has been experiencing high levels of motorization over the past two decades to meet the growing transportation demand. The highest growth of urbanization and motorization in Malaysia was recorded in Kuala Lumpur, the capital city of Malaysia and Klang Valley Region (Noresah, 2012). The number of vehicles registered in Kuala Lumpur has increased from 2,357,971 in 2001 (Department of Statistics Malaysia, 2011) to 4,635,212 in 2010 (Ministry of Transport Malaysia, 2010). In Kuala Lumpur, the number of registered motor vehicles has been increasing continuously every year as a result of rapid economic growth and development (Suwardo et al., 2008). The demand for travelling to the city of Kuala Lumpur has increased due to increase in vehicle ownership. It is estimated that the demand for travel to the central area of the city will increase far beyond the capacity of the road network. The difficulty of constructing new roads or widening the existing ones, especially in Kuala Lumpur area, is due to the fact that the area has already been built up which makes land acquisitions difficult and costly (Morikawa, Yamamoto and Dissanayake, 2003). As cities become increasingly congested, new housing areas are relocated farther away from the city centre, while employment centers are concentrated or developed in the suburbia or fringe. Thus, the commuting distance increases, which results in a longer journey to work. The long journey creates problems that are associated with stress, longer travel time, higher transportation cost, increased energy consumption and environmental concern (Asmiza, 2008).

The Klang Valley region includes Kuala Lumpur and its surrounding suburban towns. Here, private vehicle ownerships is growing at an alarmingly faster rate with an average of 30,000 registered cars per month. Compounding the problem, only 17% (1.24 million) of the trips made utilized public transport while the remaining 83% (6 million) of the trips made were by private transport, of which the majority were single occupancy vehicles (Sabariah, 2011). This explains the huge traffic jams and constant traffic gridlock situations in Klang Valley region. Not surprisingly, most urban traffic congestion occurs during the peak travel hours when the majority of people commute to and from work (Cox, 2009). The increasing travel demand to the city was clearly found to be far beyond the capacity of road system, even after new roads were built and existing roads were improved. The Star (2011) reported that Malaysians' heavy dependency on private vehicles is due to the ineffective public transportation system. Culturally, private vehicle ownership is a major component of the prevailing attitude of what constitutes a good life and what is necessary or appropriate for a citizen is mobility (Sheller and Urry, 2000). As a result, various cities in developing countries are crammed with motorized vehicles and experience daily congestion (Tseu, 2006). The increase in the number of vehicles on the road infrastructure has given rise to traffic accidents, traffic congestions and reduced the efficient supply of parking spaces in the city (Norlida et al., 2008). There is also a growing concern from the excessive use of motor vehicles such as noise pollution, energy use and conservation and also environmental pollution (Saadiah and Noriani, 2008).

The problem of peak period traffic, especially in urban areas, is well documented and the data indicates that congestion is gradually worsening. Due to substantial costs involved, it seems implausible that the nation can provide sufficient capacity of road infrastructure to restore more favourable traffic conditions. Thus, by

eliminate some trips during the peak period, telecommuting be able to help relieve traffic congestions (Cox, 2009). Telecommuting is often suggested to be one of a series of public policy measures useful in reducing driving and its externalities (Mokhtarian, 1997; Mokhtarian and Salomon, 1995). The term “telecommuting” refers to the use of information and telecommunication technologies to work at home or at other location during regular working hours, instead of commuting to the workplace (Mokhtarian and Salomon, 1994). Often, telecommuting involves the use of computers and telecommunications technologies to maintain contact with the regular workplace (Mokhtarian, 1991a). The most common form of telecommuting practiced today is home-based (Stanek and Mokhtarian, 1998).

Noorliza and Muhammad Hasmi (2004) indicate that employees in this millennium are seeking for a quality of work-life and family-life. They are willing to work for the betterment of their family-life, and at the same time for their organizations. There have been many studies on the benefits of telecommuting. Across a variety of telecommuting program, research have reported that telecommuting can save time and travel costs, stressful journey to workplace and can help to build better quality of work-life as they would be able to focus and concentrate more as all domestic problems such as childcare and family is taken care of, which will also lead to higher efficiency and productivity (Asmiza, 2008). Nevertheless, those are not the only benefits. Samia and Richard (2006) mentioned that telecommuting is precisely the solution that can take many of those commuters out of their vehicles and out of those traffic jams, consequently, employees will be more productive, the roads will be less congested and the air will be less polluted. Telecommuters do not have to telecommute full-time to gain the benefits of telecommuting. Since most telecommuters spend two to three days a week working