

**THE INFLUENCE OF ABSORPTIVE CAPACITY AND  
TECHNOLOGY PARK SERVICES ON THE RELATIONSHIP  
BETWEEN SOCIAL CAPITAL AND TECHNOLOGY  
TRANSFER PERFORMANCE**

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DOCTOR OF PHILOSOPHY  
UNIVERSITI UTARA MALAYSIA  
NOVEMBER 2014

**THE INFLUENCE OF ABSORPTIVE CAPACITY AND TECHNOLOGY  
PARK SERVICES ON THE RELATIONSHIP BETWEEN SOCIAL  
CAPITAL AND TECHNOLOGY TRANSFER PERFORMANCE**

By

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Thesis Submitted to  
Othman Yeop Abdullah Graduate School of Business,  
Universiti Utara Malaysia,  
In Fulfillment of the requirement for the Degree of Doctor of Philosophy  
November 2014



**Kolej Perniagaan**  
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: The Influence of Absorptive Capacity and Technology Park Services on the Relationship between Social Capital and Technology Transfer Performance

---

Program Pengajian  
(Programme of Study)

: Doctor of Philosophy

---

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## ABSTRACT

The establishment of technology parks serves as a medium to promote the technology transfer processes in the high technology sector that plays a role to catalyze the productivity and growth of the national economy. Previous studies revealed that although there is anticipation of technology transfer activities among the companies within the technology parks, there is a limitation in the ability of local knowledge workers to produce new technology. Social capital and absorptive capacity were highlighted as essential in ensuring the success of technology transfer. This study examined the impact of technology park services on the relationships among social capital, absorptive capacity and technology transfer performance. It also focused on the influence of absorptive capacity on the association between social capital and technology transfer performance. A theoretical framework was constructed based on the perspective of the knowledge - based view theory to describe the relationships among these variables. Data was collected through a survey of 358 high technology companies operating in four selected technology parks in Malaysia. Out of the 97 questionnaires returned only 90 were usable bringing the response rate to about 25%. Using descriptive and inferential statistics, the data was tested and proven to support the research framework. Pearson correlation and regression analyses established that both social capital and absorptive capacity are essential to ensure high performance of technology transfer. There are mediating effects of absorptive capacity on the relationships between the dimensions of social capital and technology transfer performance. The results also demonstrated that technology park services have moderating effects on the strength of the relationships between the dimensions of social capital and technology transfer performance; as well as between absorptive capacity and technology transfer performance.

**Keywords:** technology transfer, social capital, absorptive capacity, technology parks, technology park services.

## ABSTRAK

Penubuhan taman teknologi adalah untuk membantu dalam menggalakkan proses pemindahan teknologi dalam sektor berteknologi tinggi yang berperanan sebagai pemangkin produktiviti dan pertumbuhan ekonomi negara. Kajian-kajian lepas mendapati bahawa walaupun ada kemungkinan berlaku aktiviti pemindahan teknologi dalam kalangan syarikat-syarikat dalam taman teknologi, keupayaan pekerja-pekerja tempatan yang berpengetahuan dalam menghasilkan teknologi baharu adalah terhad. Modal sosial dan keupayaan menyerap digariskan sebagai penting bagi memastikan kejayaan pemindahan teknologi. Kajian ini menguji keberkesanan perkhidmatan taman teknologi ke atas hubungan antara modal sosial, keupayaan menyerap dan prestasi pemindahan teknologi. Ia juga memberi tumpuan kepada pengaruh keupayaan menyerap terhadap hubungan antara modal sosial dan prestasi pemindahan teknologi. Dalam usaha untuk menggambarkan hubungan antara pembolehubah - pembolehubah ini, kerangka kajian telah dibina berdasarkan perspektif yang merujuk kepada teori 'Pandangan Berasaskan Pengetahuan'. Data dikumpul melalui kaedah kaji selidik ke atas 358 buah syarikat berteknologi tinggi yang beroperasi di empat buah taman teknologi yang terpilih di Malaysia. Daripada 97 borang soal selidik yang telah dikembalikan hanya 90 borang soal selidik yang boleh diguna pakai, dan memberikan kadar maklum balas sebanyak 25%. Data yang dikumpul telah diuji menggunakan statistik deskriptif dan inferensi, dan hasil analisis kajian terbukti menyokong kerangka penyelidikan. Korelasi Pearson dan analisis regresi mengesahkan bahawa kedua-dua modal sosial dan keupayaan menyerap adalah penting untuk memastikan prestasi pemindahan teknologi yang tinggi. Keupayaan menyerap mempunyai kesan perantara terhadap hubungan antara dimensi modal sosial dan prestasi pemindahan teknologi. Hasil kajian juga menunjukkan bahawa perkhidmatan taman teknologi mempunyai kesan moderasi terhadap kekuatan hubungan antara dimensi modal sosial dan prestasi pemindahan teknologi; serta antara keupayaan menyerap dan prestasi pemindahan teknologi.

**Kata kunci:** pemindahan teknologi, modal sosial, keupayaan menyerap, taman teknologi, perkhidmatan taman teknologi.

## ACKNOWLEDGEMENTS

In the name of Allah, the Most Gracious and the Most Merciful. All praise belongs to Allah whom we worship. I would like to extend my deepest gratitude and thanks to Allah the Almighty for giving me excellent health, energy and capability to complete my thesis.

This acknowledgement is dedicated to the following individuals who gave me valuable assistance, guidance and contributions for the completion of this dissertation directly and indirectly.

First and foremost, I would like to express my sincere gratitude for my academic supervisors, Prof. Ir. Dr. Che Sobry Abdullah and Associate Prof. Dr. Norlena Hasnan for their valuable time, guidance, opinions, suggestions, and encouragement throughout the preparation of this study.

My appreciation and big thank you to the Government of Malaysia which through its agency the Ministry of Higher Education provided the scholarship to enable the research to be conducted successfully in 42 months.

My thanks extend to my colleagues, individuals, and informants for their contribution to my research, particularly informants from Kulim Hi-Tech Park, Technology Park Malaysia, Cyberjaya, UPM-MTDC and Multimedia Super Corridor,

I also wish to thank to my fellow friends of School of Technology Management and Logistics whose valuable comments have enriched the development of the research. I am grateful to University Utara Malaysia for the commitment, facilities and resources provided during the entire process.

Special thanks to my beloved father and mother, Abidin bin Md Noor and Jamaliah binti Ahmad who never stop to pray for my success. This special thank also dedicated to my sister Asriyah for her support, understanding and patience throughout my study.

Finally, I wish to thank all individuals and institutions that have directly or indirectly contributed to the completion of my PhD dissertation.



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## LIST OF ABBREVIATION

10MP	Tenth Malaysia Plan
3OPP	Third Outline Perspective Plan
8MP	Eighth Malaysia Plan
9MP	Ninth Malaysia Plan
DV	Dependent Variable
GCR	Global Competitiveness Report
IASP	International Association of Science Parks
ICT	Information and Communication Technology
IJV	International Joint Venture
ISIC	International Standard Industry Classification
IV	Independent Variable
KBV	Knowledge-based View
KHTP	Kulim Hi-Tech Park
MOSTI	Ministry of Science, Technology and Innovation
MSC	Multimedia Super Corridor
NTBF	New Technology Base Firms
RBV	Resource-based View
SIRIM	Standard and Industrial Research Institute of Malaysia
TPM	Technology Park Malaysia
UNCTAD	The United Nation Conference on Trade and Development

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Introduction**

Technology is essential for business firms in order to remain competitive in energetic and dynamic business landscape today as it is a determinant of innovation and knowledge generation. As technological development is progressing rapidly, firms must respond quickly to the emergence of new technologies. For this reason, it is important for the firms to be involved in technology transfer, especially when firms' internal R&D is limited (Jagoda, Maheshwari, & Lonseth, 2010; Noor, 2010).

Technology includes more than machines, processes and inventions. It can be embodied in people, materials, cognitive and physical processes, equipment, tools and plant (Li-Hua & Lu, 2013). Mitelman and Pasha (1997) stated that technology transfer refers to activities that allocate the technology from the place where it was generated to other new place which involved adaptation to suit the new conditions. Technology transfer is the movement of physical structure, knowledge, skills, organization, values, and capital from the site of generation to the receiving site that should always involve modifications to suit new conditions (Choi, 2009).

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