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**THE EFFECT OF TECHNOLOGY DISRUPTION ON ORGANISATIONAL  
HEALTH: MEDIATING EFFECT OF COMPETENCE ADEQUACY AND  
MODERATING EFFECT OF INNOVATION CAPACITY AND  
COMPETENCE BUILDING**

**By**

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**Thesis Submitted to  
Othman Yeop Abdullah Graduate School of Business,  
Universiti Utara Malaysia,  
in Fulfilment of the Requirement for the Degree of Doctor of Philosophy**

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## ABSTRACT

As a world's fastest growing telecommunication market, India is undergoing evolutionary changes in telecommunication technologies. Rapidly changing communication technology has been posing innumerable challenges to the telecommunication companies in India for adequate skill availability and at the same time significantly changing competence requirements. The recognition of competence adequacy as a key factor to sustain organizational health in an increasingly competitive telecommunication sector has opened up several possibilities of competence based research. The study examined the inverse effect of technology disruption on competence adequacy and subsequently on the organizational health. Further, the organization's intervention to competence building and innovation capacity was also put through the moderating tests as balancing factors. Knowledge Evolution Theory underpins this study framework to highlight the competence issues caused by technology disruption. This quantitative study was conducted in India among four leading Telecommunication firms. An online questionnaire was administered to managers from the firms who were selected using stratified random sampling. The eight hypotheses of this study were tested with Structural Equation Modelling using AMOS software. The results of the study found significant positive effects of competence adequacy, innovation capacity and competence building on organisational health. Secondly, technology disruption was found to have significant negative relationship with both competence adequacy and organisational health. In addition, the interaction of competence building and innovation capacity on the path of technology disruption and competence adequacy significantly moderated the relationship and finally, competence adequacy was found to have a significant mediating effect on the relationship between technology disruption and organisational health. The study provides new directions to the practising human resource professionals to improve the competence adequacy in high technology industries especially among telecommunication companies. The results of the study also highlights the widening technology skill gap present in telecommunication industry in India. The findings of this study also have pointed out the importance of innovation capacity as balancing factor in technology firms in the wake of evolutionary changes in telecommunication technology.

**Keywords:** organizational health, competence, innovation capacity, telecommunications.

## ABSTRAK

Selaku pasaran telekomunikasi dunia yang paling pesat berkembang, India sedang melalui evolusi perubahan dalam teknologi komunikasi. Perubahan pantas teknologi komunikasi telah memberikan pelbagai cabaran kepada syarikat-syarikat telekomunikasi di India dari aspek ketersediaan kecukupan kemahiran dan pada masa yang sama mengubah keperluan kompetensi secara signifikan. Pengiktirafan kecukupan kompetensi sebagai faktor utama untuk mengekalkan kekukuhan organisasi dalam sektor telekomunikasi yang semakin kompetitif telah membuka beberapa kemungkinan kepada penyelidikan bersandarkan kompetensi. Kajian ini meneliti kesan pembalikan gangguan teknologi ke atas kecukupan kompetensi dan seterusnya ke atas kekukuhan organisasi. Selain itu, campurtangan organisasi dalam membina kompetensi dan keupayaan inovasi juga telah melalui ujian penyerderhana sebagai faktor-faktor pengimbang. Teori Evolusi Pengetahuan mendasari kerangka kajian ini untuk menengahkan isu-isu kompetensi yang disebabkan oleh gangguan teknologi. Kajian kuantitatif ini telah dijalankan di India di kalangan empat syarikat telekomunikasi yang besar. Soal selidik atas talian telah dilakukan ke atas pengurus-pengurus dari syarikat-syarikat tersebut yang telah dipilih melalui persampelan rawak berstrata. Lapan hipotesis kajian ini telah diuji dengan analisis Pemodelan Persamaan Struktur menggunakan perisian AMOS. Keputusan kajian ini mendapati kecukupan kompetensi, keupayaan inovasi dan pembinaan kompetensi mempunyai kesan positif yang signifikan ke atas kekukuhan organisasi. Selain itu, interaksi pembinaan kompetensi dan keupayaan inovasi ke atas hubungan di antara gangguan teknologi dan kecukupan kompetensi telah menyerderhana hubungan tersebut dan akhir sekali, kecukupan kompetensi didapati mempunyai kesan penengah yang signifikan ke atas hubungan di antara gangguan teknologi dan kekukuhan organisasi. Kajian ini telah memberikan hala tuju baru kepada pengamal-pengamal sumber manusia profesional untuk memperbaiki kecukupan kompetensi dalam industri berteknologi tinggi terutamanya di kalangan syarikat-syarikat telekomunikasi. Keputusan kajian ini juga telah menengahkan pelebaran dalam jurang kemahiran teknologi yang wujud dalam industri telekomunikasi di India. Dapatan kajian ini juga telah menegaskan kepentingan keupayaan inovasi sebagai faktor pengimbang dalam firma-firma teknologi dalam kebangkitan evolusi perubahan dalam teknologi telekomunikasi.

**Keywords:** kekukuhan organisasi, kompetensi, keupayaan inovasi, telekomunikasi.

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## LIST OF ABBREVIATIONS

2G/3G/4G	2 <sup>nd</sup> , 3 <sup>rd</sup> & 4 <sup>th</sup> Generation Telecommunication
AMOS	Analysis of Moment Structures
AVE	Average Variance Extracted
BSC	Balanced Score Card
CA	Competence Adequacy
CB	Competence Building
CLC	Corporate Leadership Council
CR	Composite Reliability
GSM	Global Standard for Mobile communication
IC	Innovation Capacity
ICT	Information and Communication Technology
IOI	Inventory of Organisational Innovation
KET	Knowledge Evolution Theory
KSAO	Knowledge, Skill, Attributes & Other characteristics
LTE	Long Term Evolution
OH	Organisational Health
R&D	Research & Development
RBT	Resource Based Theory
RBV	Resource Based View
RIM	Research In Motion
ROI	Return on Investment
TD	Technology Disruption

UMTS

Universal Mobile Telecommunication Standards

VRIN

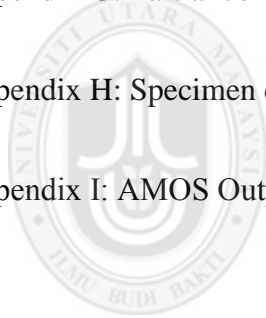
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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Introduction**

This chapter sets the foundation for this research study. The research is framed in the context of the technology companies, where environmental disruption is inevitable and frequent, particularly to the telecommunication sector. Through the section 1.2 and the subsections, this chapter provides the background and rationale of the study from the global perspective and further focussed to Indian telecommunication context. The section is followed by statement of the research problem, research questions and research objectives. Corresponding variables applied in the theoretical framework are briefly touched upon in this chapter. Theoretical, methodological and practical significance of the study is elaborated in section 1.6. Further, the scope and limitations of the research is covered in subsequent section followed by an overview of how the overall thesis is structured. Finally the summary section gives a quick overview of what had been covered in this chapter.

#### **1.2 Background**

The increasing rapidity of change in business environments and disruptive technologies are common to the Telecommunication industry today. These disruptive changes continuously affect the performance of these firms and sometimes influence their very existence itself (Esposito & Mastroianni, 2002). Technology disruption has caused an abysmal reduction of product prices and at the same time, the demand from consumers for superior product performance has increased (Munir, 2003; Real, Barbosa, & Vargas, 2006). Rapid progress in communication technologies has put

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