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FACTORS INFLUENCING THE ADOPTION OF INDUSTRY 4.0 AMONG SERVICE SECTOR SMES AND THE ROLE OF GOVERNMENT INTERVENTION

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ABSTRACT

This study aims to identify the factors influencing the successful adoption of Industrial Revolution 4.0 (IR4.0) among small and medium-sized enterprises (SMEs) in the service sector in Malaysia. The research addresses the concern that Malaysian SMEs have a low rate of IR4.0 adoption. To achieve this, a conceptual framework for technology adoption was proposed and validated, with a particular focus on government intervention as a moderator. The target population consists of service sector SMEs in Kuala Lumpur and Selangor, registered under SME Corporation Malaysia. The data was obtained from the Ministry of Entrepreneur Development and Cooperatives' (MEDAC) website. A pilot study verified the reliability of the instruments used for data collection, which involved self-distributed questionnaires and online surveys. A total of 248 useable surveys were collected and analysed using SPSS version 28 and SmartPLS version 4. The results yield a statistically significant relationship between IT capability, employees' skills and knowledge, supply chain management, operations management, relative advantage, complexity and compatibility to their respective dependent variable, the adoption of IR4.0. Top management support and cost however have shown a negative relationship to the adoption. The study has identified a significant moderating effect of government intervention on the relationship between relative advantage and cost with the adoption of IR4.0. Overall, this research substantially contributes to the understanding of technological implementation, presenting a new conceptual model to examine technology adoption factors in the context of small-scale businesses.

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CHAPTER ONE
INTRODUCTION

1.1 Introduction

This chapter provides an overview of the background of the study and the problem statement that motivates the study. The research objectives, questions, and gap are also enlightened in this chapter. In addition, this chapter further describes the research scope, significance of the study, and the operational definition for each important term.

1.2 Background of Study

The World Economic Forum (WEF) has advocated the term "Fourth Industrial Revolution" in recent years to describe the rapid and significant advancement of technology and its influence on society (Lee et.al, 2018; Dalenogare et al., 2018; Kannan et al, 2021). The term "IR4.0" refers to the current state of development in advanced manufacturing technologies involving process automation and data exchange. Characterised by increased automation and interconnectivity levels, the technological advances from IR4.0 have connected the cyber and physical worlds, gathering and exchanging data in real time between processes, products, services, and people (Tortorella et al, 2023). This integration leads to the emergence of new functionalities and improved capabilities from existing systems. IR4.0 can be compared to the three previous industrial revolutions that occurred in past centuries and signifies a profound and transformative change in many sectors due to advancements in technology (Mueller et al. 2017; Pereira & Romero, 2017).

However, some scholars foresee that IR4.0 will result in the emergence of innovative economic models not only in manufacturing but also agriculture and services sectors (Mhlanga, 2021). According to Yang and Gu (2021), the fourth revolution emerges because there is a distinct application-pull (industrial needs) and technology-push (technological advancements) that serve as a driving factor for this new revolution. Therefore, as a long-term development that involves high-quality standards of operational processes, IR4.0 is foreseen to transform and revolutionise various sectors