

**THE INFLUENCE OF TECHNOLOGIES,
ORGANIZATIONAL CAPABILITIES, AND PEOPLE
ON ORGANIZATIONAL PERFORMANCE IN
ELECTRONIC MANUFACTURING INDUSTRY.**

by

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LIST OF ABBREVIATIONS

E&E	Electrical and Electronics
RBV	Resource Base View
DC	Dynamic Capabilities
T	Technologies
OC	Organizational Capabilities
P	People
SA	Strategic Agility
OP	Organizational Performance
CEO	Chief Executive Officer
KPI	Key Performance Indicator
CMV	Common Method Variance

**PENGARUH TEKNOLOGI, KEBOLEHUPAYAAN ORGANISASI DAN
MODAL INSAN TERHADAP PRESTASI ORGANISASI DI INDUSTRI
PERKILANGAN ELEKTRONIK.**

ABSTRAK

Pengajian ini mengaplikasikan teori sumber (RBV) dan teori kebolehpayaan dinamik untuk menangani masalah prestasi organisasi di dalam konteks industri perkilangan khususnya sektor elektrik dan elektronik. Bertepatan dengan teori yang digunakan, pemilihan sumber yang diadaptasikan berpandukan daripada model I-TOP yang diperakui mampu memastikan kejayaan sesebuah syarikat. Pengajian ini tidak hanya tertumpu pada prestasi syarikat di dalam keadaan biasa, malahan ia melampaui lebih dari itu dengan mengkaji bagaimana sesebuah syarikat dapat mengekalkan prestasi dalam keadaan persekitaran yang dinamik dan perubahan tidak terjangka. Pengurusan syarikat ketika keadaan tidak terjangka dan kehadiran pesaing boleh mengganggu gugat prestasi sesebuah syarikat. Dengan memperkenalkan ketangkasan (agility) strategik di dalam sektor perkilangan, ia mampu memastikan kejayaan sesebuah syarikat boleh dicapai walaupun keadaannya terdedah kepada persekitaran yang dinamik. Thesis ini akan mengenalpasti pengaruh sumber antaranya: teknologi, kebolehpayaan organisasi, dan modal insan terhadap prestasi organisasi dan juga kesan ketangkasan strategik ketika keadaan suasana perniagaan yang dinamik dan perubahan tidak dijangka. Data yang di perolehi daripada kajian ini, dianalisa dengan teliti menggunakan kaedah persamaan struktur pemodelan (SEM). Kesemua pembolehubah yang di kaji seperti yang dicadangkan di dalam rangka kerja akan disahkan melalui hipotesis yang dibina. Antara teknik ujian yang di guna pakai dalam kajian ini termasuklah: statistik deskriptif dan analisa factor pengesahan. Terdapat empat dapatan yang menarik dalam kajian ini. Pertama, kebolehpayaan organisasi

merupakan pembolehubah yang terpenting terhadap prestasi organisasi. Kedua, kepentingan hubungan pemboleh ubah antara teknologi dan prestasi organisasi. Ketiga, tiada kepentingan pengaruh modal insan terhadap prestasi organisasi. Dapatan terakhir, membuktikan bahawa ketangkasan strategik boleh bertindak sebagai *mediator* diantara kebolehpayaan organisasi dan prestasi organisasi. Penemuan kajian ini memberi implikasi berguna kepada pengamal industri, antaranya ketangkasan strategik boleh diperolehi melalui usaha pemantapan kebolehpayaan organisasi terlebih dahulu. Kombinasi kedua-dua ini membolehkan syarikat bertindakbalas terhadap keadaan perubahan pasaran yang tidak dijangka dan memperolehi manfaat dari perubahan pasaran tersebut. Kesimpulannya, kajian ini berjaya memberi sumbangan dengan mengembangkan aplikasi teori sumber dan teori kebolehpayaan dinamik kepada industri perkilangan di Malaysia. Kajian ini berupaya meningkatkan pengetahuan akademik melalui dapatan berikut: (1) kesan hubungan langsung diantara teknologi, kebolehpayaan organisasi dan prestasi organisasi dan (2) kesan hubungan ketangkasan strategik sebagai mediator diantara hubungan kebolehpayaan organisasi dan prestasi organisasi.

**THE INFLUENCE OF TECHNOLOGIES, ORGANIZATIONAL
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ABSTRACT

This study employs resources-based view (RBV) and dynamic capabilities theory to address organizational performance issues within the context of electrical and electronic (E&E) manufacturing sector. Consistent with the theory, resources which were based from I-TOP model are vital to the success and performance of a firm. This study also explores beyond the significance of resources which influence organizational performance in manufacturing sector. Managing business in a dynamic business environment and intense competition from rival firms has often lead to inconsistent performance especially during difficult period and unpredictable business environment. Instituting strategic agility in manufacturing sector has been identified as a strategy to succeed in current business trend where firms are frequently exposed to highly competitive and uncertain business environments. This thesis seeks to explore the influence of resources and strategic agility impact in dynamic business environment towards firms' performance. The survey was carried out among E&E manufacturing firms in Malaysia. A total of 111 usable responses were received from the respondents. The data collected were thoroughly analyzed through structural equation modelling (SEM), including multi-group SEM analysis, as means to investigate all variables in the proposed framework and to confirm the hypothesis of interest. The technique used for data analysis were descriptive statistic, confirmatory factor analysis, including three types of validity test: convergent, discriminant and nomological test. Four broad sets of interesting findings are identified in this study. First, organizational capabilities is the strongest predictor of organizational

performance. Second, there is a mutual relationship between technologies and organizational performance. Third, people (human capital) has no significant influence on the organizational performance. Finally, this study revealed that organizational capabilities is mediated through strategic agility which helps manufacturing firms to continue to perform in a dynamic business environment or during unexpected changes. These findings provide important key value to practitioner, i.e. in dynamic business environment and unpredictable change, strategic agility is achievable and can be developed by having strong organizational capabilities. Combination of organizational capabilities and strategic agility will help organizations to swiftly respond and react to sudden market change and thus gain some advantages. In a nut shell, this study highlights the contributions by expanding the application of both the RBV and dynamic capabilities theories into manufacturing sector in Malaysia. This study is expected to enhance the academic knowledge particularly through: (1) the mutual effect of technologies, organizational capabilities and organizational performance and (2) the mediating effect of strategic agility on the relationship between organizational capabilities and organizational performance.

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Nowadays, Malaysia is known as a country that is steadily moving from being an agricultural- dependent to an export-driven country mainly due to the advancement in technology and education, and not forgetting the manufacturing industry. This fact is basically supported by some of Malaysia's greatest assets such as young workforce, educated and productive workforce (human capital) within the country and also in the regions of Asia. Malaysian's government always emphasize on the importance of human capital development, as it helps to ensure the continuous supply of manpower in order to meet the needs of manufacturing sector (MIDA).

The manufacturing sector is showing a positive growth where the average annual growth for gross output recorded an increment of 5% growth rate which is equivalent to 181.0 billion between 2005 and 2010 (Economic census, 2011). On top of that, our employment rate also follows the same trend with an increment of 1.6 % (137,197 people). As shown in Table 1.1, the manufacturing groups, electrical and electronic (E&E) sector is one of the biggest contributors to Malaysian economy. Besides that, the second highest gross output in the manufacturing sector was reported coming from the E&E manufacturing (used to be the first in year 2012's report). Therefore, this study will be focusing on the manufacturing of electrical and electronic products.

Table 1.1: Contribution to the Gross Outputs by Manufacturing Groups

Descriptions	Gross output (RM Billion)		% Share
	2012	2014	2014
Manufacture of refined petroleum products	113.0	171.7	18.9
Manufacture of electrical and electronic products	161.3	142.9	15.8
Manufacture of vegetable and animal oils and fats	103.5	117.0	12.9
Manufacture of basic chemicals, fertilizers and nitrogen compounds, plastic and synthetic rubber in primary forms	56.6	60.0	6.6
Manufacture of rubber products	32.1	35.7	3.9
Manufacture of basic iron and steel	28.6	28.7	3.2
Manufacture of plastic products	23.0	24.0	2.6
Manufacture of non-metallic mineral product	-	23.0	2.5
Other groups*	295.9	304.9	33.6
Total	836.5	907.9	100

*Other groups consist of 60 manufacturing group

Source: Department Statistic 2014

1.1.1 Electrical and Electronics Industry

In Malaysia' manufacturing sector, the electrical and electronics (E&E) industry is the major sector and it contributes 26.94 per cent to our country's manufacturing output, 48.7 per cent in exports and 32.5 per cent in employment rates. The gross output of E&E sector was recorded to be about RM142 billion for year 2012, while the exports in this sector were around RM235.5 billion. Other than that, this sector has created job opportunities for around 325,696 employees. Most of the E&E industries in Malaysia export's destinations are China, Singapore and USA (Economic Census 2014).

Up to date, the E&E industry in Malaysia is now able and has already developed important hi-tech manufacturing capabilities and skills for various range of manufacturing technologies such as semiconductor device (microprocessor,

photovoltaic cell), high precision electronics instruments (Oscilloscope, spectrum analyzer), and telecommunication products. The E&E industry in Malaysia can be categorized into the following sectors:

a) Consumer Electronics

Consumer electronics sub-sector normally produces products like television with LED technology, digital systems such as home theater and audio, and digital cameras. Two main manufacturers in this sub-sector are Sony and Samsung. According to MIDA, this subsector recorded RM22.36B export sale for year 2011.

b) Electronic Components

Electronic components manufacturer include semiconductor devices, passive components, printed circuit board and substrate. This sub-sector is mainly dominated by multinational companies from US and Europe. Semiconductor products constituted of export value RM107 billion. Year 2011 electronics components contributes 93.4 per cent of the total export, beside 50.8 per cent of the total electronic export.

c) Industrial Electronics

This sub-sector consists of multimedia and information technology products such as computers, computer peripherals, telecommunication products and office equipment. In 2011, majority of the investments approved amounting to RM2.6 billion were from Electronic Manufacturing Services (EMS) companies which is producing low volume high mix products for various applications such as medical, aerospace, oil and gas and telecommunication.

d) Electrical

The last sub-sector under E&E produced lightings, solar related products and household appliances such as air-conditioners, refrigerators, washing machines and vacuum cleaners. In 2011, highest investment seen in this sub-sector was reported on solar manufacturing sector. There were two main player under solar manufacturing sector in Malaysia which is First Solar and AUO- Sunpower.

1.1.2 Organizational Performance

In manufacturing, organizational performance and organizational excellence are the two main factors that required firms' chief executive officer (CEO) or chief operation officer (COO) to work on and put effort in order to achieve it. In addition to that, firms are required to have strategies and require ongoing initiative in order to develop value which will give impact to organizational performance. However, the fundamental questions raised in strategic management field are always on (1) how can manufacturing firms perform better and sustain their organizational performance and (2) how can manufacturing firms sustain their businesses and prosper in a competitive business environment. Therefore, it is important that successful manufacturing firms to normally begin with good working plan to expand and most importantly to deliver positive result and performance. Two most concerned areas were on firm financial performance and organizational performance. For instance, Neely (1999) has identified seven reasons why performance is a dynamic system and required for research. Out of seven highlighted in his research, changing in external demand (driven by customers) was an issue that organizations need to address in order to avoid poor organizational performance. Changing in external demand was mainly contributed by customers on products requirement, expectation, and preference of customers and how the organization determine the key factor that lead to satisfaction, loyalty and retention.

However, out of seven reasons, this thesis will only focus on changing in external demand. Furthermore, the subject on performance was also specially issued on British journal of management to address concerns and implications of the 2008 global financial crisis so that it could be understood (Chau, Thomas, Clegg, & Leung, 2012).

One of important indicators on firms' performance nowadays depends on how well is the relationship between firms and its customers. This is due to the fact that customer's role has shifted from a simple recipient of transaction to a subscriber or act as an improver of a firm's product, service, or capability (Yang & Liu, 2012). In many occasions, customers normally demand unexpected requests such as product variety, and a good quality (product and service). Firms must be able to response swiftly to the demand in order to ensure customers will not be disappointed. On top of that, the firms will have additional advantages if they are able to detect any changes in customers' preference or market trend and immediately get it executed. Hence, it is essential for firms to form strategies that have agility or flexibility to quickly adapt to changes and consequently able to manage unforeseen request, changes and risks related to market conditions. In current globalization era, contemporary organization must have agility to successfully survived in the turbulent business environment (Overby, Bharadwaj, & Sambamurthy, 2006).

According to Al-Dhaafri, Yusoff, and Al-Swidi (2013), in current business situation in order for firms to be successful an organization must be able to face globalization, dynamic market and it has to ensure that the resources, either tangible or intangible can be used to differentiate the level of performance on organization from its rival. For instance, a firm that is strategically located such as factory built near

to the airport and with experienced (knowledge) workforce will obviously have significant advantage compared to its rival.

1.1.3 Issues Related to Organizational Performance

Customers' feedback can be the right information used by firms as a key performance indicator (KPI) to measure the health of a firm's performance. In manufacturing industry, when customers provide feedback in the form of product return (i.e. quality issue), suggestion in terms of service, product specification, features, and quality, they can be used for quality improvement activity. All the data and information collected from the customers are used as a reference to improve products or service quality with regards to customers' preferences. Commitment to fulfill a customer's request is important in order to ensure customer's satisfaction. Kaynak (2003) claimed taking and disseminating input and quality data throughout organization will assist organization to detect quality issues and take necessary action (Kaynak, 2003)

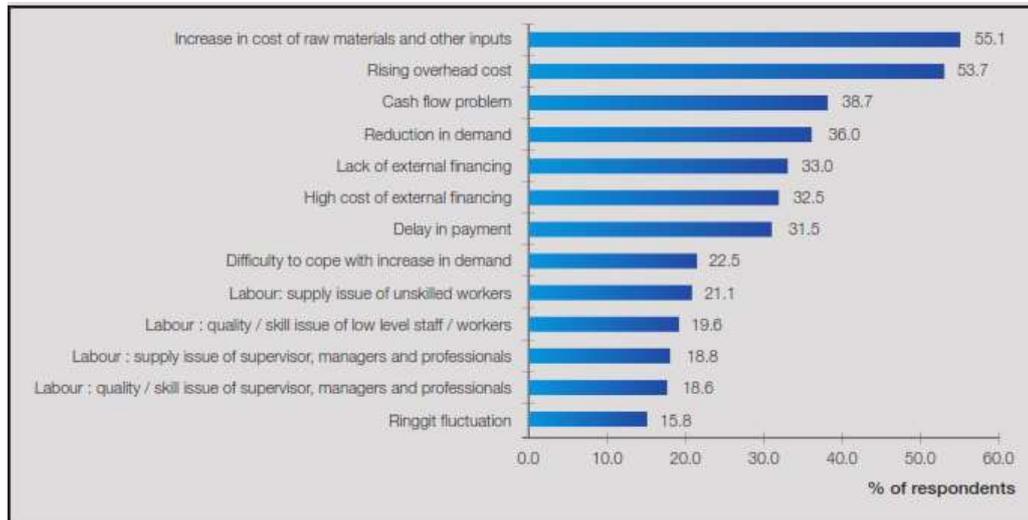
Besides, the fortune of every business relies upon the decision making by the CEO, managers, and sometimes senior executives where the input that normally comes from management staff and every decision made will influence the overall business performance. Right decision made by the managers will help to improve organizational performance (Combs, Liu, Hall, & Ketchen, 2006; Shepherd & Rudd, 2013). Combs also stressed that in order to make better decisions which will lead to organizational performance, employees should be given knowledge, skills and abilities before good or quality decision can be made. For instance, in manufacturing environment some products shipped to the customers will be returned back to factory due to quality issue, wrong product shipped out to customer or wrong specifications. Managers or quality

engineers are expected to make fast decision and make disposition on how to control and handle the situation. Wrong decision will lead to unhappy customers and finally will result in poor organizational performance (Shepherd & Rudd, 2013).

Another area that an organization should work on is the strategy to implement changes that will give impact to firm's performance after decision has been made. The reason for the changes can be due to internal (occur within the organization) and also external factors which are contributed by dynamic environment change. Organizations irrespective of their size, age, or industry are facing continuous challenge from competitors and also due to dynamic environment and market change (Hitt, Ireland, & Hoskisson, 2012). Question of what need to be done for implementing any changes coming from external and internal of an organization might arise. In other word, during implementation stage on reacting with unpredictable, dynamic, and constantly changing environment, firms must consider what types of infrastructure, tools and method should be applied in order to ensure that execution are carried out per planned. Strategy implementation can become crucial to organization since it depends on team leader role, commitment, and empowerment authority for successful execution of the strategic implementation process (Ramaseshan, Ishak, & Rabbanee, 2013).

Figure 1.1 was extracted from SME Corporation Malaysia survey and based on this survey (National Development SME, 2012), the top 3 main issues which were (1) increased of raw material price, (2) rising overhead cost, and (3) cash flow problem remain as the major issues confronting SME's. Current issues trend required firms to not even think of factors from domestic issues but they need to go beyond that since they also have to deal with global economic issues where likelihood also expose to

regulation change. This is vital since SME was also a part of Malaysian Eleven Plan focus, where efforts have been undertaken to enhance exports contribution to 25% by 2020.



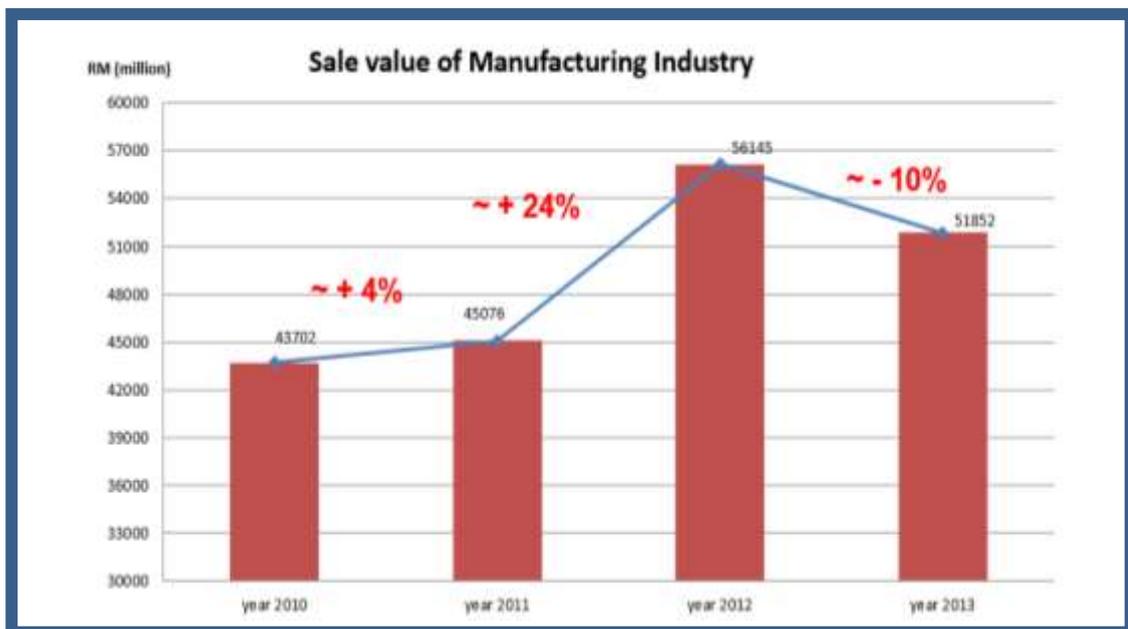
(Source: Year 2012 National Development, SME Survey).

Figure 1.1: SME Corporation Survey

As Malaysia manufacturing sector was recognized as a major contributor to job creation and economic growth, a proper plan or strategy must be in place to ensure that it continue to survive and exist in the industries. Although Malaysia SMEs have recorded credible growth over the last few years (Department Statistic, 2014), several issues to be addressed such as difficulty to cope with increase in demand, difficulty to obtain suitable people and increase in materials cost remain. Also, among the impediments, include slow adoption of innovation, lack of long-term business plan and challenges from uncertainties in the external sector and intense competition in the market places (Treasury Malaysia, 2013). Therefore, with strategic agility it will help firms to overcome the issues highlighted from the SME corporation survey (Piotr, 2015). It would be wise, to eye how the importance of manufacturing industry to economy significantly depends on their ability to fulfill these roles effectively and consistently. Hence, the right approach and strategy are required by the manufacturing

firm to focus either on technological or commercial innovation and niche strategy with a differentiate product or service (Analoui, 2003).

Another data released by Malaysia statistic department also recorded the sales value of manufacturing sector declined as shown in Figure 1.2 below. What actually attract researcher to find out is although firms have invested in resources such as technology, organizational capability, and people but declining in sale performance is still unexplainable. Therefore, this research has opened opportunity for researchers to further investigate any possible solutions to improve the firms' performance in the dynamic business environments. For instance, can strategic agility minimize the impact that lead to poor organizational performance?



Source: Statistic Department 2013

Figure 1.2: Sales Value of Manufacturing Industry (Semi-Conductor).

In addition, the increasing competition from other regions such as China, Thailand, Philippines, and Vietnam also force Malaysia manufacturing sectors to rethink their current strategies towards firms' performance and competitive capability which could be the main factor shrinking the sales and profit (Treasury Malaysia, 2013). Realizing these issues have significant impacts toward organizational performance, the right resources or capabilities and fast reaction are needed in order to overcome the issues. In this study, firm's competition will be focus on how firms compete in the following dimensions: price, product, meeting customer delivery time and maintaining high quality of products.

1.2 Problem Statement

Firms have always had to deal with continuous change in their operational environment in order to stay competitive and the most important task for organizations is to manage uncertainties. The numbers of firms closed in manufacturing industry was due to lack of firm ability to attained sustainable organizational performance (Sharifi & Zhang, 2001). Neely (1999) has identified seven reasons why performance management is a dynamic system and require firm's manager to equip with knowledge and strategic planning. Since business environments are dynamic in nature, firms are required to ensure that they are capable on managing change in order to stay competitive (Salloum & Cedergren, 2012).

In addition, due to stiff competition in today's business environment such as rapid development of technologies (Wu, Liang, Yu, & Yang, 2010), globalization (Tuanmat & Smith, 2011), and high expectation from customers to deliver good quality and service (Chiang, Han, & Chuang, 2011) also make manufacturing firms

fail to survive. Empirical studies have also shown that manufacturing firms that focus on competitor capabilities did contribute to superior firm's performance (Ojha, 2008).

Based on Malaysia Economic report (2012/2013), lack of business planning and challenges from uncertainties in demand and intense competition in the market place show that E&E manufacturing firms need to give attention to this in order to stay competitive and profitability. A survey conducted by SMEs Corp indicated that more than 50% respondents raised their concerns on difficulties in managing their businesses when the cost of raw materials increase and the rise of overhead cost due to volatility of sale volume. Whereas, the issues faced by large manufacturing and multi-national is on the ability to adjust their human resource policy (due to headcount change), new product development process (Rogers, Ojha, & White, 2011), effective supply chain collaboration and co-ordination (Farooq & O'Brien, 2012).

In summary, based on Figure 1.2 the sale value of electrical and electronic firms is dynamic and the increasing or decreasing of sale value has created difficulties to E&E organizations in managing their firms' activities without proper strategies. In other words, Malaysia manufacturing firms that are involved in electrical and electronic business are exposed to rapid business environmental change and unpredictable demand from customers, which need urgent attention and proper planning in order for the organization to overcome the issues.

In view of the above issues, this study will explore how Malaysian manufacturing firms could enhance organizational performance via technologies, organizational capabilities, and people since firms' that make use of valuable

resources will lead to superior performance (Ray, Barney, & Muhanna, 2004). Understanding technologies (Pavlou, & Du, 2012), organizational capabilities (Zulkiffli, 2010), and people (Jiang, 2012) in separate manner has been done by previous researchers and sometimes produced inconsistent result. Therefore, technologies, organizational capabilities, and people need to be explored and understood in an integrated manner (cumulative effect) in order to address the issues highlighted above.

Since the main concern for E&E firms is on organizational performance, thus appropriate questions are required to be addressed such as what type of resources is the most influential towards organizational performance? To the researcher's knowledge, there are no other studies found empirically investigating technologies, organizational capabilities, people and strategic agility in an integrated manner in Malaysia. From the past studies, it is difficult to draw the right conclusions about which resources is to make significant contribution towards organizational performance.

Although technologies, organizational capabilities, and people as resources are important towards organizational performance, the ability for an organization to manage continuous changes in the business environment is becoming critical. Firms that succeed in today's competitive environment have to evaluate their internal and external environment due to opportunities and challenges in order to sustain their growth and remain competitive (Al-Dhaafri, Yusoff, & Al-Swidi, 2013). Hence, strategic agility is required to make manufacturing firms become more robust and flexible to attain superior firm performance in order to optimize organization

performance. Since it allows organization to be flexible and adaptable (Doz & Kosonen, 2008) strategic agility makes firms more responsive towards timely decision making, sensing, and fast implementation when associated with firms strategy in reaction with changes. In addition to that, little attention has been given on capabilities that require to prepare organization when uncertainties occur during dynamic business condition (Piotr, 2015). Thus, the gap described above justified for a study to be conducted.

In a nutshell, manufacturing firms will be unable to optimize organization performance if they are not proactive in managing changes in their business environment as accurately as possible in Malaysia. Thus, the main problem of the research can be stated as follow: Do technologies, does organizational capability, and do people influence organizational performance during dynamic market environment? What types of resource is the most significant during dynamic market environment? How does strategic agility mediate the relationship between the selection of resources and organizational performance?

1.3 Research Questions

Base on previous discussion, the following questions can be generated accordingly by the research:

1. Do technologies have significant influence on organizational performance?
2. Do organizational capabilities has significance influence on organizational performance?
3. Do people has significance influence on organizational performance?

4. Does strategic agility has significance influence on organizational performance?
5. How strategic agility mediate the relationship between technologies on organizational performance?
6. How strategic agility mediate the relationship between organizational capabilities on organizational performance?
7. How strategic agility mediate the relationship between people on organizational performance?

1.4 Research Objectives

The main purpose of the research is to study the relationship – technologies (T), organizational capabilities (O), people (P), strategic agility and organizational performance.

In doing so, this study will identify the following relationship

1. To investigate the relationship between technologies and organizational performance (OP).
2. To evaluate the relationship between organizational capabilities and organizational performance (OP).
3. To investigate the relationship between people (human capital) and organizational performance (OP).
4. To evaluate the relationship between strategic agility and organizational performance (OP).
5. To examine the mediation effect of strategic agility on the relationship between technologies and organizational performance (OP).

6. To investigate the mediation effect of strategic agility on the relationship between organizational capabilities and organizational performance (OP).
7. To examine the mediation effect of strategic agility on the relationship between people (human capital) and organizational performance (OP).

1.5 Scope of the Study

This study focuses on the context of E&E manufacturing organizational performance in Malaysia when subject to dynamic market environment. In addition, it also focuses on the relationship between endogenous and exogenous variables, including the presence of mediating variables on such relationship. The E&E manufacturing sector was chosen because of contribution towards Malaysian economy gross output and employment. Its scope is limited to those manufacturing with firm turnover with more than RM300, 000 per year. This study uses data from only the most important single respondent for each participant firm, such as manager from quality, human resources and operations department.

1.6 Research Significance

This study contributes to the growing body of knowledge in resources-based view (RBV) theory where the variables used in this study was derived from I-TOP model (Muthuveloo & Teoh, 2013) which would enable organizations to optimize their return on investment and eventually lead to organizational performance. First, this research extends Muthuveloo and Teoh's (2013) work on how firms can continuously achieve organizational performance and sustain the business in unpredictable, dynamic and constantly changing environment. All critical resources (selected from I-TOP model) were expected to influence business performance via technologies,

organizational capabilities, and people. While these three variables were expected to become consistent predictors of organizational performance, further empirical studies are necessary to confirm the effectiveness of these three variables when combined together (cumulative effect). As mentioned by Muthuveloo and Teoh (2013) current strategic model such as industrial-organizational model depends very much on opportunities that are available in the market which organizations are required to perform ground work like environmental scanning. Typically, indicator used by organization is on capability to obtain above average returns. Whereas organizational-industrial model will look after what actually available within the organization (i.e. excess equipment capacity and operators). Determining factor use by organization shall make use of un-utilized capability in order to achieve above average return. Thus, by choosing variables from I-TOP model which were extended from resource-based view theory, this research will expand the knowledge on cumulative effect towards superior firm performance.

Second, from the literature, most of the resources selected in I-TOP model are claimed to be influential resources in achieving organizational performance. Technology (Shengbin & Bo, 2011); organizational capability (Bharadwaj, 2000), and People (Boselie, 2008). Since organizational performance is used as an ultimate indicator, the selection of resources from I-TOP model alone also will lead organizations to develop inertia such as when unpredicted technological disturbance happens, business conditions change, or unforeseen new competitor appears, and so on. This may eventually jeopardize the organizational performance. Therefore strategic agility will come to help firms gain momentum toward ambitious objectives and overcome the organizational problems during uncertainties and during market

changes. Thus, this study is to undertake further understanding on the importance of strategic agility when dealing with unpredictable, dynamic, and changing environment. Also, this study proposes that strategic agility acts as a mediator between resources and organizational performance. Hence, this study is expected to provide further explanation on how strategic agility in term of awareness (sensing), quick decision making, and quick implementation will support and improve firms' performance during unpredictable, dynamic, and changing environment.

Third, for practical contributions, this study will identify cumulative effects and the most influential factors (resources) that enable firms to achieve organizational performance. The dimensions explored in this study are: - types of employees require for manufacturing, technology selection, technology management, technology capabilities and organizational capabilities. This study suggests that firms' performance in E&E sector may be achieved through the right resources employed in an organization. In order to meet the challenges in a dynamic environment, managers must develop strategic agility capability so proactive measures can be taken to ensure firms' competitive advantage can be sustained. Ability to detect change, quick decision, and quick implementation will become significant dimensions to strategic agility capability.

1.7 Definition of Key Terms

In order to avoid any potential confusion in interpretation of the concepts employed in this study, the definitions of terminologies used in this research are presented below. These definitions are used as guidelines in discussing the term use is literature review and hypotheses development.

Technologies (T)

View as combinations of information, computing, communication, and connectivity technologies (Bharadwaj, Sawy, & Pavlou, 2013). Three main components focus in this study technology selection, technology management, and technology capability.

Organizational capabilities (O)

Organization capability can be defined as the “ability to perform repeatedly a productive task which relates either directly or indirectly to a firm’s capacity for creating value through effecting the transformation of inputs into output”(Grant, 1996). Focus will be given on customer management capability, process management capability and performance management capability.

People (P)

People here refer to employees with knowledge and skills embodied in individual which can’t simply applied in difference organizations (Kor & Leblebici, 2005). In this study, there are three components base on Erickson (2007) name as ‘expressive legacy’, ‘individual expertise and teams success’, and ‘low obligation and easy income’. Focus will be given on selecting right type of personnel to be employed.

Strategic Agility (SA)

Strategic agility as a paradigm that facilitates firms to quickly respond to external and dynamic demands (Vinodh, 2010). Focus will be given on how organizations respond toward change and uncertainties in terms ability to detect change, make speedy decision, and implementation.

Organizational performance (I)

In line with Sink and Tuttle (1989), this study defines organizational performance as “the level of firms’ performance (increase/decrease) in terms of effectiveness and efficiency of organization”. In this study firms will be evaluated base on how effective their ability to produce right cost, innovation, quality, and delivery reliability.

Manufacturing Firms

Manufacturing firm refer to organization with turnaround exceeding RM300, 000 per annum, which consist of small and medium-sized enterprises (SMEs), large manufacturing and multinational companies in electronic and electrical sector.

Resources

Resources refer to selection of variable used in this thesis. Variables use to represent resources are technologies, organizational capabilities, and people.

1.8 Organization of the Thesis

The current chapter introduces the context of the research covering issues such as the background, research gap, objectives and significance in order to give an overview idea of this study. To explain the further insight of this research, the remaining sections of the thesis are as follows:

Chapter Two: The literature review chapter examines the main theories and identifies gaps, which formulate the conceptual framework of this research. This chapter also provides a review of the previous literature on the constructs incorporated in this research. The theoretical framework and hypotheses

development chapter describes the conceptual framework developed in this research and explains the development of hypotheses are also discuss in this chapter.

Chapter three: The research method chapter starts with a discussion on the research paradigm and the choice of paradigm that has been employed. This chapter also describes the research process, research design, instrument development and data collection procedures.

Chapter four: The chapter concerning on data analysis where PLS-SEM statistical software was used to analyzed independent variables, mediator toward dependent variable.

Chapter five: This final chapter will discuss the implication and conclusion of research finding, discusses the implication, describe the limitation of the research and recommendation for future research.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

From the discussion in chapter 1, it has found that technologies, organizational capabilities, people and strategic agility being the key factors that will bring firms to obtained organizational performance. Thus this chapter extensively reviews the literature pertaining to the current research which includes organizational performance, technologies, organization capabilities, people, and strategic agility. This chapter will discuss with a detail explanation of resource-based view theory, I-TOP model and dynamic capabilities in order to provide clear understanding of the main underpinning theory this research. In this section also, theoretical framework and hypothesis of this research explain in two major sections. The theoretical framework and the development of hypothesis discuss and explain in two section. At the end of this chapter a short summary will be concluded.

2.2 Organizational Performance

The concept of organizational performance is related to the survival and success an organization. Until now, there are numerous researches that address organizational performance because of the importance in developing organizations and the implication of studies on organization effectiveness and competitiveness. In the strategy management literature, organizational performance is considered as one of the most important construct in the field of strategic management and organizational studies (Combs, Crook, & Shook, 2005; Richard, Devinney, Yip, & Johnson, 2009).

Richard et al. (2009) also mentioned that organizational performance is the ultimate dependent variable of interest for researcher concerned for any area of management. This is applicable in any field and any modern industrial activity such as marketing, operations, human resources (HR), and strategy are all ultimately measured by their contribution to organizational performance. Organizational performance normally used by managers as an indicator to measure and evaluate the specific actions of firms and managers. Firms that performing better than their rival must produce quality products/service and ready to evolve over time.

2.2.1 Importance of Organizational Performance

Subject on performance management has been actively explored in the last couple of years and has increased in term of numbers of research papers produced concerning on performance management. For instance, when 2008 financial crisis hit globally thus, researchers divert the concerns how the subject of performance management can be better understood when dealing with crisis during economic down turn. Furthermore, in recent years researcher is more focus on asking what to measure and how to measure it accurately. For example, most popular key performance index used was customer voice, customer satisfaction, employee retention and quality of product and service. According to Cascio, (2011) organization with strong performance management processes are 51% is normally outperform their rivals on financial measures and 41% is most likely to outperform their rivals on non-financial measures.

Due to nature of competition in dynamic market, Malaysia manufacturing firms are no longer competing among local but also competing with foreign firms as

well. This trend forces firms' to react differently and require them to focus on improving customer service quality, speed, reduce operating cost, flexible and most important to ensure firm continuously enhances profitability performance. For example, many strategies and practice have been introduced such as total quality management (TQM), six sigma, just in time (JIT), and lean manufacturing that addresses management concern to produces good manufacturing products to consumers.

In manufacturing industry TQM has been widely accepted and confirmed as a critical determinant that able to enhanced firms competitive advantage that lead to organizational performance (Douglas & Judge, 2001; Yunis, Jung, & Chen, 2013). Previous study has confirmed firm with quality management implemented will enable firm to improve firm's innovative capabilities thus enhancing the level of organization competitiveness and performance (Kieser & Koch, 2008). Firms that have good operational capabilities will reflect how well the firm developed their portfolio of business processes, including manufacturing, customer relationship, customer service, logistic and delivery that will enhance firm performance.

2.2.2 Organizational Performance Definition

The definition of organizational performance Table 2.1, is surprisingly open question and although performance is common in management research however definition are rarely explicitly justified

Table 2.1: Definition of Organizational Performance

Definition	Source
The system of organizational performance is a complex relationship between six performance criteria: innovation, effectiveness, efficiency, productivity, quality, and profitability.	Sink & Tuttle (1989)
Defined organizational performance as a measure used by organizations to manage well their effectiveness, and deliver value to stakeholders and customers.	Moullin (2007)
Defined organizational performance as an instrument and measurement that used to evaluate and assess the successfulness of organizations to create and deliver value to their external and internal stakeholders.	Antony & Bhattacharyya (2010)

In organization theory, organizational performance is a multi-dimensional and can be categorized into effectiveness and efficiency (Chang, Park, & Chaiky, 2010). Effectiveness refer to ability of firms at what degree to which targeted goals can be achieved, whereas efficiency represent by the ratio of organizational resource input consumed to goal outcomes achieved (Vorhies & Morgan, 2005).

Even though literature on performance is very extensive but there is still a lack in consensus about the meaning of the term (Johannessen, Olaisen, & Olsen, 1999). According to Murphy, Trailer, & Hill, (1996) a total of 71 different measure of performance was observed however this trend has increased to 207 as reported by Richard et al., (2009). Commonly, majorities of the studies on performance either on financial performance and non-financial performance or sometimes are group together (Henri, 2006). The above mentioned definitions prompt managers to aspire for excellence and working toward achieving outstanding levels of performance, by any means whatsoever.