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**EFFECT OF KNOWLEDGE MANAGEMENT, MANAGEMENT  
INNOVATION AND DYNAMIC CAPABILITIES IN SUSTAINING  
COMPETITIVE ADVANTAGE IN TURBULENT BUSINESS  
ENVIRONMENTS**



**UUM**  
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**Universiti Utara Malaysia**

**DOCTOR OF PHILOSOPHY  
UNIVERSITI UTARA MALAYSIA**

**EFFECT OF KNOWLEDGE MANAGEMENT, MANAGEMENT  
INNOVATION AND DYNAMIC CAPABILITIES IN SUSTAINING  
COMPETITIVE ADVANTAGE IN TURBULENT BUSINESS  
ENVIRONMENTS**



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



**Pusat Pengajian Pengurusan Perniagaan**  
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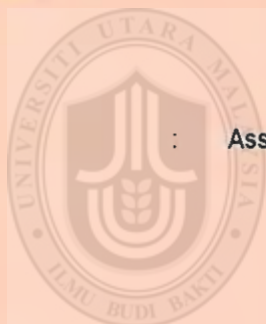
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## ABSTRACT

The main purpose of this study was to examine the association of multiple firm-level capabilities (i.e. knowledge management, dynamic capabilities, and management innovation) with a proposed sustainable competitive advantage measurement in the Malaysian Electrical and Electronic industry. While sustainable competitive advantage was examined in relationship to multiple firm-level capabilities, this study also assessed the moderating effects of perceived environmental dynamism between the predictor variables and the criterion. The motivation for this study was driven by the need to examine sustainable competitive advantage in a holistic manner. This study used the resource-based theory (RBT) as the main theory to examine the relationships between the variables in the proposed conceptual framework. The simple random sampling procedure was used to select the targeted respondents comprised of E&E manufacturing firms in Malaysia. Of the 185 usable responses, the partial least squares structural equation modelling (PLS-SEM) was used to test the research hypothesis. Positive relationships were found in two direct relationships: sustainable competitive advantage and knowledge management, sustainable competitive advantage and dynamic capabilities, while perceived environmental dynamism did not moderate the relationships between the predictor variables and the criterion variable. While developing a new measure to conceptualise sustainable competitive advantage, its relationships with knowledge management, dynamic capabilities, and management innovation are hoped to contribute nascent theoretical insights. Practically, the findings provide the E&E manufacturing industry some guidance on how to sustain competitive advantage over the competitors. Likewise, the understandings may also assist the policy-makers to develop or to adjust policies to better-fabricate assistance channelled to the E&E manufacturing industry. Methodological limitations and potential avenues for future research are also identified.

**Keywords:** Sustainable Competitive Advantage (SCA), Knowledge Management (KM), Management Innovation (MI), Dynamic Capabilities (DCs), Electrical and Electronics (E&E) Manufacturing Industry.

## ABSTRAK

Tujuan utama kajian ini adalah untuk menyelidik keupayaan persatuan di pelbagai peringkat firma (iaitu, pengurusan pengetahuan, keupayaan dinamik, inovasi pengurusan) dengan pengukuran keunggulan kompetitif yang berterusan yang dicadangkan dalam industri Elektrik dan Elektronik Malaysia. Walaupun kelebihan daya saing yang mampan diteliti dalam hubungan dengan keupayaan pelbagai peringkat firma, kajian ini juga menilai kesan penyederhanaan dari dinamisme persekitaran yang diandaikan antara pemboleh ubah dan kriteria peramal. Motivasi untuk kajian ini didorong oleh keperluan untuk menilai kelebihan daya saing yang mampan secara holistik. Kajian ini menggunakan teori berasaskan sumber (RBT) sebagai teori utama untuk mengkaji hubungan antara pemboleh ubah dalam kerangka konsep yang dicadangkan. Prosedur persampelan rawak mudah digunakan untuk memilih responden yang disasarkan yang terdiri daripada firma pembuatan E & E di Malaysia. Daripada 185 maklum balas yang boleh digunakan, pemodelan persamaan struktur kuasa dua terkecil (PLS-SEM) digunakan untuk menguji hipotesis kajian. Hubungan positif ditemui dalam dua hubungan langsung: kelebihan daya saing yang mampan dan pengurusan pengetahuan, kelebihan daya saing yang mampan dan keupayaan dinamik, sementara dinamisme alam sekitar yang dianggap tidak menyederhanakan hubungan antara pemboleh ubah ramalan dan pemboleh ubah kriteria. Semasa membangunkan langkah baharu untuk mengkonsepkan kelebihan daya saing yang mampan, hubungannya dengan pengurusan pengetahuan, keupayaan dinamik, dan inovasi pengurusan berharap dapat menyumbang pemahaman teoritis yang baharu. Secara praktik, penemuan ini memberi industri pembuatan E & E beberapa panduan tentang cara untuk mengekalkan kelebihan daya saing berbanding pesaing. Di samping itu, pemahaman juga boleh membantu para pembuat dasar untuk membangun atau menyesuaikan dasar bagi menghasilkan bantuan yang lebih baik kepada industri perkilangan E & E. Akhir sekali, batasan metodologi dan potensi arah untuk penyelidikan masa hadapan juga dikenal pasti.

**Kata kunci:** Kelebihan Daya Saing Mampan (SCA), Pengurusan Pengetahuan (KM), Inovasi Pengurusan (MI), Keupayaan Dinamik (DCs), Industri Pembuatan Elektrik dan Elektronik (E & E)



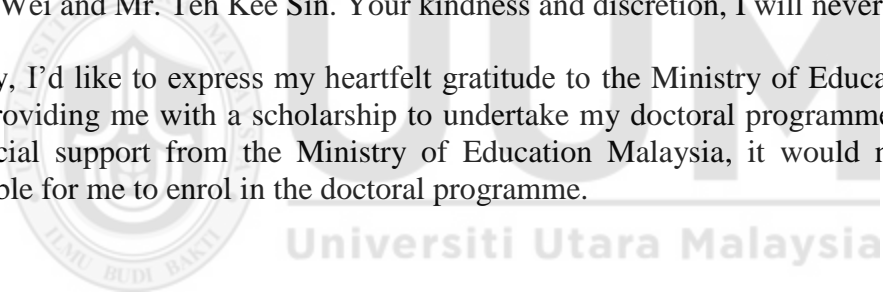
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## LIST OF ABBREVIATION

AVE	Average Variance Extracted
DCs	Dynamic Capabilities
DCV	Dynamic Capabilities View
E&E	Electrical and Electronics
EOI	Export-oriented Industrialisation Strategies
FMM	Federation of Malaysian Manufacturers
GDP	Gross Domestic Product
HCMs	Hierarchical Component Models
HICOM	Heavy Industries Corporation of Malaysia
ISI	Import-Substitution Industrialisation Strategies
IT	Information Technology
KM	Knowledge Management
LVS	Latent Variable Scores
MATRADE	Malaysia External Trade Development Corporation
MBV	Market-based View
MI	Management Innovation
MIDA	Malaysian Industrial Development Authority
MNCs	Multinational Corporations
NEP	New Economic Policy
OECD	Organisation for Economic Corporation and Development
PED	Perceived Environmental Dynamism
PLS-SEM	Partial Least Square Structural Equation Modelling
R&D	Research and Development
RBT	Resource-Based Theory of the Firm
SCA	Sustainable Competitive Advantage
SEM	Structural Equation Modelling
SMEs	Small and Medium Enterprises
VIF	Variance Inflation Factor
VRIN	Valuable, Rare, Inimitable, and Non-substitutable

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Malaysia has witnessed relatively rapid economic growth and development amid challenging internal and external environment over the past few decades. As a developing country, Malaysia used exports as its turbine of growth and development since the 1970s. Malaysia's export has expanded significantly over the five decades and the composition of exports had gradually changed from agricultural and mining products in the 1960s to manufactured goods in the 1980s (Bank Negara, 2011). In other words, the strong economic growth in terms of country's exports was being fuelled by the traditional sectors which include natural resources and plantation at the beginning and subsequently followed by the transformation and expansion of its manufacturing sector (EPU, 2014).

Malaysia, previously known as Malaya under the colonisation of the British Empire, tin and rubber contributed 70 per cent of the country's export (Yusof & Deepak, 2008). In addition, the manufacturing industry was not very significant during the colonial era (Jomo, 1993). The percentage of manufacturing in the total gross domestic product (GDP) was only 8 per cent in 1955 and the agricultural, mining, construction and other sectors contributed the remaining 92 per cent (Alavi, 1996).

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APPENDIX A



Othman Yeop Abdullah (OYA) Graduate School of Business  
Universiti Utara Malaysia



**Study of Sustainable Competitive Advantage in Electrical & Electronics Manufacturing Industry in Malaysia**

This questionnaire should take 15-20 minutes to complete. Your participation is very important to this study and it will be kept strictly anonymous and confidential. Please complete the questionnaire at your earliest convenience.

## Part A: Background Information

---

We would like to obtain some information about your firm to help us better understand your perception on sustainable competitive advantage.

Please **tick** (✓) the appropriate answer

1. Which of the following best describes the sector in which your firm operates?  
*You may choose more than one.*
  - Consumer Electronics
  - Electronic Components
  - Industrial Electronics
  - Electrical
  
2. Please indicate the *State* where your production is located
 

<input type="checkbox"/> Perlis	<input type="checkbox"/> Melacca
<input type="checkbox"/> Kedah	<input type="checkbox"/> Johor
<input type="checkbox"/> Penang	<input type="checkbox"/> Kelantan
<input type="checkbox"/> Perak	<input type="checkbox"/> Terengganu
<input type="checkbox"/> Selangor	<input type="checkbox"/> Pahang
<input type="checkbox"/> Kuala Lumpur	<input type="checkbox"/> Sabah
<input type="checkbox"/> Negeri Sembilan	<input type="checkbox"/> Sarawak
  
3. Please indicate how long your firm has been in the business
 

<input type="checkbox"/> Less than 5 years	<input type="checkbox"/> 11-15 years
<input type="checkbox"/> 5-10 years	<input type="checkbox"/> More than 15 years
  
4. Please indicate the business legal structure
 

<input type="checkbox"/> Individual proprietorship	<input type="checkbox"/> Private limited company
<input type="checkbox"/> Partnership	<input type="checkbox"/> Public limited company
  
5. Please specify the type of ownership of your firm
  - Held directly by Malaysian resident
  - Held directly by non-Malaysian resident
  - Joint ownership

6. Please indicate the type of market orientation
- Domestic oriented
  - Export oriented
  - Both domestic and export
7. What is your firm's annual sale turnover?
- Less than RM 300, 000
  - RM 300,000 to RM 15 million
  - RM 15 million to RM 50 million
  - More than RM 50 million
8. Please indicate the number of full-time employees in your firm
- Less than 75 employees
  - 75 to 200 employees
  - More than 200 employees





## Part B: Perception of Sustainable Competitive Advantage (SCA)

Sustainable competitive advantage (hereafter SCA) is imperative for a business firm to survive and succeed in the complex and turbulent business landscape. Now, we would like to learn about your perception on your firm's prospect to sustain in the electrical & electronics (hereafter E&E) industry in the near future.

Please indicate the extent to which you **AGREE** or **DISAGREE** with each of the statement below by **ticking** (✓) the most appropriate answer for each statement.

Compared to our key competitors, ...		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Our firm is more successful.					
2	Our firm has a greater market share.					
3	Our firm is growing fast.					
4	Our firm is more profitable.					
5	Our firm is more innovative.					
6	Our firm aims to reduce wastes and emissions from our operations.					
7	Our firm aims to reduce the environmental impacts of our products/service.					
8	Our firm aims to reduce the utilisation of non-renewable materials, chemicals and components.					
9	Our firm aims to reduce the risk of workplace accidents.					
10	Our firm treats our employees fairly.					
11	Our firm does not tolerate unethical business behaviour.					
12	Our firm strictly abides by the labour law.					
13	Our firm does not force our employees to work overtime.					
14	Our firm takes a serious view on workplace safety.					

## Part C: Determinants of firm's ability to achieve SCA

The following statements are factors that influence your firm to achieve sustainable competitive advantage.

Please indicate the extent to which you **AGREE** or **DISAGREE** with each of these statements. Please **tick (✓)** the most appropriate answer for each statement.

### 1. Management Innovation

<b>It is my perception that,</b>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Our firm frequently introduces organisational changes to improve the division of responsibilities (e.g., decentralisation, department restructuring, etc.).					
2	Our firm frequently introduces organisational changes to improve the decision making (e.g., decentralisation, department restructuring, etc.).					
3	Our firm frequently introduces new methods for managing external relationships with other firms or public institutions (e.g., new alliances, new forms of cooperation, etc.).					
4	Our firm often introduces new practices in organisation or firm procedures (e.g., new quality management practices, new information and knowledge-management systems, etc.).					

### 2. Environmental Dynamism

<b>It is my perception that,</b>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Rapid development of new products and services is common in our industry.					
2	The pace of technological progress in our industry is fast.					
3	The actions of our competitors are difficult to predict.					
4	Changes in customer needs are difficult to predict.					

## 3. Knowledge Management

<b>It is my perception that,</b>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Our employees acquire knowledge from customers or suppliers.					
2	Our employees acquire knowledge from the firm's knowledge repositories.					
3	Our employees acquire knowledge from the internet or world wide web.					
4	Our employees acquire knowledge from trainings, workshops or seminars.					
5	Our employees gain new knowledge, ideas or solutions related to their tasks.					
6	Our employees participate in brainstorming sessions to create new knowledge.					
7	Our employees work in teams to create new knowledge.					
8	Our employees apply the best practices to complete their tasks.					
9	Our employees apply knowledge from previous cases to solve problems.					
10	Our employees apply existing knowledge to generate value.					
11	Our employees apply knowledge learnt from mistakes or experiences.					
12	Our employees organise/ classify knowledge for ease of retrieval.					
13	Our employees spend time to codify and store knowledge in the firm's knowledge repositories.					
14	Our employees constantly update the knowledge repositories.					
15	Our employees are willing to contribute knowledge to the firm's knowledge repositories.					
16	Our employees participate in meetings, discussions or other knowledge sharing activities.					
17	Our employees use technological tools (groupware, e-mails, networking tools, etc.) to share knowledge.					
18	Our employees share knowledge through collaboration and interaction with each other.					
19	Our firm provide mentorship program to the employees.					

## 4. Dynamic Capabilities

<b>It is my perception that,</b>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Our firm is aware of new business opportunities.					
2	Our firm is aware of possible threats.					
3	Our firm understands customers' needs.					
4	Our firm is good at collecting market information.					
5	Our firm is good at gathering economic information on our daily operations.					
6	Our firm is good at exploring potential market.					
7	Our firm is good at evaluating our strengths and weaknesses.					
8	Our firm learns or acquires new skills from partners. (e.g., competitors, suppliers, strategic alliances, etc.).					
9	Our firm adopts the best practices in the industry.					
10	Our firm changes our practices when needed.					
11	Our firm has the ability to change our ways of doing business.					
12	Our firm has the ability to reconfigure resources.					
13	Our firm has the ability to rapidly respond to competitors' action.					
14	Our firm has the ability to communicate effectively with our shareholders.					
15	Our firm has the ability to develop new product/service.					
16	Our firm has the ability to compete in the industry.					

## Part D: Respondent's Profile

---

Lastly, we would like to have a better understanding of your personal background. Please **tick** (✓) an appropriate box

1. What is your current position in your firm?
  - Managing Director
  - Chief Executive Officer
  - Manager
  - Others. Please specify .....
  
2. Please indicate your gender
  - Male  Female
  
3. Please indicate how long you have been working with this company
  - Less than 5 years  11 years to 15 years
  - 5 years to 10 years  More than 15 years
  
4. Please indicate your highest level of education
  - SPM or equivalent  Advanced Diploma
  - Certificate  Bachelor
  - STPM or equivalent  Postgraduate
  - Diploma
  
5. Would you like to have a soft-copy of the summary of the findings? If yes, please provide your email address. \_\_\_\_\_

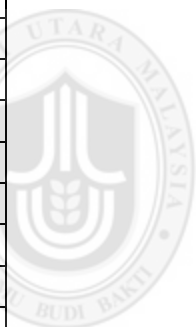
Please use this space if you wish to share your insights about your perception on Sustainable Competitive Advantage.

Thank you.

**APPENDIX B**

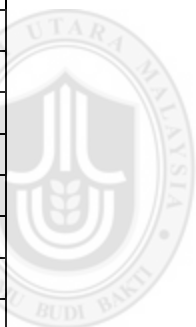
Mahalanobis distance

No	D <sup>2</sup>
1	1.27729
2	2.71538
3	3.64189
4	4.03976
5	2.89023
6	1.42054
7	5.27763
8	3.23529
9	9.00304
10	7.51809
11	4.44268
12	4.8857
13	2.74143
14	4.44915
15	6.99558
16	22.68452
17	17.08084
18	0.43945
19	2.64128
20	7.34148
21	4.03946
22	9.72015
23	7.92051
24	2.65429
25	13.74496
26	4.02611
27	4.7556
28	9.02381
29	3.55978
30	7.30741
31	2.73674
32	5.19534
33	7.11637
34	15.22802
35	6.40112



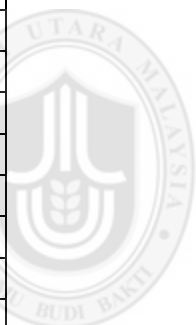
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36	5.42306
37	9.86728
38	9.97254
39	5.63155
40	1.77908
41	7.65622
42	15.16746
43	18.64927
44	11.01779
45	3.95062
46	5.95186
47	1.87004
48	1.55358
49	2.07752
50	16.68749
51	11.65584
52	7.01801
53	4.4183
54	6.04587
55	2.18954
56	4.87095
57	19.75111
58	3.30079
59	24.06636
60	5.92371
61	2.48223
62	2.73215
63	0.70704
64	2.88034
65	14.68968
66	8.70401
67	1.53282
68	3.99399
69	2.89896
70	3.0435
71	2.32911
72	4.70716
73	6.91495
74	1.80424
75	6.05812
76	1.62969



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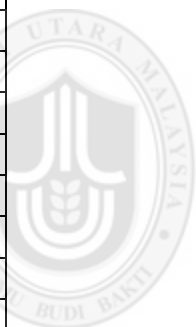
77	5.99445
78	3.0891
79	1.14179
80	1.78281
81	3.49145
82	11.78204
83	1.46677
84	4.82492
85	1.20959
86	9.70947
87	9.98243
88	5.8321
89	2.81219
90	3.95927
91	3.14721
92	2.48512
93	3.39419
94	1.72987
95	5.36175
96	15.47059
97	5.89769
98	0.76882
99	1.16288
100	3.14159
101	0.83169
102	5.84508
103	3.19691
104	2.01589
105	8.74643
106	11.91345
107	8.1659
108	2.46455
109	10.1907
110	3.91708
111	2.16038
112	0.94182
113	4.10684
114	13.60322
115	3.58222
116	5.74968
117	1.27268



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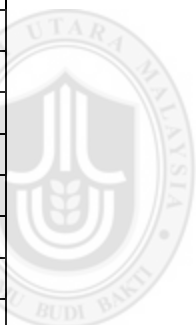


118	2.1997
119	0.49519
120	3.96897
121	3.10058
122	2.24368
123	0.89003
124	17.90505
125	15.45436
126	1.44951
127	1.23083
128	1.95346
129	0.31698
130	1.49918
131	2.1672
132	3.1947
133	1.16132
134	7.5832
135	1.9516
136	2.40061
137	2.49681
138	1.28359
139	2.12324
140	4.9042
141	2.99434
142	3.46492
143	4.59847
144	1.36373
145	1.65119
146	1.62386
147	6.07915
148	1.58334
149	1.24126
150	6.52814
151	5.35743
152	1.7758
153	6.83218
154	1.51416
155	4.97913
156	0.30416
157	1.17154
158	2.92241



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159	0.90054
160	2.14352
161	0.54238
162	1.32456
163	10.85292
164	0.82907
165	0.96035
166	3.6879
167	4.77261
168	3.17895
169	8.50499
170	4.76565
171	0.80949
172	1.20811
173	0.50437
174	1.00478
175	5.11856
176	1.84578
177	1.86296
178	5.53208
179	1.63699
180	2.70375
181	13.48509
182	1.94785
183	2.57771
184	8.27577
185	0.96671



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