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**EXAMINING THE INTERNAL CAPABILITIES ON
SMES PERFORMANCE: THE EFFECTS OF
ENVIRONMENTAL TURBULENCE AND INNOVATION
STRATEGY**

MUHAMMAD ZULQARNAIN ARSHAD



**DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
2019**

**EXAMINING THE INTERNAL CAPABILITIES ON SMES
PERFORMANCE: THE EFFECTS OF ENVIRONMENTAL TURBULENCE
AND INNOVATION STRATEGY**

By

MUHAMMAD ZULQARNAIN ARSHAD



Thesis Submitted to

**School of Business Management,
Universiti Utara Malaysia,
in Fulfillment of the Requirement for the Degree of Doctor of Philosophy**



Pusat Pengajian Pengurusan Perniagaan
(School of Business Management)

Kolej Perniagaan
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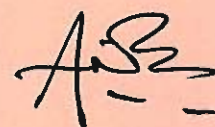
Tarikh: **2 June 2019**
(Date)

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Tajuk Tesis / Disertasi
(Title of the Thesis / Dissertation) : Examining the Internal Capabilities on SMES Performance : The Effects of Environmental Turbulence and Innovation Strategy

Program Pengajian
(Programme of Study) : Doctor of Philosophy

Nama Penyelia/Penyelia-penyelia
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ABSTRACT

The Small and Medium-Sized Enterprises (SMEs) play a crucial part in country's economic growth like Pakistan. Sustaining the SMEs performance is significant and is still attracted the attention of many researchers, even today, it is still compelling due to the emerging global competition in the context of developing countries. The previous findings on the understanding of the complex relationships among factors influencing firm performance remain fragmented and unexplained. Therefore, the purpose of this study is to investigate the relationship between innovation capability, intellectual capital, absorptive capacity, and SMEs performance in Pakistan. Furthermore, the study intends to examine the moderating effect of environmental turbulence and innovation strategy. The study employed the resource-based view as the underpinning theory with two supporting theories, namely, dynamic capability theory and contingency theory. Data were collected from 479 textile SMEs operating in Pakistan using a cross-sectional study design through self-administered questionnaires. However, only 348 surveys were valid for further analysis. This study utilized the Partial Least Squares Structural Equation Modelling to establish the validity and reliability of the measurement model and to test each hypothesis. The outcomes of this study show that innovation capability, intellectual capital, and absorptive capacity have a significant influence on SMEs performance. The results also reveal that environmental turbulence moderates the relationship between innovation capability, intellectual capital, absorptive capacity, and SMEs performance. Furthermore, innovation strategy moderates the relationship between innovation capability, absorptive capacity, and SMEs but innovation strategy does not moderate the relationship between intellectual capital and SMEs performance. The outcome of this study provides new knowledge and valuable insights for government agencies, such as SMEs Development Authority to look further at the programmes and guidelines, and enforce new policies toward improving the performance of SMEs in Pakistan. The study also contributes to the theory as it extends the Resource-Based View theory, Dynamic Capabilities Perspective, and the Contingency Theory and integrating distinct literature streams about innovation capability, intellectual capital, absorptive capacity, environmental turbulence, and innovation strategy. Lastly, there are some limitations as this study is a cross-sectional, using single source of data and just focuses on the textile sector. Hence, future studies should be longitudinal, use multiple sources data and focus on other Pakistan manufacturing sectors.

Keywords: innovation capability, intellectual capital, absorptive capacity, environmental turbulence, innovation strategy, Small and Medium-Sized Enterprises performance

ABSTRAK

Perusahaan Kecil dan Sederhana (PKS) memainkan peranan penting dalam pertumbuhan ekonomi negara seperti Pakistan. Pengekalan prestasi PKS adalah signifikan dan masih menjadi tumpuan para penyelidik sehingga kini, disebabkan persaingan global yang semakin meningkat di kalangan negara-negara membangun. Dapatan kajian sebelum ini mengenai pemahaman tentang hubungan kompleks bagi faktor-faktor yang mempengaruhi prestasi firma masih belum terungkai dan tidak jelas. Oleh itu, tujuan kajian ini adalah untuk menyelidik hubungan di antara keupayaan inovasi, modal intelektual, kapasiti penyerapan dan prestasi PKS di Pakistan. Kajian ini juga bertujuan untuk meneliti kesan penyederhanaan pergolakan persekitaran dan strategi inovasi. Kajian ini menggunakan pandangan berasaskan sumber sebagai teori asas dengan dua teori sokongan, iaitu teori keupayaan dinamik dan teori kontingensi. Data dikumpulkan dari 479 PKS tekstil yang beroperasi di Pakistan dengan menggunakan reka bentuk kajian keratan rentas melalui soal selidik tabdir sendiri. Walau bagaimanapun, hanya 348 tinjauan yang boleh diguna pakai untuk analisis selanjutnya. Kajian ini menggunakan Pemodelan Persamaan Berstruktur Kuasa Dua Terkecil Separa untuk menentukan kesahan dan kebolehpercayaan model pengukuran, dan untuk menguji setiap hipotesis. Hasil kajian ini menunjukkan bahawa keupayaan inovasi, modal intelektual, dan kapasiti penyerapan mempunyai pengaruh yang signifikan terhadap prestasi PKS. Dapatan juga menunjukkan bahawa pergolakan persekitaran menyederhanakan hubungan antara keupayaan inovasi, modal intelektual, kapasiti penyerapan dan prestasi PKS. Di samping itu, strategi inovasi didapati menyederhanakan hubungan antara keupayaan inovasi, keupayaan penyerapan, dan PKS, tetapi tidak menyederhanakan hubungan antara modal intelektual dan prestasi PKS. Hasil kajian ini memberikan pengetahuan baharu dan pemahaman yang bernilai bagi agensi-agensi kerajaan seperti Lembaga Pembangunan PKS untuk melihat dengan teliti terhadap program dan garis panduan, dan menguatkuasakan dasar baharu bagi meningkatkan prestasi PKS di Pakistan. Kajian ini juga menyumbang kepada teori kerana ia memperluaskan Teori Pandangan Berasaskan Sumber, Teori Perspektif Keupayaan Dinamik, dan Teori Kontingensi dengan menggabungkan sorotan kajian yang berbeza mengenai keupayaan inovasi, modal intelektual, kapasiti penyerapan, pergolakan persekitaran dan strategi inovasi. Akhir sekali, terdapat beberapa kekangan kajian kerana kajian ini merupakan kajian keratan rentas yang menggunakan punca sumber tunggal dan hanya berpusat kepada sektor tekstil sahaja. Adalah diharapkan, kajian akan datang lebih bersifat longitudinal, menggunakan pelbagai sumber data dan menumpukan kepada sektor perkilangan yang lain di Pakistan.

Kata kunci: keupayaan inovasi, modal intelektual, kapasiti penyerapan, pergolakan persekitaran, strategi inovasi, prestasi Perusahaan Kecil dan Sederhana.

ACKNOWLEDGEMENT

In the Name of Allah, the Most Gracious, Most Merciful ‘all praises are due to Allah (SWT), the Lord of the world who gives me the strength and courage to complete this work which is very significant to me. May the peace and blessings of Allah (SWT) be upon our beloved prophet Muhammad (PBUH), companions and those who follow them in righteousness until the Day of Judgment. The completion of this thesis, which marks a milestone in my life, wouldn’t have been possible without the assistance and support of many people.

First and foremost, I would like to express my sincere gratitude to my research supervisors, Dr. Darwina Arshad for her continuous support, patience, motivation, enthusiasm, and immense knowledge. Her guidance has helped me in completing the research and writing this thesis. Without her assistance and dedicated involvement in every step throughout the process, this thesis would have never been accomplished. I am also very thankful for all the teaching and administrative staff, from the School of Business Management (SBM) and Othman Yeop Abdullah (OYA) Graduate School of Business, for their support and guidance.

Special love and thanks to my family. Words cannot express how grateful I am to my mother, Farzana Talat and my father, Dr. Arshad Zia for all the sacrifices that they have made. Your prayers for me was what has sustained me thus far. I am forever grateful to both of them. My utmost appreciation is also extended to my family members, my lovely brothers, and my in-laws, who have given me their prayers and support from the beginning to the end of this lonely journey.

This acknowledgement is not completed without recording my sincere thanks to my close friends who have given me unconditional support: Dr. Noraini Nasirun, Dr. Athifah Najwani, Dr. Wan Aida Ishak, Dr. Tang Meriun, Dr. Munawar Javed, Dr. Majid Ali, and Dr. Ayaz Ahmad

Finally, and most importantly, I would like to express my deepest gratitude and affection to my beloved wife Sumaira Zulqarnain who has shown immense love, care, kindness, patience and persistent encouragement during the Ph.D. journey. A special thank also goes to my son Mohammad Abdullah for providing me with his overwhelming patience, endless love, and prayers that have greatly facilitated me for the completion of this study.



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- Arshad, M. Z., & Arshad, D. (2018). Innovation capability, Absorptive capacity, and SMEs Performance in Pakistan: The Moderating Effect of Business strategy. *Journal of Technology and Operations Management*, 13(2), 1–11.
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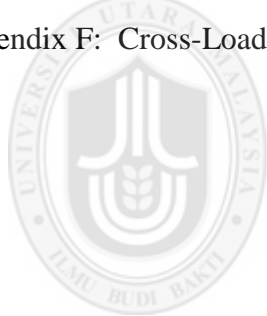
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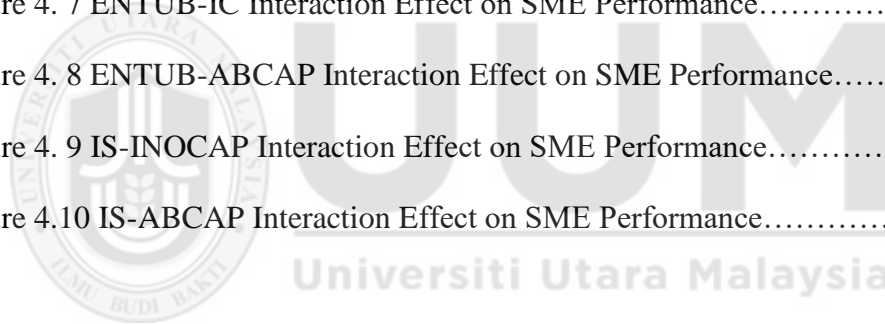
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LIST OF ABBREVIATIONS

ACAP	Absorptive Capacity
AVE	Average Variance Extracted
CR	Construct Reliability
DCs	Dynamic Capabilities
DV	Dependent Variable
ENTUB	Environmental Turbulence
FP	Firm Performance
GDP	Gross Domestic Product
IC	Intellectual Capital
INOCAP	Innovation Capability
INOSTGY	Innovation Strategy
IV	Independent Variable
OEDC	The Organization of Economic Corporation and Development
PLS-SEM	Partial Least Squares-Structural Equation Modeling Processes
RBV	Resource Based View
SBP	State Bank of Pakistan
SMEDA	Small and Medium Enterprise Development Authority
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for Social Science
VIF	Variable Inflation Factor

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The small and medium-sized enterprises (SMEs) play a significant part in the economic growth and the main contributor in a country's GDP. In the emerging economies, SMEs are the key contributor to national economic development and also the major source of the employment generation (Irfan, Kee, Qureshi, & Hussain, 2014). Generally, the large firms are often thought as the more substantial contributors towards economic development and foreign exchange earnings but now this point of view has been changed because countries like Korea, Taiwan, and Japan have developed and boosted their economies through the Small and Medium Enterprises businesses (Ali Shah, Mehmood, Aamir Hashmi, Maqsood Shah, & Muhammad Shaikh, 2011).

In the developing nation's cases, the role of SMEs is further magnified and boosted because the development of the countries requires the participation of multinational enterprises (MNEs) and SMEs. Moreover, SMEs contribute multiple varieties of benefits, creating jobs which result in a lower cost of capital and have an advantage over large firms because of their elastic and flexible structure (Hussain, Si, Xie, & Wang, 2010; Moore & Manring, 2009). Pati, Nandakumar, Ghobadian, Ireland, and Regan, (2018) also stressed that the role of SME's contribution has a significant effect on economic stability and growth related to both developing and developed countries. Hence, it is concluded that the development and growth of every nation depend directly on the role of the SME sector (Jasra et al. 2012; Irfan et al. 2014).

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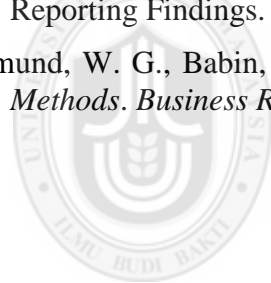
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Universiti Utara Malaysia

APPENDICES

Appendix A: Questionnaire (English/Urdu)



Dear Respondent,

I am a Ph.D. scholar at University Utara Malaysia. I am conducting research on "The Effect of Innovation Strategy, Environmental Turbulence on Intellectual Capital, Innovation Capability, Absorptive Capacity and SMEs performance in Pakistan". I request you to participate in this study by answering the attached questionnaire that will hardly take 10 minutes.

The questionnaire is anonymous, and your response will be used for the academic research purpose only. If you have any questions or concerns about the questionnaire or about participating in this study, you may contact me at muhammad_zul@oyagsb.uum.edu.my, you can also request for research findings through same email address.

Thanks for your cooperation.

Sincerely,

Muhammad Zulqarnain Arshad
PhD (Management) Scholar
School of Business Management,
Universiti Utara Malaysia,
Sintok, 06010, Kedah Darul Aman, Malaysia
Cell # 00923217774414
muhammad_zul@oyagsb.uum.edu.my

Assoc.Prof. Dr. Darwina Arshad (Supervisor)
PhD (Strategic Management)
School of Business Management,
Universiti Utara Malaysia,
Sintok, 06010, Kedah Darul Aman, Malaysia
darwina@uum.edu.my

SECTION A:

Demographic information آبادیاتی معلومات

The following information is strictly confidential and will only be used for research purpose. I will be grateful if you could kindly fill the required information.

اس سوالنامہ سے حاصل کردہ معلومات کو خفیہ رکھا جائے گا اور مذکورہ معلومات کو صرف تحقیقی مقصد کیلئے استعمال کیا جائے گا۔ مطلوبہ معلومات کی فراہمی پر میں آپ کا شکرگزار رہوں گا۔

Please read the following statements and TICK (✓) in the appropriate box.

درج ذیل بیانات کو پڑھیں اور متعلقہ خانے میں (✓) کا نشان لگائیں۔

1. Position:

a. CEO/ Managing Director b. Senior Manager

c. Other (Please specify) _____

.1 عہدہ

(الف) CEO / منیجنگ ڈائریکٹر (ب) سینئر منیجر (ج) دیگر (وضاحت کریں)

2. Gender

a. Male b. Female

.2 جنس

(الف) مرد (ب) عورت

3. Marital status

a. Married b. Single

c. Divorced/ Widow

.3 ازدواجی حیثیت

(الف) شادی شدہ (ب) غیر شادی شدہ (ج) طلاق یافتہ/بیوہ/رنتوا

4. Age group

a. Below 20 b. 20-30

c. 31- 40 d. 41-50

e. Above 50

4. آپ کی عمر

- (الف) 20 سال سے کم (ب) 20 تا 30 سال
 (ج) 31 تا 40 سال (د) 41 تا 50 سال
 (ر) 50 سال سے زائد

5. Level of education

- a. Diploma b. Matric
 c. Intermediate d. Bachelor
 e. Masters f. PhD

5. تعلیمی قابلیت

- (الف) ڈپلومہ (ب) میٹرک
 (ج) انٹرمیڈیٹ (د) گریجویٹن
 (ر) ماسٹرز (ز) پی ایچ ڈی

6. Please TICK (✓) specific range of your firm in three years.

No. of Employees	2015	2016	2017
< 10			
10 – 50			
51 – 150			
151 – 250			
> 250			

6. تین سالوں میں اپنی کمپنی کی افرادی قوت کی اوسط حد پر (✓) کا نشان لگائیں۔

2017	2016	2015	ملازمین کی تعداد
			10 سے کم
			10 تا 50
			51 تا 150
			151 تا 250
			250 سے زائد

7. Sales Turnover (Rupees in Million). Please TICK (✓) the exact range.

Sales Turnover (Rupees in million)	2015	2016	2017
< 50			
50 - 75			
76 – 100			
101 – 125			
> 125			

7. سالانہ آمدن (روپے ملین میں)۔ اوسط حد پر (✓) کا نشان لگائیں۔

2017	2016	2015	آمدنی (روپے ملین میں)
			50 سے کم
			50 تا 75
			76 تا 100
			101 تا 125
			125 سے زائد

8. Years of operation: Please TICK (✓) one only.

- c. < 1 b. 1 – 3 years
- d. 4 – 7 years d. 8 – 11 years
- e. 12 – 15 years f. 16 – 20 years
- g. > 20 years

8. آپ کتنے عرصے سے کاروبار کر رہے ہیں۔ کسی ایک پر (✓) نشان لگائیں۔

<input type="checkbox"/>	1 تا 3 سال	(ب)	<input type="checkbox"/>	ایک سال سے کم	(الف)
<input type="checkbox"/>	8 تا 11 سال	(د)	<input type="checkbox"/>	4 تا 7 سال	(ج)
<input type="checkbox"/>	16 تا 20 سال	(ز)	<input type="checkbox"/>	12 تا 15 سال	(ر)
			<input type="checkbox"/>	20 سال سے زائد	(ہ)

Universiti Utara Malaysia
SECTION B: Innovation Capability

سیکشن B : جدت طرازی کی صلاحیت

Please read the following statements and Circle (○) the response that closely represents your opinion. The statements are anchored on the following 7 point Likert Scale:

درج ذیل بیانات پڑھیں اور اپنی رائے سے قریب تر جواب پر دائرہ (○) لگائیں۔ اپنے جواب کا اظہار درج ذیل 7 پوائنٹ کے ذریعے کریں۔

Innovation Capability

آپ کا اپنی کمپنی کے بارے میں کیا خیال ہے؟ How do you perceive about your company?

Strongly Disagree بہت غیر متفق Strongly Agree بہت متفق

	1	2	3	4	5	6	7
Product Innovativeness مصنوعاتی جدت							

1	In new product and service introductions, our firm is often first-to-market. نئی مصنوعات اور خدمات متعارف کروانے میں ہماری کمپنی مارکیٹ میں سب سے پہلے ہے	1	2	3	4	5	6	7
2	Our new products and services are often perceived as very novel by customers ہماری نئی مصنوعات اور خدمات کو اکثر صارفین بہت جدید تصور کرتے ہیں۔	1	2	3	4	5	6	7
3	In comparison with our competitors, our firm has introduced more innovative products and services during the past five years گزشتہ پانچ سال سے دیگر کاروباری حریفوں کے مقابلے میں ہماری کمپنی جدید مصنوعات اور خدمات متعارف کروا رہی ہے۔	1	2	3	4	5	6	7
4	In comparison with our competitors, our firm has a lower success rate in new products and services launch. دیگر کاروباری حریفوں کے مقابلے میں ہماری کمپنی کی جدید مصنوعات اور خدمات متعارف کروانے میں کامیابی کی شرح کم رہی۔	1	2	3	4	5	6	7
عملی جدت طرازی Process innovativeness								
5	We are constantly improving our business processes. ہم اپنے طرز کاروبار میں مسلسل بہتری لارہے ہیں۔	1	2	3	4	5	6	7
6	During the past five years, our firm has developed many new management approaches. گزشتہ پانچ سالوں میں ہماری کمپنی نے بہت سے نئے انتظامی حکمت عملیوں تک رسائی حاصل کی۔	1	2	3	4	5	6	7
7	When we cannot solve a problem using conventional methods, we improvise on new methods جب ہم روایتی طریقوں سے کسی مشکل کا حل نہ نکال سکیں تو جدید طریقے اپناتے ہیں۔	1	2	3	4	5	6	7
8	Our firm changes production methods at a great speed in comparison with our competitors. اپنے کاروباری حریفوں کے مقابلے میں ہماری کمپنی پیداواری طریقوں کو فوری طور پر تبدیل کر دیتی ہے۔	1	2	3	4	5	6	7
بازاری جدت طرازی Market Innovativeness								
9	In comparison with our competitors, our products' most recent marketing program is revolutionary in the market. کاروباری حریفوں کے مقابلے میں ہماری مصنوعات کا جدید مارکیٹنگ پروگرام مارکیٹ میں ایک انقلاب ہے۔	1	2	3	4	5	6	7
10	Our recent new products and services are only minor changes from our previous products and services. ہماری حالیہ نئی اور گزشتہ مصنوعات اور خدمات میں معمولی سی تبدیلی آئی ہے۔	1	2	3	4	5	6	7
11	In new product and service introductions, our company is often at the cutting edge of technology.	1	2	3	4	5	6	7

	نئی مصنوعات اور خدمات متعارف کروانے میں اکثر ہماری کمپنی ٹیکنالوجی کی انتہائی بلندیوں پر ہوتی ہے۔							
12	New products and services in our firm often take us up against new competitors. نئے کاروباری حریفوں کے مقابلے میں ہماری کمپنی کی نئی مصنوعات اور خدمات اکثر ہمیں اونچا مقام دلادیتی ہیں۔	1	2	3	4	5	6	7
Strategic Innovativeness حکمت عملی میں جدت طرازی								
13	Our firm's R&D or product development resources are adequate to handle the development need of new products and services. مصنوعات اور خدمات میں ترقیاتی ضرورت کو پورا کرنے کیلئے ہمارے پاس تحقیق و ترقی یا مصنوعات کی تیاری کے مناسب ذرائع موجود ہیں۔	1	2	3	4	5	6	7
14	Top level management of the firm are willing to take risks to seize and explore growth opportunities. ہماری کمپنی کی اعلیٰ سطحی انتظامیہ ترقیاتی مواقعوں کے حصول اور فروغ کیلئے نقصان کا خطرہ/ریسک لینے کو تیار ہیں۔	1	2	3	4	5	6	7
15	Top level management constantly seek unusual, novel solutions to problems. اعلیٰ سطحی انتظامیہ ہمیشہ مسائل کے غیرروایتی جدید حل تلاش کرتی ہے۔	1	2	3	4	5	6	7
16	When we see new ways of doing things, we are last at adopting them. کام کرنے کے جدید طریقے سامنے آنے کے باوجود ہماری کمپنی بہت تاخیر سے انہیں اختیار کرتی ہے۔	1	2	3	4	5	6	7
Behavioral Innovativeness روئے میں جدت طرازی								
17	We get a lot of support from managers if we want to try new ways of doing things. اگر ہم کاموں کو نئے طریقے سے کرنا چاہیں تو ہمیں اپنے مینیجر صاحبان سے بہت معاونت ملتی ہے۔	1	2	3	4	5	6	7
18	In our firm, we tolerate individuals who do things in a different way. اپنی کمپنی میں ہم نئی طرز پر کام کرنے والے افراد کیلئے لچک کا مظاہرہ کرتے ہیں۔	1	2	3	4	5	6	7
19	We are willing to try new ways of doing things and seek unusual, novel solutions. ہم اپنے کاموں میں نئے تجربات کیلئے تیار رہتے ہیں اور غیرمعمولی اور جدید حل تلاش کرتے ہیں۔	1	2	3	4	5	6	7
20	We encourage people to think and behave in original and novel ways. ہم لوگوں کے تفکر اور اچھے سلوک کی حوصلہ افزائی کرتے ہیں۔	1	2	3	4	5	6	7

SECTION C: Intellectual Capital شعوری اثاثہ

Please read the following statements and Circle (○) the response that closely represents your opinion. The statements are anchored on the following 7 point Likert Scale:

درج ذیل بیانات پڑھیں اور اپنی رائے سے قریب تر جواب پر دائرہ (O) لگائیں۔ اپنے جواب کا اظہار درج ذیل 7 پوائنٹ کے ذریعے کریں۔

Intellectual Capital شعوری اثاثہ

آپ درج ذیل سے کس حد تک اتفاق کرتے ہیں؟ To what extent do you agree with the following capitals?

		بہت متفق Strongly Agree ← → بہت غیر متفق Strongly Disagree						
		1	2	3	4	5	6	7
Human Capital افرادى اثاثہ								
21	We are highly skilled. ہم انتہائی پرمند ہیں۔	1	2	3	4	5	6	7
22	We are widely considered the best in our industry. ہمیں اپنے شعبے میں بہت اچھا مانا جاتا ہے۔	1	2	3	4	5	6	7
23	We are creative and bright. ہم تخلیقی اور شفاف ہیں۔	1	2	3	4	5	6	7
24	We are experts in their particular jobs and functions. ہم اپنے مخصوص کام اور خدمات میں ماہر ہیں۔	1	2	3	4	5	6	7
25	We develop new ideas and knowledge. ہم جدید طریقوں اور معلومات کو فروغ دیتے ہیں۔	1	2	3	4	5	6	7
Social Capital معاشرتی اثاثہ								
26	We are skilled at collaborating with each other to diagnose and solve problems. ہم باہمی معاونت کے ذریعے مسائل کی شناخت اور انہیں حل کرنے کے ماہر ہیں۔	1	2	3	4	5	6	7
27	We share information and learn from one another. ہم معلومات کا اشتراک کرتے ہیں اور ایک دوسرے سے سیکھتے ہیں۔	1	2	3	4	5	6	7
28	We interact and exchange ideas with people from different areas of the company. کمپنی کے مختلف شعبوں سے تعلق رکھنے والے لوگوں سے میل جول رکھتے ہیں اور حکمت عملی کا باہمی تبادلہ کرتے ہیں۔	1	2	3	4	5	6	7
29	We partner with customers, suppliers, alliance partners, etc. to develop solutions. ہم کسٹمرز، سپلائرز، اتحادی شراکت داروں وغیرہ کے مسائل حل کرنے میں ان کا ساتھ دیتے ہیں۔	1	2	3	4	5	6	7
30	We apply knowledge from one area of the company to problems and opportunities that arise in another. ہم کمپنی کے ایک شعبے کی مشکلات اور مواقع سے حاصل شدہ تجربات/معلومات کا اطلاق دوسرے شعبے پر کرتے ہیں۔	1	2	3	4	5	6	7
Organizational Capital تنظیمی اثاثہ								
31	Our organization uses patents and licenses as a way to store knowledge. ہماری تنظیم معلومات کو محفوظ رکھنے کیلئے مخصوص اور لائسنس کے ذرائع استعمال کرتی ہے۔	1	2	3	4	5	6	7

32	Much of our organization's knowledge is contained in manuals, databases etc. ہماری تنظیم کی بیشتر معلومات کتابچے، ڈیٹا بیس وغیرہ پر مشتمل ہے۔	1	2	3	4	5	6	7
33	Our organization's culture (stories, rituals) contains valuable ideas, ways of doing business. ہماری تنظیم کی بیش قیمت حکمت عملی، کاروباری طریقہ کار پر مشتمل ثقافت (کہانیاں، اقدار) ہیں۔	1	2	3	4	5	6	7
34	Our organization embeds much of its knowledge and information in structures, systems and processes. ہماری تنظیم کو ساخت، انتظامی امور اور طریقہ کار سے متعلق اچھی معلومات رکھنے پر سراپا جاتا ہے۔	1	2	3	4	5	6	7

SECTION D: Absorptive Capacity ارتقائی صلاحیت

Please read the following statements and Circle (○) the response that closely represents your opinion. The statements are anchored on the following 7 point Likert Scale:

درج ذیل بیانات پڑھیں اور اپنی رائے سے قریب تر جواب پر دائرہ (○) لگائیں۔ اپنے جواب کا اظہار درج ذیل 7 پوائنٹ کے ذریعہ کریں۔

Absorptive Capacity ارتقائی صلاحیت

		بہت متفق Strongly Agree ← → بہت غیر متفق Strongly Disagree						
		1	2	3	4	5	6	7
Acquisition حصول								
35	The search for relevant information concerning our industry is every-day business in our company. اپنے شعبے سے متعلق کاروباری معلومات کی تلاش کمپنی کا روزمرہ کاروباری عمل ہے۔	1	2	3	4	5	6	7
36	Our management motivates the employees to use information sources within our industry. ہماری انتظامیہ ملازمین کو اپنے شعبے میں معلوماتی ذرائع کے استعمال کی حوصلہ افزائی کرتی ہے۔	1	2	3	4	5	6	7
37	Our management expects that the employees deal with information beyond our industry. ہماری انتظامیہ ملازمین کے اپنے بورے شعبے کی مکمل معلومات سے منسلک رہنے کی توقع رکھتی ہے۔	1	2	3	4	5	6	7
38	Our interaction with our suppliers is characterized by mutual trust. ہماری اپنے سپلائرز سے ہم آہنگی کی بنیاد باہمی اعتماد ہے۔	1	2	3	4	5	6	7
		1	2	3	4	5	6	7

فہم اور استعمال Assimilation								
39	In our firm ideas and concepts are communicated cross-departmental. ہماری کمپنی میں حکمت عملی اور تصورات کا مختلف شعبہ جات کے مابین باہمی اشتراک کیا جاتا ہے۔	1	2	3	4	5	6	7
40	Our management emphasizes cross-departmental support to solve problems. مسائل کے حل کیلئے ہماری انتظامیہ شعبہ جاتی معاونت پر زور دیتی ہے۔	1	2	3	4	5	6	7
41	In our company there is a quick information flow, e.g., if a business unit obtains important information, it communicates this information promptly to all other business units or departments. ہماری کمپنی میں معلومات تیز رفتاری سے سرایت کرتی ہیں مثلاً اگر کسی کاروباری یونٹ کو اہم معلومات حاصل ہوں تو وہ ان معلومات فوری طور پر دوسرے کاروباری یونٹوں یا شعبوں کو منتقل کر دیتا ہے۔	1	2	3	4	5	6	7
42	Our management demands periodical cross-departmental meetings to interchange new developments, problems, and achievements. ہماری انتظامیہ مختلف شعبوں کے مابین نئی تبدیلیوں، مشکلات اور کامیابیوں کے اشتراک کیلئے ہفتہ وار میٹنگ کرنے کا مطالبہ کرتی ہے۔	1	2	3	4	5	6	7
منتقلی / تغیر پذیری Transformation		1	2	3	4	5	6	7
43	Our employees have the ability to structure and to use collected knowledge. ہمارے ملازمین میں تخلیقی اور مجموعی معلومات کو استعمال کرنے کی صلاحیت موجود ہے۔	1	2	3	4	5	6	7
44	Our employees are used to absorb new knowledge as well as to prepare it for further purposes and to make it available. ہمارے ملازمین جدید معلومات پر عمل کرنے اور ان کے مقاصد کے حصول اور دستیاب رہنے کیلئے استعمال ہوتے ہیں۔	1	2	3	4	5	6	7
45	Our employees successfully link existing knowledge with new insights. ہمارے ملازمین کامیابی سے موجودہ معلومات کو جدید سوچ و فہم سے منسلک کرتے ہیں۔	1	2	3	4	5	6	7
46	Our employees are able to apply new knowledge in their practical work. ہمارے ملازمین اپنے عملی کام میں جدید معلومات کے استعمال کی قابلیت رکھتے ہیں۔	1	2	3	4	5	6	7
مفادات کا حصول Exploitation.		1	2	3	4	5	6	7
47	Our management supports the development of prototypes. ہماری انتظامیہ پروٹوٹائپ ترقی کی حمایت کرتی ہے۔	1	2	3	4	5	6	7
48	Our firm regularly reconsiders technologies and adapts them accordant to new knowledge.	1	2	3	4	5	6	7

	ہماری کمپنی ٹیکنالوجی پر باقاعدہ نظرثانی کرتی ہے اور جدید معلومات کے مطابق انہیں اپناتی ہے۔							
49	Our firm has the ability to work more effective by adopting new technologies. ہماری کمپنی جدید ٹیکنالوجی کو اپنا کر مزید مؤثر عمل کرنے کی صلاحیت رکھتی ہے۔	1	2	3	4	5	6	7
50	Our enterprise has the capabilities needed to exploit the knowledge obtained from the outside. ہماری کمپنی باہر سے حاصل شدہ معلومات سے ضروری استفادہ کرنے کی صلاحیت رکھتی ہے۔	1	2	3	4	5	6	7

SECTION E: Environmental Turbulence رجحانی مشکلات

Please read the following statements and Circle (○) the response that closely represents your opinion. The statements are anchored on the following 7 point Likert Scale:

درج ذیل بیانات پڑھیں اور اپنی رائے سے قریب تر جواب پر دائرہ (○) لگائیں۔ اپنے جواب کا اظہار درج ذیل 7 پوائنٹ کے ذریعے کریں۔

Environmental Turbulence رجحانی مشکلات

How strongly do you agree or disagree with each of the following types of turbulence which your firm experienced?

آپ درج ذیل مشکلات میں سے اپنی کمپنی کے تجربات سے کس حد تک متفق یا غیر متفق ہیں؟

Strongly Disagree بہت غیر متفق ← → بہت متفق Strongly Agree

		1	2	3	4	5	6	7
Market Turbulence بازاری مشکلات								
51	In our kind of business, customers' product preferences change quite a bit over time. ہمارے کاروبار میں کسٹمرز کی مصنوعات کی ترجیحات میں وقت کے ساتھ ساتھ بہت کم تبدیلی آتی ہے۔	1	2	3	4	5	6	7
52	Our customers tend to look for new product all the time. ہمارے کسٹمرز ہر وقت جدید مصنوعات کی تلاش میں رہتے ہیں۔	1	2	3	4	5	6	7
53	We are witnessing demand for our products and services from customers who never bought them before. ہم اپنی مصنوعات اور خدمات کا ان کسٹمرز کی طرف سے طلب کا مشاہدہ کرتے ہیں جنہوں نے پہلے یہ نہیں خریدیں۔	1	2	3	4	5	6	7
54	New customers tend to have product-related needs that are different from those of our existing customers. نئے کسٹمرز کی طرف سے مصنوعات کی ضروریات ہمارے موجودہ کسٹمرز سے مختلف ہوتی ہے۔	1	2	3	4	5	6	7

55	We cater many of the same customers that we used to in the past. ہم بہت سے ایسے کسٹمرز کی طلب بوری کرتے ہیں جنہیں ہم ماضی میں بھی فراہم کرتے تھے۔	1	2	3	4	5	6	7
Competitive Intensity سبقت بازی کی شدت		1	2	3	4	5	6	7
56	Competition in our industry is cutthroat. ہمارے صنعتی شعبے میں سخت مقابلہ ہے۔	1	2	3	4	5	6	7
57	There are many "promotion wars" in our industry. ہمارے صنعتی شعبے میں بہت سے "ترقیاتی محاذ" ہیں۔	1	2	3	4	5	6	7
58	Anything that one competitor can offer, others can match readily. ایک کاروباری حریف کی طرف سے کوئی پیشکش دینے پر دوسرا فوری طور پر وہی پیشکش فراہم کر سکتا ہے۔	1	2	3	4	5	6	7
59	Price competition is a hallmark of our industry. قیمتوں میں مقابلہ ہمارے کاروباری شعبے کا وصف ہے۔	1	2	3	4	5	6	7
60	One hears of a new competitive move almost every day. ہر روز ایک نئے کاروباری حریف کی افواہیں گردش میں رہتی ہیں۔	1	2	3	4	5	6	7
61	Our competitors are relatively weak. کاروباری حریف ہمارے مقابلے میں نسبتاً کمزور ہیں۔	1	2	3	4	5	6	7
Technological Turbulence تکنیکی مشکلات		1	2	3	4	5	6	7
62	The technology in our industry is changing rapidly. ہمارے کاروباری شعبے کی ٹیکنالوجی تیزی سے تبدیل ہو رہی ہے۔	1	2	3	4	5	6	7
63	Technological changes provide big opportunities in our industry. کاروباری شعبے میں تکنیکی تبدیلیاں وسیع مواقع فراہم کرتی ہیں۔	1	2	3	4	5	6	7
64	A large number of new product ideas have been made possible through technological breakthroughs in our industry. ہمارے کاروباری شعبے میں بڑی تعداد میں جدید مصنوعات کی حکمت عملیوں نے تکنیکی کامیابیوں کو ممکن بنا دیا ہے۔	1	2	3	4	5	6	7
65	Technological developments in our industry are rather minor. ہمارے کاروباری شعبے میں تکنیکی ترقی نسبتاً بہت کم ہے۔	1	2	3	4	5	6	7

SECTION F: Business Strategy **کاروباری حکمت عملی**

Please read the following statements and Circle (○) the response that closely represents your opinion. The statements are anchored on the following 7 point Likert Scale:

درج ذیل بیانات پڑھیں اور اپنی رائے سے قریب تر جواب پر دائرہ (○) لگائیں۔ اپنے جواب کا اظہار درج ذیل 7 پوائنٹ کے ذریعے کریں۔

		بہت غیر متفق Strongly Disagree ← → بہت متفق Strongly Agree						
		1	2	3	4	5	6	7
Innovation strategy جدید حکمت عملی								
66	The organization's vision or mission includes a reference to innovation. تنظیمی نقطہ نظر یا مقصد میں جدید حوالہ جات شامل ہیں۔	1	2	3	4	5	6	7
67	Innovation strategy has helped the organization to achieve its strategic goals. جدید حکمت عملی تنظیم کے ابدائی مقاصد حاصل کرنے میں مددگار ہے۔	1	2	3	4	5	6	7
68	Increasing our production volume is an important measure of our process innovation. پیداوار میں اضافہ ہمارے جدید طریقہ کار کا ایک اہم اقدام ہے۔	1	2	3	4	5	6	7
69	Improving administrative routines is seen as part of our innovation strategy. انتظامی معمولات میں بہتری کو ہمارے جدید حکمت عملی کے ایک حصے کے طور پر دیکھا جاسکتا ہے۔	1	2	3	4	5	6	7
70	Internal cooperation is an important part of innovation strategy implementation. امداد باہمی جدید حکمت عملی پر عمل درآمد کا ایک اہم حصہ ہے۔	1	2	3	4	5	6	7
71	Customer satisfaction is part of our innovation strategy. کسٹمرز کا اطمینان ہماری جدید حکمت عملی کا ایک اہم حصہ ہے۔	1	2	3	4	5	6	7
72	Improving product or service quality is one of our key objectives of innovation strategy. مصنوعات یا خدمات کے معیار میں بہتری جدید حکمت عملی کے اہم مقاصد میں سے ایک ہے۔	1	2	3	4	5	6	7
73	Formulating innovation strategy increases employee skills. جدید حکمت عملی کی تشکیل ملازم کی پرمندی میں اضافے کا باعث ہے۔	1	2	3	4	5	6	7
74	Improving employee commitment, morale, or both is part of our innovation strategy monitoring. ملازم سے عہد یا اس کا اعتماد یا دونوں ہماری جدید مشاہداتی حکمت عملی کا حصہ ہے۔	1	2	3	4	5	6	7

SECTION G: Firm Performance کمپنی کی کارکردگی

Please read the following statements and Circle (○) the response that closely represents your opinion. The statements are anchored on the following 7 point Likert Scale:

درج ذیل بیانات پڑھیں اور اپنی رائے سے قریب تر جواب پر دائرہ (○) لگائیں۔ اپنے جواب کا اظہار درج ذیل 7 پوائنٹ کے ذریعے کریں۔

Firm Performance کمپنی کی کارکردگی

Please indicate your firm performance relative to that of your major competitor over the past 12-months.

اپنے بڑے کاروباری حریف کے مقابلے میں آپ گزشتہ 12 ماہ میں اپنی کمپنی کی کارکردگی کو ظاہر کریں۔

Much lower than Competitor
مدمقابل سے بہت کم

Much higher than competitor
مدمقابل سے بہت زیادہ

		1	2	3	4	5	6	7
Firm Performance کمپنی کی کارکردگی								
75	Sales growth. فروخت میں اضافہ	1	2	3	4	5	6	7
76	Revenue growth. آمدن میں اضافہ	1	2	3	4	5	6	7
77	Growth in number of employee. افراد کی قوت میں اضافہ	1	2	3	4	5	6	7
78	Net profit margin. خالص آمدن کا تناسب	1	2	3	4	5	6	7
79	Product/service innovation. مصنوعات / خدمات میں جدت	1	2	3	4	5	6	7
80	Process innovation. طریقہ کار میں جدت	1	2	3	4	5	6	7
81	Adoption of new technology. جدید ٹیکنالوجی کی اپنائیت	1	2	3	4	5	6	7
82	Product/service quality. مصنوعات / خدمات کا معیار	1	2	3	4	5	6	7
83	Product /service variety. مصنوعات / خدمات کی نئی اقسام	1	2	3	4	5	6	7
84	Customer satisfaction. کسٹمرز کا اطمینان	1	2	3	4	5	6	7

Any Suggestions/Comments کوئی رائے/تبصرہ

THANK YOU VERY MUCH FOR YOUR TIME AND EFFORT, IT IS GREATLY APPRECIATED.

آپ کے وقت اور کوشش کا شکریہ، یہ انتہائی قابل ستائش ہے۔

Appendix B: Descriptive Statistics for Demographic Variables

Position

	Frequency	Percent	Valid Percent	Cumulative Percent
CEO/MD	316	91.0	91.0	91.0
Senior Valid Manager	42	32.0	32.0	100.0
Others	0	0	0	
Total	348	100.0	100.0	

Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
male	310	89.6	89.6	89.6
Valid Female	38	10.4	10.4	100.0
Total	348	100.0	100.0	

M-status

	Frequency	Percent	Valid Percent	Cumulative Percent
Married	285	82.1	82.1	82.1
Valid Single	63	17.9	17.9	100.0
Total	348	100.0	100.0	

Age Group

	Frequency	Percent	Valid Percent	Cumulative Percent
20-30	44	12.4	12.4	12.4
31-40	184	52.9	52.9	65.3
Valid 41-50	99	28.6	28.6	93.9
> 50	21	6.1	6.1	100.0
Total	348	100.0	100.0	

Education

	Frequency	Percent	Valid Percent	Cumulative Percent
Diploma	36	10.4	10.4	10.4
Matric	33	9.2	9.2	19.6
Intermediate	93	26.6	26.6	46.2
Bachelor	80	23.1	23.1	69.3
Master's	106	30.6	30.6	100.0
Total	348	100.0	100.0	

No. of Employees 2016

	Frequency	Percent	Valid Percent	Cumulative Percent
<10	25	7.2	7.2	7.2
10-50	117	33.8	33.8	41.0
Valid 51-150	194	55.8	55.8	96.8
151-250	12	3.2	3.2	100.0
Total	348	100.0	100.0	

No. of Employees 2017

	Frequency	Percent	Valid Percent	Cumulative Percent
<10	14	3.8	3.8	3.8
10-50	84	24.3	24.3	28.1
Valid 51-150	154	44.2	44.2	72.3
151-250	96	27.7	27.7	100.0
Total	348	100.0	100.0	

No. of Employees 2018

	Frequency	Percent	Valid Percent	Cumulative Percent
<10	0	0.0	0.0	0.0
10-50	15	3.8	3.8	3.8
Valid 51-150	116	33.5	33.5	37.3
151-250	217	62.7	62.7	100.0
Total	348	100.0	100.0	

Sales Turnover 2016

	Frequency	Percent	Valid Percent	Cumulative Percent
<50	175	50.6	50.6	56.6
Valid 50-75	137	39.0	39.0	89.6
76-100	36	10.4	10.4	100.0
Total	348	100.0	100.0	

Sales Turnover 2017

	Frequency	Percent	Valid Percent	Cumulative Percent
<50	121	34.4	34.4	34.4
Valid 50-75	164	47.4	47.4	81.8
76-100	63	18.2	18.2	100.0
Total	348	100.0	100.0	

Sales Turnover 2018

	Frequency	Percent	Valid Percent	Cumulative Percent
<50	34	9.2	9.2	9.2
Valid 50-75	197	56.6	56.6	65.8
76-100	117	33.8	33.8	100.0
Total	348	100.0	100.0	

Years of Operation

	Frequency	Percent	Valid Percent	Cumulative Percent
1-3	22	6.4	6.4	6.4
4-7	64	18.5	18.5	24.9
8-11	35	9.5	9.5	34.4
Valid 12-15	81	23.6	23.6	58.0
16-20	79	22.8	22.8	80.8
>20	67	19.4	19.4	100.0
Total	348	100.0	100.0	

Appendix C: Common method Variance.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	27.279	32.475	32.475	27.279	32.475	32.475
2	7.591	9.037	41.512	7.591	9.037	41.512
3	6.078	7.235	48.748	6.078	7.235	48.748
4	4.269	5.082	53.829	4.269	5.082	53.829
5	3.424	4.076	57.906	3.424	4.076	57.906
6	3.159	3.761	61.666	3.159	3.761	61.666
7	2.822	3.359	65.025	2.822	3.359	65.025
8	2.274	2.708	67.733	2.274	2.708	67.733
9	2.146	2.555	70.288	2.146	2.555	70.288
10	2.109	2.510	72.799	2.109	2.510	72.799
11	1.729	2.059	74.857	1.729	2.059	74.857
12	1.668	1.985	76.843	1.668	1.985	76.843
13	1.647	1.961	78.803	1.647	1.961	78.803
14	1.375	1.636	80.440	1.375	1.636	80.440
15	1.269	1.511	81.951	1.269	1.511	81.951
16	1.199	1.428	83.379	1.199	1.428	83.379
17	1.136	1.352	84.731	1.136	1.352	84.731
18	1.086	1.293	86.024	1.086	1.293	86.024
19	1.040	1.239	87.262	1.040	1.239	87.262
20	.936	1.114	88.376			
21	.817	.972	89.349			
22	.738	.879	90.227			
23	.713	.848	91.076			
24	.690	.822	91.898			
25	.592	.704	92.602			
26	.560	.667	93.269			
27	.527	.627	93.896			
28	.463	.551	94.447			
29	.451	.537	94.983			
30	.397	.473	95.456			
31	.373	.444	95.900			
32	.352	.419	96.319			
33	.340	.405	96.724			
34	.308	.367	97.090			
35	.273	.324	97.415			
36	.213	.254	97.668			

37	.206	.246	97.914
38	.194	.231	98.145
39	.175	.208	98.354
40	.157	.187	98.541
41	.138	.164	98.705
42	.124	.148	98.852
43	.106	.126	98.979
44	.098	.116	99.095
45	.085	.101	99.196
46	.078	.093	99.289
47	.067	.080	99.370
48	.061	.072	99.442
49	.052	.062	99.504
50	.049	.059	99.562
51	.047	.056	99.619
52	.043	.051	99.670
53	.040	.047	99.717
54	.031	.037	99.755
55	.031	.036	99.791
56	.026	.031	99.822
57	.021	.025	99.847
58	.019	.023	99.870
59	.017	.020	99.889
60	.015	.018	99.907
61	.014	.017	99.924
62	.013	.015	99.939
63	.009	.010	99.950
64	.008	.009	99.959
65	.007	.009	99.967
66	.006	.007	99.974
67	.005	.006	99.980
68	.003	.004	99.984
69	.003	.004	99.988
70	.003	.003	99.991
71	.002	.002	99.993
72	.002	.002	99.995
73	.001	.001	99.997
74	.001	.001	99.998
75	.001	.001	99.998
76	.001	.001	99.999
77	.001	.001	99.997

78	.001	.001	99.998		
79	.001	.001	99.998		
80	.001	.001	99.999		
81	.001	.001	99.997		
82	.001	.001	99.998		
83	.001	.001	99.998		
84	.001	.001	100.000		

Extraction Method: Principal Component Analysis.



Appendix D: Discriminant Validity (Fornell-Larcker Criterion).

Discriminant Validity (Fornell-Larcker Criterion)

Cons.	ABAC	ABAS	ABEX	ABTR	ETCI	ETMK	ETTB	FP	ICH	ICO	ICS	INBH	INMK	INOSTGY	INPD	INPR	INSTG
ABAC	0.827																
ABAS	0.769	0.836															
ABEX	0.716	0.721	0.818														
ABTR	0.713	0.650	0.655	0.775													
ETCI	0.416	0.336	0.300	0.448	0.787												
ETMK	0.301	0.215	0.391	0.393	0.674	0.803											
ETTB	0.487	0.388	0.331	0.465	0.772	0.587	0.829										
FP	0.529	0.568	0.543	0.606	0.460	0.319	0.524	0.770									
ICH	0.636	0.570	0.523	0.705	0.371	0.346	0.383	0.632	0.796								
ICO	0.763	0.612	0.454	0.823	0.553	0.419	0.527	0.512	0.777	0.824							
ICS	0.735	0.557	0.496	0.755	0.535	0.412	0.513	0.494	0.717	0.767	0.808						
INBH	0.464	0.542	0.533	0.536	0.366	0.324	0.292	0.505	0.630	0.418	0.461	0.829					
INMK	0.328	0.297	0.364	0.320	0.404	0.518	0.302	0.212	0.326	0.347	0.290	0.608	0.809				
INO STGY	0.567	0.583	0.455	0.537	0.608	0.386	0.679	0.590	0.468	0.556	0.653	0.374	0.265	0.740			
INPD	0.354	0.441	0.354	0.408	0.306	0.437	0.215	0.297	0.442	0.425	0.430	0.605	0.706	0.256	0.793		
INPR	0.356	0.234	0.366	0.416	0.272	0.338	0.029	0.316	0.444	0.404	0.368	0.554	0.589	0.127	0.651	0.826	
INSTG	0.379	0.468	0.382	0.443	0.220	0.147	0.113	0.374	0.521	0.416	0.393	0.708	0.611	0.267	0.675	0.564	0.856

Note: IMPD = Innovation Capability (Product Innovativeness); INPR = Innovation Capability (Process innovativeness); INMK = Innovation Capability (Market Innovativeness); INSTG = Innovation Capability (Strategic Innovativeness); INBH = Innovation Capability (Behavioral Innovativeness); ICH = Intellectual Capital (Human Capital); ICS = Intellectual Capital (Social Capital); ICO = Intellectual Capital (Organizational Capital); ABAC = Absorptive Capacity (Acquisition); ABAS = Absorptive Capacity (Assimilation); ABTR = Absorptive Capacity (Transformation); ABEX = Absorptive Capacity (Exploitation). ETMK = Environmental Turbulence (Market Turbulence); ETCI = Environmental Turbulence (Competitive Intensity); ETTB = Environmental Turbulence (Technological Turbulence); INO STGY = Innovation Strategy; and FP = SME performance.

Appendix E: Discriminant Validity (HTMT criterion).

Discriminant Validity (HTMT criterion)

Cons.	ABAC	ABAS	ABEX	ABTR	ETCI	ETMK	ETTB	FP	ICH	ICO	ICS	INBH	INMK	INO STGY	INPD	INPR	INSTG
ABAC																	
ABAS	0.863																
ABEX	0.852	0.847															
ABTR	0.040	0.804	0.807														
ETCI	0.490	0.372	0.351	0.527													
ETMK	0.340	0.245	0.446	0.459	0.777												
ETTB	0.573	0.431	0.404	0.562	0.876	0.709											
FP	0.594	0.633	0.612	0.710	0.462	0.352	0.534										
ICH	0.734	0.650	0.587	0.859	0.399	0.388	0.440	0.696									
ICO	0.804	0.720	0.532	0.718	0.641	0.467	0.611	0.570	0.898								
ICS	0.859	0.639	0.571	0.813	0.611	0.470	0.596	0.540	0.839	0.804							
INBH	0.527	0.583	0.594	0.597	0.378	0.396	0.316	0.502	0.679	0.445	0.500						
INMK	0.442	0.307	0.370	0.445	0.454	0.561	0.363	0.245	0.403	0.470	0.392	0.682					
INOSTGY	0.641	0.631	0.500	0.630	0.690	0.414	0.749	0.603	0.537	0.644	0.739	0.432	0.286				
INPD	0.449	0.497	0.414	0.516	0.355	0.483	0.246	0.338	0.548	0.518	0.527	0.737	0.891	0.294			
INPR	0.437	0.306	0.455	0.533	0.312	0.391	0.122	0.373	0.548	0.497	0.451	0.709	0.810	0.180	0.895		
INSTG	0.442	0.535	0.419	0.526	0.214	0.185	0.142	0.364	0.573	0.495	0.446	0.766	0.685	0.298	0.816	0.676	

Note: IMPD = Innovation Capability (Product Innovativeness); INPR = Innovation Capability (Process innovativeness); INMK = Innovation Capability (Market Innovativeness); INSTG = Innovation Capability (Strategic Innovativeness); INBH = Innovation Capability (Behavioral Innovativeness); ICH = Intellectual Capital (Human Capital); ICS = Intellectual Capital (Social Capital); ICO = Intellectual Capital (Organizational Capital); ABAC = Absorptive Capacity (Acquisition); ABAS = Absorptive Capacity (Assimilation); ABTR = Absorptive Capacity (Transformation); ABEX = Absorptive Capacity (Exploitation). ETMK = Environmental Turbulence (Market Turbulence); ETCI = Environmental Turbulence (Competitive Intensity); ETTB = Environmental Turbulence (Technological Turbulence); INO STGY = Innovation Strategy; and FP = SME performance.

Appendix F: Cross-Loadings of the constructs to assess Discernment-validity.

Cross-Loadings of the constructs to assess Discernment-validity

	ABAC	ABAS	ABEX	ABTR	ETCI	ETMK	ETTB	FP	ICH	ICO	ICS	INBH	INMK	INPD	INPR	INSTG	INO STGY
ABAC1	0.846	0.604	0.617	0.664	0.259	0.162	0.277	0.413	0.562	0.672	0.646	0.343	0.261	0.288	0.325	0.281	0.436
ABAC2	0.831	0.641	0.587	0.663	0.263	0.281	0.394	0.457	0.459	0.543	0.572	0.340	0.144	0.201	0.203	0.225	0.435
ABAC3	0.830	0.708	0.589	0.615	0.540	0.274	0.495	0.402	0.478	0.711	0.652	0.353	0.411	0.415	0.310	0.346	0.635
ABAC4	0.802	0.598	0.576	0.737	0.330	0.273	0.442	0.469	0.600	0.609	0.569	0.487	0.285	0.280	0.342	0.398	0.388
ABAS1	0.698	0.818	0.602	0.695	0.321	0.159	0.335	0.475	0.380	0.575	0.546	0.467	0.288	0.340	0.217	0.368	0.558
ABAS2	0.618	0.833	0.564	0.489	0.207	0.021	0.273	0.392	0.420	0.430	0.352	0.380	0.168	0.248	0.128	0.306	0.332
ABAS3	0.615	0.825	0.682	0.479	0.237	0.318	0.323	0.514	0.588	0.464	0.387	0.551	0.275	0.384	0.246	0.472	0.411
ABAS4	0.638	0.866	0.550	0.508	0.347	0.182	0.356	0.499	0.498	0.563	0.557	0.395	0.246	0.474	0.176	0.398	0.620
ABEX1	0.729	0.569	0.764	0.671	0.388	0.355	0.320	0.421	0.424	0.506	0.559	0.544	0.339	0.295	0.406	0.450	0.405
ABEX2	0.556	0.598	0.822	0.546	0.190	0.209	0.229	0.514	0.587	0.422	0.443	0.483	0.345	0.402	0.453	0.452	0.368
ABEX3	0.520	0.624	0.883	0.478	0.185	0.418	0.277	0.428	0.386	0.263	0.356	0.386	0.235	0.225	0.119	0.153	0.408
ABEX4	0.541	0.563	0.800	0.441	0.232	0.319	0.264	0.395	0.268	0.278	0.246	0.314	0.259	0.207	0.182	0.159	0.302
ABTR1	0.634	0.495	0.570	0.782	0.313	0.323	0.234	0.498	0.527	0.595	0.543	0.529	0.456	0.431	0.485	0.575	0.431
ABTR2	0.688	0.600	0.426	0.768	0.332	0.267	0.392	0.390	0.587	0.821	0.611	0.306	0.219	0.373	0.303	0.309	0.396
ABTR3	0.597	0.467	0.429	0.830	0.413	0.270	0.429	0.510	0.672	0.708	0.579	0.453	0.215	0.276	0.242	0.360	0.398
ABTR4	0.616	0.475	0.598	0.715	0.326	0.355	0.396	0.464	0.396	0.454	0.617	0.343	0.085	0.190	0.253	0.104	0.439
ETCI1	0.378	0.214	0.202	0.328	0.796	0.574	0.592	0.215	0.205	0.486	0.407	0.196	0.393	0.250	0.250	0.138	0.388

Continue

Cross-Loadings of the constructs to assess Discernment-validity

	ABAC	ABAS	ABEX	ABTR	ETCI	ETMK	ETTB	FP	ICH	ICO	ICS	INBH	INMK	INPD	INPR	INSTG	INO STGY
ETCI2	0.436	0.325	0.250	0.363	0.757	0.470	0.602	0.422	0.284	0.414	0.483	0.233	0.250	0.268	0.158	0.132	0.566
ETCI3	0.333	0.255	0.220	0.312	0.765	0.421	0.668	0.270	0.238	0.405	0.317	0.306	0.203	0.058	0.159	0.113	0.498
ETCI4	0.298	0.235	0.256	0.304	0.754	0.600	0.553	0.178	0.131	0.378	0.451	0.181	0.420	0.248	0.135	0.034	0.467
ETCI5	0.324	0.243	0.240	0.385	0.874	0.597	0.649	0.437	0.404	0.480	0.430	0.393	0.485	0.321	0.268	0.267	0.498
ETCI6	0.218	0.276	0.243	0.375	0.768	0.551	0.575	0.442	0.334	0.437	0.420	0.321	0.215	0.243	0.267	0.233	0.423
ETMK1	0.185	0.145	0.284	0.192	0.544	0.808	0.439	0.166	0.131	0.161	0.187	0.323	0.397	0.310	0.178	0.048	0.143
ETMK2	0.392	0.164	0.404	0.469	0.512	0.877	0.509	0.262	0.391	0.464	0.443	0.264	0.469	0.334	0.319	0.168	0.380
ETMK3	0.248	0.254	0.416	0.329	0.574	0.841	0.507	0.345	0.320	0.368	0.400	0.281	0.431	0.348	0.319	0.076	0.404
ETMK4	0.206	0.252	0.342	0.320	0.557	0.790	0.392	0.232	0.244	0.255	0.276	0.427	0.531	0.494	0.308	0.252	0.335
ETMK5	0.137	0.008	0.035	0.207	0.524	0.688	0.495	0.209	0.230	0.365	0.265	0.004	0.228	0.263	0.175	0.039	0.184
ETTB1	0.491	0.341	0.228	0.455	0.637	0.522	0.833	0.377	0.354	0.547	0.500	0.191	0.213	0.252	0.118	0.140	0.595
ETTB2	0.462	0.350	0.351	0.363	0.667	0.503	0.861	0.392	0.334	0.449	0.494	0.185	0.259	0.153	0.070	0.033	0.614
ETTB3	0.378	0.365	0.267	0.428	0.708	0.454	0.902	0.602	0.340	0.461	0.421	0.362	0.260	0.172	0.040	0.135	0.613
ETTB4	0.292	0.182	0.279	0.264	0.519	0.557	0.706	0.235	0.218	0.245	0.264	0.150	0.311	0.146	0.008	0.033	0.381
FPAPNT7	0.588	0.466	0.449	0.664	0.437	0.343	0.594	0.829	0.593	0.555	0.537	0.443	0.243	0.271	0.262	0.347	0.533
FPCS10	0.444	0.332	0.312	0.466	0.290	0.130	0.300	0.708	0.592	0.498	0.401	0.353	-0.064	0.113	0.311	0.296	0.378
FPEG3	0.412	0.527	0.506	0.490	0.389	0.340	0.447	0.866	0.525	0.382	0.448	0.475	0.220	0.269	0.236	0.261	0.471
FPNPM4	0.305	0.362	0.418	0.370	0.252	0.255	0.298	0.775	0.454	0.308	0.325	0.393	0.256	0.431	0.344	0.332	0.374
FPPI6	0.360	0.404	0.397	0.388	0.445	0.258	0.475	0.844	0.500	0.308	0.369	0.412	0.083	0.153	0.157	0.210	0.529

Continue

Cross-Loadings of the constructs to assess Discernment-validity

	ABAC	ABAS	ABEX	ABTR	ETCI	ETMK	ETTB	FP	ICH	ICO	ICS	INBH	INMK	INPD	INPR	INSTG	INO STGY
FPPSI5	0.315	0.399	0.373	0.443	0.302	0.173	0.379	0.753	0.483	0.381	0.326	0.312	0.016	0.073	0.113	0.232	0.470
FPPSQ8	0.365	0.384	0.450	0.430	0.307	0.245	0.337	0.707	0.431	0.345	0.304	0.365	0.260	0.351	0.407	0.364	0.454
FPPSV9	0.400	0.419	0.334	0.332	0.245	-0.004	0.320	0.700	0.414	0.310	0.194	0.278	0.033	0.028	0.158	0.187	0.305
FPRG2	0.446	0.591	0.523	0.489	0.515	0.410	0.511	0.805	0.462	0.407	0.472	0.470	0.268	0.278	0.215	0.284	0.575
FPSG1	0.414	0.481	0.404	0.584	0.303	0.255	0.293	0.684	0.372	0.439	0.381	0.360	0.341	0.354	0.256	0.390	0.404
ICH1	0.597	0.526	0.542	0.566	0.254	0.168	0.243	0.608	0.840	0.651	0.548	0.510	0.132	0.220	0.373	0.404	0.390
ICH2	0.557	0.530	0.411	0.632	0.542	0.481	0.502	0.546	0.815	0.717	0.648	0.620	0.393	0.484	0.378	0.465	0.381
ICH3	0.448	0.388	0.383	0.564	0.115	0.247	0.092	0.450	0.818	0.569	0.623	0.502	0.334	0.423	0.439	0.431	0.360
ICH4	0.399	0.397	0.271	0.429	0.384	0.161	0.381	0.395	0.695	0.570	0.505	0.410	0.216	0.320	0.303	0.443	0.485
ICH5	0.491	0.396	0.424	0.599	0.170	0.307	0.303	0.472	0.805	0.568	0.532	0.444	0.242	0.339	0.272	0.345	0.270
ICO1	0.565	0.552	0.422	0.558	0.515	0.387	0.487	0.374	0.572	0.773	0.639	0.365	0.390	0.493	0.328	0.466	0.534
ICO2	0.631	0.434	0.330	0.625	0.604	0.366	0.485	0.423	0.656	0.843	0.723	0.216	0.223	0.288	0.334	0.237	0.491
ICO3	0.654	0.542	0.335	0.703	0.344	0.280	0.418	0.352	0.575	0.831	0.628	0.309	0.213	0.291	0.318	0.263	0.428
ICO4	0.659	0.504	0.405	0.798	0.368	0.344	0.369	0.508	0.726	0.846	0.558	0.463	0.312	0.341	0.347	0.398	0.399
ICS1	0.624	0.413	0.443	0.677	0.363	0.204	0.320	0.451	0.588	0.626	0.824	0.428	0.142	0.307	0.385	0.365	0.438
ICS2	0.611	0.430	0.332	0.648	0.527	0.463	0.473	0.362	0.675	0.711	0.864	0.462	0.455	0.522	0.383	0.462	0.495
ICS3	0.551	0.380	0.257	0.480	0.365	0.237	0.378	0.368	0.572	0.567	0.787	0.193	0.150	0.234	0.181	0.253	0.562
ICS4	0.593	0.510	0.498	0.521	0.494	0.564	0.473	0.344	0.566	0.589	0.753	0.346	0.373	0.429	0.293	0.245	0.547
ICS5	0.586	0.514	0.456	0.688	0.434	0.260	0.446	0.446	0.510	0.608	0.808	0.411	0.112	0.279	0.239	0.263	0.604

Cross-Loadings of the constructs to assess Discernment-validity

	ABAC	ABAS	ABEX	ABTR	ETCI	ETMK	ETTB	FP	ICH	ICO	ICS	INBH	INMK	INPD	INPR	INSTG	INO STGY
INBH1	0.504	0.579	0.574	0.596	0.373	0.285	0.283	0.582	0.677	0.497	0.487	0.897	0.502	0.516	0.467	0.636	0.388
INBH2	0.289	0.387	0.304	0.398	0.315	0.231	0.205	0.392	0.445	0.302	0.337	0.832	0.530	0.484	0.495	0.629	0.268
INBH3	0.338	0.420	0.475	0.362	0.243	0.313	0.253	0.345	0.498	0.228	0.347	0.876	0.529	0.572	0.428	0.565	0.268
INBH4	0.386	0.314	0.346	0.302	0.235	0.280	0.229	0.162	0.341	0.260	0.289	0.696	0.521	0.476	0.537	0.509	0.304
INMK1	0.255	0.311	0.367	0.259	0.394	0.493	0.328	0.267	0.278	0.238	0.234	0.616	0.959	0.673	0.473	0.604	0.295
INMK2	0.326	0.217	0.318	0.294	0.355	0.477	0.250	0.112	0.331	0.431	0.304	0.460	0.847	0.552	0.597	0.458	0.233
INMK3	0.189	0.045	0.128	0.228	0.067	0.251	-0.103	0.041	0.209	0.212	0.103	0.303	0.604	0.597	0.587	0.399	-0.030
INMK4	0.470	0.277	0.244	0.414	0.391	0.392	0.274	0.052	0.306	0.457	0.382	0.476	0.785	0.545	0.542	0.497	0.129
INPD1	0.262	0.384	0.334	0.363	0.308	0.436	0.228	0.291	0.423	0.370	0.394	0.613	0.682	0.902	0.520	0.630	0.195
INPD2	0.275	0.184	0.161	0.266	0.146	0.146	-0.035	0.097	0.305	0.271	0.282	0.395	0.549	0.545	0.702	0.502	0.125
INPD3	0.262	0.286	0.298	0.220	0.125	0.317	0.072	0.234	0.334	0.239	0.315	0.420	0.573	0.851	0.518	0.489	0.195
INPD4	0.360	0.480	0.290	0.441	0.346	0.397	0.297	0.260	0.353	0.462	0.378	0.486	0.498	0.827	0.517	0.562	0.277
INPR2	0.216	0.206	0.287	0.304	0.227	0.387	0.089	0.291	0.240	0.229	0.244	0.431	0.570	0.637	0.850	0.445	0.139
INPR3	0.238	-0.010	0.154	0.323	0.187	0.244	-0.011	0.208	0.337	0.290	0.307	0.449	0.400	0.497	0.810	0.393	0.073
INPR4	0.422	0.337	0.435	0.403	0.253	0.191	-0.019	0.271	0.529	0.482	0.369	0.496	0.467	0.467	0.818	0.548	0.094
INSTG1	0.294	0.373	0.395	0.369	0.258	0.231	0.136	0.461	0.504	0.295	0.331	0.716	0.580	0.588	0.546	0.902	0.272
INSTG2	0.352	0.415	0.237	0.389	0.122	0.057	0.064	0.255	0.463	0.452	0.359	0.523	0.466	0.588	0.428	0.841	0.212
INSTG3	0.280	0.338	0.345	0.304	0.210	0.115	0.037	0.153	0.297	0.318	0.273	0.494	0.538	0.566	0.590	0.787	0.210
INSTG4	0.402	0.503	0.308	0.459	0.128	0.018	0.102	0.249	0.445	0.420	0.389	0.598	0.506	0.599	0.391	0.889	0.191

Continue

Cross-Loadings of the constructs to assess Discernment-validity

	ABAC	ABAS	ABEX	ABTR	ETCI	ETMK	ETTB	FP	ICH	ICO	ICS	INBH	INMK	INPD	INPR	INSTG	INO STGY
Inostg1	0.339	0.546	0.381	0.177	0.441	0.351	0.508	0.384	0.297	0.272	0.326	0.284	0.143	0.229	-0.041	0.112	0.728
Inostg2	0.308	0.346	0.280	0.281	0.412	0.202	0.472	0.443	0.325	0.333	0.392	0.319	0.165	0.194	0.044	0.156	0.736
Inostg3	0.517	0.556	0.529	0.514	0.349	0.269	0.516	0.591	0.372	0.459	0.470	0.193	0.116	0.087	0.063	0.121	0.751
Inostg4	0.409	0.390	0.261	0.407	0.479	0.271	0.500	0.283	0.299	0.465	0.474	0.353	0.150	0.088	0.015	0.160	0.675
Inostg5	0.310	0.196	0.115	0.345	0.403	0.107	0.380	0.315	0.308	0.399	0.477	0.196	0.113	0.176	0.256	0.268	0.687
Inostg6	0.414	0.457	0.354	0.496	0.409	0.331	0.486	0.551	0.352	0.409	0.570	0.328	0.305	0.378	0.197	0.332	0.787
Inostg7	0.575	0.507	0.329	0.427	0.629	0.356	0.689	0.508	0.427	0.518	0.583	0.261	0.229	0.178	0.099	0.206	0.841
Inostg8	0.460	0.444	0.441	0.489	0.519	0.474	0.423	0.358	0.427	0.454	0.613	0.317	0.233	0.149	0.120	0.167	0.721
Inostg9	0.374	0.306	0.172	0.381	0.497	0.159	0.522	0.269	0.272	0.401	0.439	0.310	0.340	0.188	0.091	0.291	0.719

Note: IMPD = Innovation Capability (Product Innovativeness); INPR = Innovation Capability (Process innovativeness); INMK = Innovation Capability (Market Innovativeness); INSTG = Innovation Capability (Strategic Innovativeness); INBH = Innovation Capability (Behavioral Innovativeness); ICH = Intellectual Capital (Human Capital); ICS = Intellectual Capital (Social Capital); ICO = Intellectual Capital (Organizational Capital); ABAC = Absorptive Capacity (Acquisition); ABAS = Absorptive Capacity (Assimilation); ABTR = Absorptive Capacity (Transformation); ABEX = Absorptive Capacity (Exploitation). ETMK = Environmental Turbulence (Market Turbulence); ETCI = Environmental Turbulence (Competitive Intensity); ETTB = Environmental Turbulence (Technological Turbulence); INO STGY = Innovation Strategy; and FP = SME performance.