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**DRIVING TECHNOLOGICAL INNOVATION IN KURDISTAN'S
SMES: EXAMINING THE SYNERGY OF ENTREPRENEURIAL
ORIENTATION, SOCIAL CAPITAL, AND ABSORPTIVE
CAPACITY**



**DOCTOR OF BUSINESS ADMINISTRATION
UNIVERSITI UTARA MALAYSIA
AUGUST 2024**

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SMES: EXAMINING THE SYNERGY OF ENTREPRENEURIAL
ORIENTATION, SOCIAL CAPITAL, AND ABSORPTIVE
CAPACITY**

BY



**A Thesis Submitted To The Ghazalie Shafie Graduate School Of
Government In Fulfilment Of The Requirement For Proposal
Defense Of Doctor Of Business Administration
Universiti Utara Malaysia
August 2024**



**OTHMAN YEOP ABDULLAH GRADUATE SCHOOL OF BUSINESS
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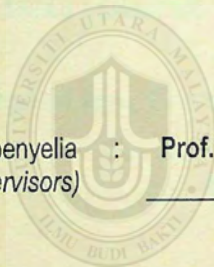
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(Title of the Thesis / Dissertation) : Driving Technological Innovation in Kurdistan's SMEs: Examining The Synergy of Entrepreneurial Orientation, Social Capital, and Absorptive Capacity

Program Pengajian
(Programme of Study) : Doctor of Business Administration

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ABSTRACT

Technological innovation capabilities in small and medium enterprises (SMEs) in the industrial sector are crucial for addressing intense competition, fulfilling customers' needs, and fostering countries' economic growth. This study examines the relationships between entrepreneurial orientation (EO), absorptive capacity (ACAP), social capital (SC), and technological innovation among industrial SMEs in the Kurdistan Region of Iraq. A survey questionnaire was completed by 340 industrial SME owners in the Kurdistan region of Iraq. This study utilized partial least squares-structural equation modelling (PLS-SEM) to test the hypothesized relationships. The results reveal that EO, ACAP, and SC significantly influence technological innovation in industrial SMEs of the Kurdistan Region of Iraq. Among these, EO is the strongest predictor of technological innovation. Innovation performance can be improved to increase business performance by strengthening EO, ACAP, and SC. This study offers new insights and contributes to the existing body of knowledge by applying the resource-based view (RBV) theory as an underpinning theory in the proposed research framework, tested in industrial SMEs of the Kurdistan Region of Iraq. This research empirically confirms that EO, ACAP, and SC are vital in boosting technological innovation in industrial SMEs of the Kurdistan Region of Iraq. Top management in SMEs should promote partnering as a key strategy to tackle financial obstacles and optimize opportunities for driving business growth through innovation. By nurturing a partnership-oriented mentality, they can expand viewpoints, enhance organizational awareness, and develop a deeper understanding of future market trends and technological progress. This collective endeavor will strengthen the SMEs' capacity to innovate technologically and improve their overall capabilities.

Keywords: Entrepreneurial Orientation, Absorptive Capacity, Social Capital, Technological Innovation, Kurdistan SME.

ABSTRAK

Keupayaan inovasi teknologi dalam perusahaan kecil dan sederhana (PKS) dalam sektor perindustrian adalah penting untuk menangani persaingan sengit, memenuhi keperluan pelanggan dan memupuk pertumbuhan ekonomi negara. Kajian ini mengkaji hubungan antara orientasi keusahawanan (EO), kapasiti penyerapan (ACAP), modal sosial (SC), dan inovasi teknologi dalam kalangan PKS industri di Wilayah Kurdistan Iraq. Satu soal selidik tinjauan telah dilengkapkan oleh 340 pemilik PKS industri di wilayah Kurdistan Iraq. Kajian ini menggunakan pemodelan persamaan struktur kuasa dua terkecil separa (PLS-SEM) untuk menguji hubungan hipotesis. Hasil kajian mendedahkan bahawa EO, ACAP dan SC mempengaruhi inovasi teknologi dengan ketara dalam PKS perindustrian Wilayah Kurdistan Iraq. Antaranya, EO ialah peramal terkuat bagi inovasi teknologi. Prestasi inovasi boleh dipertingkatkan untuk meningkatkan prestasi perniagaan dengan mengukuhkan EO, ACAP dan SC. Kajian ini menawarkan pandangan baharu dan menyumbang kepada badan pengetahuan sedia ada dengan menggunakan teori pandangan berasaskan sumber (RBV) sebagai teori asas dalam rangka kerja penyelidikan yang dicadangkan, yang telah diuji dalam PKS perindustrian Wilayah Kurdistan Iraq. Penyelidikan ini secara empirikal mengesahkan bahawa EO, ACAP dan SC adalah penting dalam meningkatkan inovasi teknologi dalam PKS perindustrian Wilayah Kurdistan Iraq. Pengurusan tertinggi dalam PKS harus menumpukan pada mempromosikan perkongsian sebagai strategi utama untuk menangani halangan kewangan dan mengoptimalkan peluang untuk memacu pertumbuhan perniagaan melalui inovasi. Dengan memupuk mentaliti berorientasikan perkongsian, mereka boleh mengembangkan sudut pandangan, meningkatkan kesedaran organisasi, dan membangunkan pemahaman yang lebih mendalam tentang arah aliran pasaran masa depan dan kemajuan teknologi. Usaha kolektif ini akan mengukuhkan kapasiti PKS untuk berinovasi dari segi teknologi dan meningkatkan keupayaan keseluruhan mereka.

Kata kunci: Orientasi Keusahawanan, Kapasiti Penyerapan, Modal Sosial, Inovasi Teknologi, PKS Kurdistan.

ACKNOWLEDGEMENT

“In the Name of Allah, Most Gracious, Most Merciful”. All praise is due to Allah (SWT), the Lord of the worlds who gave me the strength and courage to complete this enormous work. May the peace and blessings of Allah (SWT) be upon our beloved prophet Muhammad (PBUH), his household, companions, and those who follow them in righteousness till 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.

I would like to express my sincere appreciation and thanks to my wonderful supervisors, Prof. Dr. Nurwati Ashikkin Ahmad Zaluki and Dr. Sahar E-Vahdati for their attention, encouragement, guidance and endless patience, excellent supervision throughout the DBA journey. I would like to say a big thanks to my family.

My appreciation also goes to my wife (Khazal Sulaiman Ahmad), and my lovely children (Aya and Barz) for their love, this journey would have been a lonely one without you, thank you. I would like to express my gratitude to all my brothers and sisters for supporting me with their hearts.

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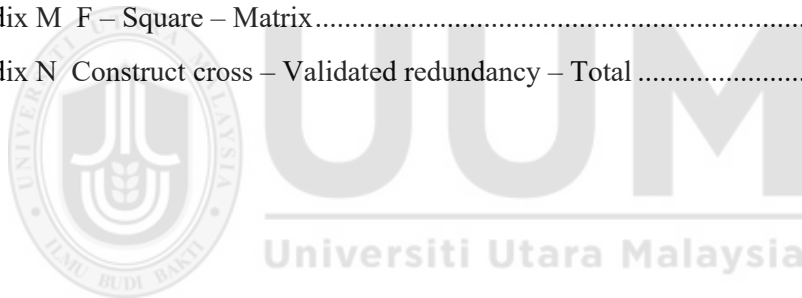
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LIST OF ABBREVIATIONS

ACAP	Absorptive Capacity
CIPE	Centre for International Private Enterprises
EO	Entrepreneurial Orientation
GDP	Gross Domestic Product
KFCCI	Kurdistan Federation Chamber of commerce and Industry/ Iraq
KRG	Kurdistan Region Government
NPD	New Product Development
PRDI	Product Innovation
PRSI	Process Innovation
RBV	Resource-Based View
SIGIR	Special Inspector General for Iraq Reconstruction
SMEs	Small and Medium Enterprises
TI	Technological Innovation
USAID	U.S. Agency for International Development
OECD	Organization for Economic Co-operation and Development
RDSKR	Regional Development Strategy for Kurdistan Region

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The changing global business environment and evolving customer demands have necessitated small and medium-sized enterprises (SMEs) to adopt and modify strategies to stay competitive and relevant, both locally and internationally. Studies have indicated that employing technology and innovation strategies is essential for businesses to grow and compete globally (Amankwah-Amoah et al., 2018). For instance, it has been suggested that certain technological approaches and implementations are crucial for enhancing productivity and fostering knowledge-intensive and efficient economies (Schniederjans, 2017). Similarly, existing research (Sharif & Huang, 2012) has highlighted the importance of innovation in maintaining a firm's competitive edge and survival. SMEs contribute significantly to economic growth by producing jobs, generating income, eradicating poverty, and establishing other new businesses (Musimba, 2021). However, SMEs face several hurdles in their efforts to stay in business (Ackah, 2021; Chidoko et al., 2020; Haron et al., 2018; Southiseng & Walsh, 2019). Particularly for SMEs, which often face limitations in resources and market influence and intense competition in local markets, investing in technology and innovation is seen as a key driver for their growth and entry into new markets (Musteen et al., 2010).

Innovation is vital for global market success and affects corporate administration and manufacturing (Kapetaniou, 2019). As a result, Technological Innovation (TI) research is an active area of study that has garnered considerable interest from

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APPENDIX 1



Dear respondents,

In the 21 century, small and medium sized enterprises (SME) will still be the backbone of the world economy. The purpose of this study is to examine the factors influencing product and manufacturing process. This questionnaire asks about your Personal beliefs and understanding Entrepreneurial Orientation, Absorptive Capacity, Social Capital and Technological Innovation and SME performance in Kurdistan. Your responses will be anonymous and will never be linked to your personality. There is no foreseeable risk associated with this project. However, if you feel uncomfortable answering any questions, you can withdraw from the survey at any point. It is very important for us to learn your opinions.

Please answer by selecting the scale that best describes your view of the statement; keep in mind that you should only respond based on your own personal view.

There are five main parts in this questionnaire. Please try to answer every item in the questionnaire.

If you have a question at any time about the survey or procedures, please do not be hesitate to contact me at:

Kheder Omar Lawa

Email: khdromar1993@gmail.com

Mobile: +9647504489277

Appendix A
QUESTIONNAIRE FORM ENGLISH VERSION

Section one: General Information:

1- Age

2- Gender Male Female

3- Please indicate your enterprise involved in which sector

Metal Industry Non-metal Industry Construction
Material

Travel & Tourism Service Automobile Sector Mineral Water
Industry

Telecom Communication Industry General Trading

4. For how long has your enterprise work in Kurdistan

5. Please show your enterprise ownership

Kurdish Owned Foreign Owned

6. Your educational level

- | | |
|---|---|
| <input type="checkbox"/> No certificate held | <input type="checkbox"/> Primary school certificate |
| <input type="checkbox"/> Secondary school certificate | <input type="checkbox"/> Graduate degree |
| <input type="checkbox"/> Under graduate | <input type="checkbox"/> Master |
| <input type="checkbox"/> Post graduate | <input type="checkbox"/> Others |

Section Two: Technological Innovations:

The first question is about your company's technological innovation level, which relates to innovations that are connected to basic activities and concern either a new product or perhaps a new manufacturing method.

In the last three years does your enterprise engaged in any innovation activities?

Yes

No

If **NO**, please do not continue and this will be the end of the answer, if **YES**, you may answer the following questions below:

Please circle how much each item describes your company's technological innovation processes, with 5 suggesting that the statement "perfectly describes" and 1 suggesting that the statement "does not describe your opinions at all." (For each sentence, circle only one box.)

Strongly disagree	Not agree	Natural	agree	Strongly agree
1	2	3	4	5

Product innovation		The Scale				
1	My company is able to improve product design.	1	2	3	4	5
2	My company is able to develop environmentally friendly products.	1	2	3	4	5
3	My company is able to extend the range of products.	1	2	3	4	5
4	My company is able to replace outdated products	1	2	3	4	5
5	My company is able to reduce the time to develop a new product until it is launched in the market.	1	2	3	4	5
Process Innovation		The Scale				
1	My company is able to integrate production management activities.	1	2	3	4	5
2	My company is able to maintain a low level of stuck without impairing manufacturing process.	1	2	3	4	5
3	My company has valuable knowledge on the best process and system for work organization.	1	2	3	4	5
4	My company is able has valuable knowledge for manufacturing and technology process.	1	2	3	4	5
5	My company its deliver products smoothly.	1	2	3	4	5
6	My company is developing program to reduce the cost of products.	1	2	3	4	5

Section three: Social Capital:

is defined as a company's capability a set of actual and potential resources that are formed individually or in groups with strong relationships and the role of structural, relational and cognitive dimensions in the growth of company technology.

Please highlight on the scale whether or not your company has engaged in the following social capital activities, based on the following rating:

Strongly disagree	Not agree	Natural	agree	Strongly agree
1	2	3	4	5

Structural		The Scale				
1	My employees can have a good relationship and alignment.	1	2	3	4	5
2	In the theoretical aspect of our enterprise structural capital designed to build relative capital in SME exports.	1	2	3	4	5
3	My company can enhance strong performance because information is a key component of business growth.	1	2	3	4	5
4	My company can enhance strong relationship between employees	1	2	3	4	5
5	Individuals at my company engage with one another to obtain information, learn, exchange ideas and expertise.	1	2	3	4	5
Relative Dimension		The Scale				
1	My employees can promote product innovation by increasing the level of relational dimension.	1	2	3	4	5
2	My employees are confident that the company will take these ideas seriously and implement them, so that	1	2	3	4	5

	employees can always increase their ability to find new ideas.					
3	My employees believe that there is a high level of relative capital that has a positive impact on the effectiveness and quality of product innovation.	1	2	3	4	5
4	My employees will develop a unique relationship between them, such as friendship and respect.	1	2	3	4	5
Cognitive		The scale				
1	My employees easily can understand each other within the company.	1	2	3	4	5
2	My employees believe that cognitive it can be helpful to improve the level of knowledge in academic language and to communicate with other members.	1	2	3	4	5
3	My employees and parties share common understandings and ideologies which can create a sense of shared responsibility between the network members.	1	2	3	4	5
4	My employees are identifying common needs, to guarantee a successful and efficient innovation processes.	1	2	3	4	5
5	My employees develop sets of mutual targets and identify share collective goals for the enterprises.	1	2	3	4	5

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Section four Absorptive Capacity:

Absorptive Capacity describes a company's ability to acquire, assimilate, transform, and use external information from partners, suppliers, and consumers in order to foster innovation.

Please indicate on the scale that your company has engaged in the following absorptive capacity activities, based on the following scale:

Strongly disagree	Not agree	Natural	agree	Strongly agree
1	2	3	4	5

Acquisition		The Scale				
1	Our interaction with our suppliers is characterized by mutual trust.	1	2	3	4	5
2	My company expects that the employees deal with information beyond our industry.	1	2	3	4	5
3	My company motivates the employees to use information sources within our industry.	1	2	3	4	5
4	In my company we search constantly for relevant information concerning our industry.	1	2	3	4	5
Assimilation		The Scale				
1	My company demands periodical meetings among employees to interchange new developments, problems and achievements.	1	2	3	4	5
2	In order to solve issues, my company stresses employee cooperation.	1	2	3	4	5
3	In my company ideas are communicated among employees	1	2	3	4	5
Transformation		The scale				
1	My employees are successfully link existing knowledge with new insights.	1	2	3	4	5
2	My employees are able to apply new knowledge in their practical work.	1	2	3	4	5
3	My employees are used to absorb new knowledge.	1	2	3	4	5
4	My employees have the capacity to apply what they have learned.	1	2	3	4	5
Exploitation		The Scale				

1	My company has the capabilities needed to exploit the knowledge obtained from the outside.	1	2	3	4	5
2	My company regularly reconsiders technologies to adapt them according to new knowledge.	1	2	3	4	5
3	My company has the ability to work more effectively by adopting new technologies.	1	2	3	4	5
4	My company supports the development of prototypes.	1	2	3	4	5

Section five: Entrepreneurial Orientation:

Entrepreneurial Orientation is defined as a company's capacity to start change and be inventive, risk-taking, and aggressive in its pursuit of innovation.

Please indicate on the scale that your company has engaged in the following entrepreneurial oriented practices, based on the following scale:

Strongly disagree	Not agree	Natural	agree	Strongly agree
1	2	3	4	5

Pro-activeness		The Scale				
1	My company is always the first business to introduce the new products	1	2	3	4	5
2	My company emphasizes strongly on the development of new products	1	2	3	4	5
3	My company products more new products in comparisons with main competitors	1	2	3	4	5

4	We usually make changes to develop our products as compared to our main competitors	1	2	3	4	5
5	My company adopts a very competitive posture.	1	2	3	4	5
Risk-Taking		The Scale				
1	My company shows great tolerance for high risk projects	1	2	3	4	5
2	My company has strongly performance for high risk venture with the high chances of returns.	1	2	3	4	5
3	Maximize the probability to take advantage of potential opportunities	1	2	3	4	5
4	Owing to the nature of the environment, risk taking acts are necessary to achieve the enterprise's objectives.	1	2	3	4	5
Innovativeness		The scale				
1	Our product is superior in technology.	1	2	3	4	5
2	Our products offer more possibilities to customers	1	2	3	4	5
3	The product concept was difficult for customers to understand.	1	2	3	4	5
4	Our product offers unique, innovative features to customers.	1	2	3	4	5
5	Our product covers more customer needs.	1	2	3	4	5
6	Our product is of higher quality in comparison to main competitors.	1	2	3	4	5
7	Our product offers a larger number of options.	1	2	3	4	5

Your response is much appreciated, and I appreciate your cooperation.

Appendix B QUESTINNAIRE FORM KURDISH VERSION



Othman Yeop Abdullah
Graduate School of Business
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هۆرسی را پرسى

بهريزان.....

نامانج لهم تۆيزينه و به ديارى كردنى له و هۆكارانهى كه كارى گهريان ههيه له سه ر بيشخستنى به ره مه كان وه پرۆسه بيشه بيه كان ، هيوادارىن كه ياره متهى بهريزان به دست بهيدين بۆ و لامدانه وى لهم پرسيارانهى خواره وه .
راو بۆچونتان پاريزراوه وه ته ئه لها بكار ديت بۆ مه به ستى لهم تۆيزينه و بهيه و كاروبارى نه كان يى .
تكايه وه لاسى پرسياره كان به دره وه به هه ئيزاردنى له و بيوه رى كه وه سنى وردى بۆچونى بهريزان ده كات سه باره ت به خاله كان ، وه لاسى خاله كان به دره وه پشت به ست به راو بۆچونى بهريزان .
رئىمايى :
پينج هؤناغ ههيه له ناو لهم را پرسيه دا ، تكايه وه لاسى گشت پرسياره كان به دره وه پشت به س به بۆچونى خۆت نه و يش به هه ئيزاردنى به كيك له وه لامه كان بۆ هه ر پرسيارى ك .

به مه به ستى و درگرتنى هه ر زانيارى ك تكايه په يوهندى بکه به م ژمارهيه وه :
مهايل : +96407504489277
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به شى په كه م : زانيارى گشتى

1- ته مه ن :

2- په گه ز : ئير من

3- تكايه جۆرى پرۆزه كه ت ده ستى شان بکه لهم جۆرانهى خواره وه :
 بيشه سازى نامير و ئاله ت بيشه سازى كاشه ز بيشه سازى خواره ن بيشه سازى كاره بايى
 بيشه سازى نا كاتزايى بيشه سازى كاتزايى بيشه سازى رستن بيشه سازى بيناكارى

4- ماوهى چهند سائله پرۆزه كه ت ده ست به كاره له هه ر ئيمى كوردستان ؟ سائ

5- تكايه ژمارهى كارمه نده كان له به شى خۆت ده ست نيشان بکه :

6- تكايه جۆرى خاوه ندارى پرۆزه كه ت ده ست نيشان كه :
 كوردى بيايى

7- ناستى زانستى :
 يى بروانامه بنه ره ت ناوه ندى په يمانگا زانكۆين

پرسيارى داهاوو په يوهندى ههيه به ناستى داھيناي ته كنولوجى له پرۆزه كه تان كه په يوهندى ههيه به داھينايى چالاكيه سه ره كيه كان بۆ نيشكش كردنى به ره مه م تازە يان پرۆسه بيشه بيه تازە كان .

- له سې سانی رابردو دا نایه پروژةکه تان هیچ چالاکیکی داهینانی تازهی پیشکەش کردووه؟
 لهگەر وولات نه خیر بوو تکایه ولامی پرسیارهکانی تر مه دهرهوه لهگهل ریزدا، بهلام نهگەر وولات بهئی بوو تکایه ولامی
 پرسیارهکانی خوارهوه بدهرهوه:

بهئی نه خیر

بهشی دووم: داهینانی تهکنولوجی

داهینانی تهکنولوجی ناماژیه به نهو داهینانهی که په یوهندی ههیه به چالاکیه سرهکیهکان سهارت به بهرهههکان وه پرؤسهکانی
 پیشهیی له پروژةکه.

تکایه پیوانه که بخه ناو بازنهوه بؤ ولام دانوهی پرسیارهکان سهارت بهم بهشه، ژماره 7 ناماژیه له رای بهریتان به شیوههکی تهواوی،
 له لایهکی ترهوه ژماره 1 ناماژیه له رای بهریتان به شیوههکی نا تهواوی.

7	6	5	4	3	2	1
زور په سه نده						زور په سه نده

ژ	داهینانی بهرههه	پیان
1	پروژهکه مان توانای گورینی بهرهههه کونهکان یان بایهخ پینه دراوکانی ههیه.	7 6 5 4 3 2 1
2	پروژهکه مان توانای پیش کهش کردنی تیکه نهیهک له بهرهههه تازهی ههیه.	7 6 5 4 3 2 1
3	پروژهکه مان توانای دروست کردنی نهو بهرهههمانهی ههیه که زیان به ژینگه ناگهیهنن.	7 6 5 4 3 2 1
4	پروژهکه مان توانای باشکردنی دیزاینی بهرههههکانی ههیه.	7 6 5 4 3 2 1
5	پروژهکه مان توانای کدم کردنهوهی کاتی دروست کردنی بهرهههه تازهکانی ههیه.	7 6 5 4 3 2 1
ژ	داهینانی پرؤسه	پیان
1	پروژهکه مان توانای بهرپوهبردنی کومه نیک تهکنولوجیای په یوهندی داری ههیه.	7 6 5 4 3 2 1
2	پروژهکه مان کونترولی نهو تهکنولوجیا سرهکیهه ههیه له بواری پیشهکه ماندا.	7 6 5 4 3 2 1
3	پروژهکه مان به بهرهههوامی گهشه به پروگرامهکان دهکات بؤ که مکردنهوهی بری تیچونی بهرهههه.	7 6 5 4 3 2 1
4	پروژهکه مان زانیاری به نرخ ههیه دهرباری پرؤسه پیشهیههکان و تهکنولوجیا.	7 6 5 4 3 2 1
5	پروژهکه مان زانیاری باش ههیه سهارت به باشتیرین پرؤسهو سیستم بؤ ریختنی کارهکان.	7 6 5 4 3 2 1
6	پروژهکه مان توانای نامادهکردنی سرچاوهکانی ههیه له بهشی بهرههه هینان به شیوهههکی باش.	7 6 5 4 3 2 1

7	6	5	4	3	2	1	پروژەكەمان توانای گەياندنای بەرھەمەكانی ھەيە لە ناستيكي بەرزدا .	7
7	6	5	4	3	2	1	پروژەكەمان توانای ناستيكي نزمی چاكردنەھوي گەنجينەي ھەيە بى ھەوي پرۆسەي دروست كردن دواكەويت .	8
7	6	5	4	3	2	1	پرۆسەكان لە پروژەكەمان پرۆسەي ھاوڕيی ژينگەيە .	9
7	6	5	4	3	2	1	پروژەكەمان ريكخستنى بەرھەم ھينانى بە شيوەيەكي بەرز بەريۆھ دەبات .	10
7	6	5	4	3	2	1	پروژەكەمان توانای تەواوكارى چالاكیەكانی بەريۆھەبردنى بەرھەم ھينانى ھەيە .	11

بەشى سينيەم؛ ئاراستەي پيشەنگيردنى كار

ئاراستەي پيشەنگيردنى كار پيناسە دەكریت بە توانای پروژەكان لە جيبەجی كردنى گۆرانكارىەكان كە رەچاودەكریت لە چالاكى داھينەر، ھەنگرى مەترسيەكانە وە ھەرۆھە كاركردن بە شيوەيەكي پيشخەر بۇ جيبەجیكردنى داھينان .
تكاية پيوانەكە بھە ناو بازنەوہ بۇ وەلام دانەھوي پيرسيارەكان سەبارەت بەم بەشە :

7	6	5	4	3	2	1
زۆر پەسە ند نيه						زۆر پەسە ندە

پيوان							پيشخەري؛	ژ
7	6	5	4	3	2	1	پروژەكەمان بەرھەمی زياترى نوێ پيشكەشكەكات بە بەراورد بە پيشبەرکەرە سەرەكیەكان .	1
7	6	5	4	3	2	1	بە بەردەوامی گورانکاری دەكەين بۇ پيش خستنى بەرھەمەكانمان بە بەراورد لەگەن پيشبەرکەرە سەرەكیەكان .	2
7	6	5	4	3	2	1	بە بەردەوامی جەخت دەكەينەوہ لە سەر پيشخستنى بەرھەمە تازەكان .	3
7	6	5	4	3	2	1	بە بەردەوامی دەست بە چالاكیەكان دەكەين كە دواتر پيشبەرە سەرەكیەكان جيبەجی دەكەن .	4
7	6	5	4	3	2	1	بە بەردەوامی پروژەكەمان دەست پيش خەرە بۇ بەرھەمی تازە .	5
7	6	5	4	3	2	1	بە بەردەوامی پروژەكەمان پشت بەستە بە ھەلويستی پيشبرکی لە بازاردا بۇگەيشتن بە ناما نچەكانمان .	6
پيوان							ھەنگرتنى مەترسيەكان؛	
7	6	5	4	3	2	1	ئارەزوی توندمان ھەيە بۇ ھەو پروژانەي كە مەترسيان زياترە وە دەرھەتی داھاتيان زياترە و زۆرە .	1
7	6	5	4	3	2	1	لەبەر سروشتی ژينگە ھەو چالاكیە نازا و زۆر فراوانانە گرنگە بو جيبەجیكردنى ناما نچەكانی پروژە .	2
7	6	5	4	3	2	1	بەبەردەوامی چالاكە نازاكان بەھەند وەردەگرين بۇ زيادكرنی قازا نچەكان لە دەرھەتەكانی بازار .	3
7	6	5	4	3	2	1	پروژەكەمان توانای زۆرتەرە بۇ جيبەجیكردنى ھەو پروژانەي كە مەترسيان زياترە .	4

پښتون							داهینه رایه تی	
7	6	5	4	3	2	1	1	بهره مه کانا نمان پښوستی به توانای زور هیه له لایان بریکاره کانا نمانه وه به مه به سستی فیر یوونی چوښتی به کار هانینی .
7	6	5	4	3	2	1	2	کریاره کانا نمان پښوستیان به کاتی زوره تا وگو تیده گن له خه سله تی به ره مه کانا نمان به شیوه یکی ته واو.
7	6	5	4	3	2	1	3	کریاره کان به زه حمت له سروشتی به ره مه کانا نمان تیده گن.
							4	بهره مه کانا نمان نه ناسراو و به کار نه هاتوو یوه بیشتر له بازاردا.
7	6	5	4	3	2	1	5	بهره مه کانا نمان نیمکانیاتی زورتی پیشکش به کریاره کان کردوه.
7	6	5	4	3	2	1	6	جوړ وه تاییهت مهندي به ره مه کانا نمان ده گم نه ده و تازه یه.
7	6	5	4	3	2	1	7	بهره مه کانا نمان زورتین پیداویستی کریار دابین دکات.
7	6	5	4	3	2	1	8	بهره مه کانا نمان شیوازی به کارهینانی زوره.
7	6	5	4	3	2	1	9	بهره مه کانا نمان له جوړی کوانتیه به رز به کانه.
7	6	5	4	3	2	1	10	جوړی ته کنولوجیای به رز به کار دهینین له درست کردنی به ره مه کانا نمان.

به شی چوارم: توانای ویرگرتن

توانای ویرگرتن نامازیه به توانای کومپانی او لیهاتووی ، که له ریگایه وه ده توانین زانیاریه کان ویرگرتن ، باش تیگه یشتن ، نالوگوری وه ستم کردن له هاویه شه کان ، ناماده کاره کان وه کریاره کان یو باش کردنی داهینان .
تکایه پښانه که بغه ناو باز نه وه بو وولام دانه وهی پرسیاره کان سه بارت بهم به شه

7	6	5	4	3	2	1
زور په سه نده						زور په سه نده

پښتون	ویرگرتن	ژ
7 6 5 4 3 2 1	1	به برداوه می ده گرتن به دواي نه و زانیاریانه کی په یوه ندی هیه به پیشه که مانه وه.
7 6 5 4 3 2 1	2	پروژه که مان هانی نه ندامه کانی ددات یو به کار هیمنانی نه و زانیاریانه کی په یوه ندی هیه به پیشه که مانه وه.
7 6 5 4 3 2 1	3	پروژه که مان پیشینی دکات که نه و نه ندامانه کی زانیاری به کار دینن له دوه وهی سنوری پیشه که مانن.
7 6 5 4 3 2 1	4	مامه نه و نالوگور پښمان له گه ل هاورده کان له ناستی ممانه ی هاوشیوه دایه.
باش تیگه یشتن		
7 6 5 4 3 2 1	1	راو یو چون له پروژه که ماندا هاویه شه له نیوان نه ندامه کاند.
7 6 5 4 3 2 1	2	پروژه که مان جه خت له سهر هاوکاری کردن له نیوان نه ندامه کان دکات یو چاره سهری کیشه کان .
7 6 5 4 3 2 1	3	له پروژه که مان زانیاری به خیرایی ده گوارتیه وه ، به نمونه ، نه گهر ههر نه ندامیک زانیاری ویرگرتن به خیرایی دهی گوارتیه وه یو نه ندامه کانی تر.
7 6 5 4 3 2 1	4	پروژه که مان به شیوه یکی خولی کوبونه وه نه نجام ددات یو نالوگور کردنی پیشه که وتنه تازه کان ، چاره سهری کیشه کان وه تاووتوئیکردنی نه و کارانه کی جیبه چی کراوه.

پيوان							نالوگور	
7	6	5	4	3	2	1	1	پروژه که مان توانای ههیه بۇ پەیکەر کردن وه به کار هینانی نهو زانیاریانهی کۆکراوتهوه.
7	6	5	4	3	2	1	2	نهندامه کانهمان ناست و توانای وهگرتنی زانیاری تازهیان ههیه له بواری کارهکه ماندا.
7	6	5	4	3	2	1	3	نهندامه کانهمان به سرکه وتووپی نهو زانیاریه ی بهردهسته دهیبه سته وه به بوچوونی تازهوه.
7	6	5	4	3	2	1	4	نهندامه کانهمان توانای به کارهینانی نهو زانیاریه تازهیان ههیه له گه ل نیشی پراکتیکی.
پيوان							سته م کردن	
7	6	5	4	3	2	1	1	پروژه که مان پشتگیری پیشخستی ههیه بۇ نمونه سره تایه کانی به رهه مه کانهمان.
7	6	5	4	3	2	1	2	پروژه که مان به شیوهیه کی ریکهراو پینداچوونه و دهکات به ته کنولوجیا به مه بهستی خو گو نجاندن له گه ل نهو زانیاریه تازهیا.
7	6	5	4	3	2	1	3	پروژه که مان توانای کارکردنی زیاتری ههیه به شیوهیه کی کاریگه ر بۇ وهگرتنی ته کنولوجیا تازهکان.
7	6	5	4	3	2	1	4	پروژه که مان توانای تهواوی ههیه بۇ خووخ کردنی نهو زانیاریانهی که له دهره وه وهری دهگریت.



به شی پینجه م؛ نارهسته کردن به رهو بازار

ناراسته کردن به رهو بازار ناماژی به توانای کومیپانیا بۇ زانیاری هینانه به رهه م که په یوهندی ههیه به پینداویستی نیستاو وه ناینددی کریار ، بلاوکردهوی نهو زانیاریانه له نیوان به شه کانی کومیپانیا وه وهگرتنی گرنگی چالاکیه کان بۇ وه لام دانه وهی زانیاری بازار . تکایه پیوانه که بجه ناو بازنه وه بۇ وه لام دانه وهی پرسپاره کان سه بارت به م به شه

5	4	3	2	1
زور په سه نده	په سه نده	دنییا نیم	په سه ند نیه	زور په سه ند نیه

پيوان					هینانه به رهه می زانیاری	ژ
5	4	3	2	1	1	له پروژه که مان هینانه به رهه می زانیاری ههیه سه بارت به گۆبانکاریه کانی بازار (یاسا دانان، پیشکوهوتنی ته کنولوجیا، رامیاری، نابوری)
5	4	3	2	1	2	له پروژه که مان به شیوهیه کی هه می شه یی چاودیری په یوهست بونمان دهکاین بۇ خزمهت گوزاری کریاره کان.
5	4	3	2	1	3	پینداچونه وه دهگریت بۇ نهو هوکار و گۆبانکاریه چاوه پروانکراوانه له ژینگه ی کاردا له پروژه که دا به شیوه یکی دوو باره کراو.
5	4	3	2	1	4	هه لدهستین به شیکاری خولی بۇ نهو هوکار و گۆبانکاریانه له ژینگه ی کاردا له پروژه که دا.
5	4	3	2	1	5	پروژه که مان به په له خو ی دهگو نچینیت له گه ل گۆبانکاریه کانی ژینگه ی کاردا.

Appendix C Results From Smart Pls Outer Loadings – Matrix

	AQUA	AG 2	COGNI	DPL	INNOVATI	PROC	PROGINN	PROGINN	RELAT	RISK	STRUC	TRANIG
NOU M	0.886											
NOU R2	0.821											
NOU R3	0.860											
NOU R4	0.880											
AG 2H		0.920										
AG 2S		0.884										
AG 2D		0.930										
COGINN			0.880									
COGIN2			0.894									
COGIN3			0.840									
COGIN4			0.876									
COGIN5			0.854									
DPL L1				0.887								
DPL L2				0.886								
DPL L3				0.867								
DPL L4				0.880								
INNOVATI					0.895							
INNOVATI2					0.890							
INNOVATI3					0.829							
INNOVATI4					0.907							
INNOVATI5					0.893							
INNOVATI6					0.905							
INNOVATI7					0.879							
PROC 1						0.859						
PROC 2						0.785						
PROC 3						0.745						
PROC 4						0.767						
PROC 5						0.819						
PROGINN1							0.789					
PROGINN2							0.829					
PROGINN3							0.873					
PROGINN4							0.773					
PROGINN5							0.758					
PROGINN6								0.752				
PROGINN7								0.790				
PROGINN8								0.787				
PROGINN9								0.745				
PROGINN10								0.802				
RELAT1									0.878			
RELAT2									0.897			
RELAT3									0.889			
RELAT4									0.900			
RISK1										0.888		
RISK2										0.900		
RISK3										0.888		
RISK4										0.920		
STRUC 1											0.853	
STRUC 2											0.880	
STRUC 3											0.867	
STRUC 4											0.885	
STRUC 5											0.780	
TRANIG 1												0.810
TRANIG 2												0.884
TRANIG 3												0.842
TRANIG 4												0.828
PROGINN11								0.719				

Appendix D Construct Reliability and Validity – Overview

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
AQUA	0.882	0.886	0.919	0.738
ASSI	0.862	0.875	0.916	0.785
COGNI	0.917	0.928	0.938	0.751
EXPL	0.895	0.906	0.927	0.760
INNOVATI	0.945	0.982	0.952	0.737
PROC	0.920	0.974	0.938	0.752
PROCINN	0.848	0.859	0.891	0.622
PRODINN	0.865	0.868	0.898	0.595
RELAT	0.913	0.918	0.939	0.792
RISK	0.903	0.988	0.926	0.759
STRUC	0.886	0.891	0.917	0.687
TRANS	0.859	0.872	0.903	0.700

Appendix E Discriminant validity – Fornell – Larcker Criterion

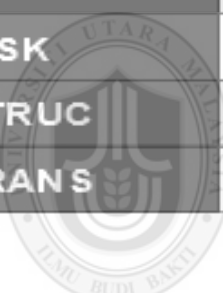
	AQUA	ASSI	COGNI	EXPL	INNOVATI	PROC	PROCINN	PRODINN	RELAT	RISK	STRUC	TRANS
AQUA	0.859											
ASSI	0.887	0.886										
COGNI	0.333	0.306	0.866									
EXPL	0.785	0.724	0.285	0.872								
INNOVATI	-0.013	0.039	-0.079	-0.002	0.859							
PROC	-0.003	0.034	-0.059	0.003	0.938	0.867						
PROCINN	0.329	0.294	0.267	0.269	0.391	0.388	0.789					
PRODINN	0.307	0.319	0.274	0.283	0.459	0.479	0.855	0.772				
RELAT	0.275	0.225	0.852	0.256	-0.028	-0.002	0.280	0.271	0.890			
RISK	0.010	0.055	-0.040	-0.005	0.954	0.970	0.371	0.463	0.004	0.871		
STRUC	0.335	0.272	0.832	0.287	-0.058	-0.063	0.266	0.267	0.821	-0.036	0.829	
TRANS	0.900	0.887	0.326	0.854	0.021	0.014	0.303	0.291	0.265	0.027	0.312	0.837

Appendix F Latent Variables - Scores

	AQUA	ASS	COGN	EXPL	INNOVATI	PROG	PROGINN	PRODIMN	RELAT	RISK	STRUC	TRANS
0	1.074	1.343	0.205	1.282	-0.488	-0.800	0.281	0.880	-0.368	-0.690	-0.238	1.190
1	2.730	2.275	2.023	2.768	1.132	1.245	1.198	1.644	1.925	1.141	2.642	2.720
2	-0.040	-0.127	-0.527	0.029	-0.488	-0.800	-0.806	-0.890	-1.208	-0.690	-0.450	-0.086
3	1.089	0.920	-0.294	1.147	-0.329	-0.334	-0.231	-0.459	-0.400	-0.368	-0.238	1.062
4	1.074	1.343	0.174	1.282	-0.170	0.132	0.138	1.354	-1.208	-0.045	-1.396	1.190
5	0.523	1.031	0.547	0.760	-0.551	-0.064	0.720	1.425	1.088	-0.332	0.919	0.680
6	1.074	1.343	1.046	1.282	-0.170	0.132	-0.239	0.646	2.123	-0.045	0.577	1.190
7	0.523	1.031	-1.413	0.760	0.592	0.564	0.720	1.425	-1.208	0.531	-1.396	0.680
8	0.517	0.608	-0.294	0.645	-1.029	-1.482	-1.683	-0.898	-0.682	-1.301	-0.238	0.552
9	1.064	0.496	-0.294	1.032	-0.170	0.132	1.366	0.327	-0.098	-0.045	0.483	0.835
10	-0.597	-0.362	-0.077	-0.588	-0.710	-0.550	0.076	-0.778	-0.098	-0.655	-0.423	-0.723
11	-0.040	-0.127	-0.294	0.029	-0.710	-0.550	-0.516	-0.565	-0.098	-0.655	-0.238	-0.086
12	1.074	1.343	1.046	1.282	0.211	0.348	0.945	1.425	2.123	0.243	1.052	1.190
13	2.183	2.390	0.828	2.380	0.370	0.814	2.040	1.946	1.013	0.566	0.919	2.338
14	0.512	0.184	1.729	0.530	-1.632	-1.448	-0.589	-0.785	0.487	-1.553	0.562	0.425
15	-0.046	-0.551	1.729	-0.088	-1.250	-1.232	0.815	-0.289	0.467	-1.266	0.552	-0.213
16	0.512	0.184	0.376	0.530	-0.889	-1.016	-0.559	-0.785	-0.098	-0.978	0.263	0.425
17	0.517	0.608	-0.527	0.645	-1.791	-1.914	-1.683	-0.898	-0.608	-1.876	-0.649	0.552
18	1.064	0.496	-0.123	1.032	-0.869	-1.016	-0.343	-0.785	0.205	-0.978	0.037	0.635
19	0.508	-0.239	-0.077	0.415	-0.710	-0.550	0.526	-0.778	1.034	-0.655	1.194	0.297
20	-0.040	-0.127	-1.413	0.029	-0.869	-1.016	-0.794	-0.785	-1.208	-0.978	-1.396	-0.086
21	0.517	0.608	0.171	0.645	-1.410	-1.668	-1.683	-0.898	0.205	-1.589	-0.238	0.552
22	-0.040	-0.127	-0.376	0.029	-1.250	-1.232	-0.764	-0.785	-0.098	-1.266	-0.238	-0.086
23	0.517	0.608	-0.291	0.645	-0.329	-0.334	0.076	0.320	0.205	-0.368	-0.423	0.552
24	-0.040	-0.127	-0.698	0.029	-0.551	-0.064	0.945	0.327	-0.608	-0.332	-0.423	-0.086
25	1.621	1.231	1.713	1.648	-0.329	-0.334	0.526	0.320	1.821	-0.368	1.665	1.572
26	-0.597	-0.362	-1.413	-0.588	-0.551	-0.064	0.853	-0.238	-1.208	-0.332	-1.173	-0.723
27	1.064	0.496	2.677	1.032	-0.488	-0.800	-0.343	-0.890	3.234	-0.690	2.261	0.835
28	1.089	0.920	1.046	1.147	-0.710	-0.550	-0.882	-0.459	2.123	-0.655	1.327	1.062
29	-0.597	-0.362	1.046	-0.588	-0.329	-0.334	0.076	-0.778	2.123	-0.368	1.052	-0.723
30	1.089	0.920	-0.294	1.147	0.052	-0.118	0.301	0.320	-0.682	-0.080	0.327	1.062
31	-0.597	-0.362	-0.294	-0.588	0.052	-0.118	0.076	-0.778	-0.098	-0.080	-0.238	-0.723
32	1.089	0.920	-0.061	1.147	0.052	-0.118	0.301	0.639	0.130	-0.080	0.734	1.062
33	0.512	0.184	-0.465	0.530	-0.488	-0.800	-0.559	-0.785	-0.690	-0.690	-0.041	0.425
34	1.089	0.920	-0.245	1.147	-1.091	-0.768	-0.883	-0.459	-1.208	-0.943	0.119	1.062
35	2.178	1.968	1.447	2.265	0.592	0.564	1.366	1.319	1.593	0.531	2.368	2.210
36	2.178	1.968	2.444	2.265	0.211	0.348	1.366	1.425	2.428	0.243	2.368	2.210
37	2.178	1.968	2.600	2.265	0.592	0.564	1.366	1.742	2.357	0.531	2.325	2.210

Appendix G Outer Loadings – Matrix

	ACAP	EO	SC	TI
AQUA	0.955			
ASSI	0.936			
COGNI			0.948	
EXPL	0.890			
INNOVA TI		0.979		
PROC		0.985		
PROCINN				0.959
PRODINN				0.967
RELAT			0.945	
RISK		0.990		
STRUC			0.937	
TRANS	0.970			


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Appendix H Construct Reliability and Validity – Overview

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ACAP	0.954	0.957	0.967	0.880
EO	0.984	0.985	0.990	0.969
SC	0.938	0.939	0.960	0.890
TI	0.922	0.931	0.962	0.928

Appendix I Discriminant Validity – Heterotrait – Monotrait Ratio (HTMT) - Matrix

	ACAP	EO	SC	TI
ACAP				
EO	0.021			
SC	0.346	0.046		
TI	0.353	0.471	0.320	

Appendix J Discriminant Validity – Fornell – Larcker Criterion

	ACAP	EO	SC	TI
ACAP	0.938			
EO	0.016	0.985		
SC	0.327	-0.043	0.943	
TI	0.332	0.451	0.298	0.963



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Appendix K Model Fit

	Saturated model	Estimated model
SRMR	0.029	0.029

Appendix L R – Square – Overview

	R-square	R-square adjusted
TI	0.359	0.353

Appendix M F – Square – Matrix

	ACAP	EO	SC	TI
ACAP				0.085
EO				0.325
SC				0.078
TI				

Appendix N Construct cross – Validated redundancy – Total

	SSO	SSE	Q ² (=1-SSE/SSO)
ACAP	1,360.000	1,360.000	0.000
EO	1,020.000	1,020.000	0.000
SC	1,020.000	1,020.000	0.000
TI	680.000	458.644	0.326