INDIVIDUAL, ORGANIZATIONAL, TECHNOLOGICAL AND INDUSTRY FACTORS EFFECTS ON INNOVATION CAPABILITY OF DAIRY SMES IN PAKISTAN: KNOWLEDGE SHARING AS MEDIATED

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INDIVIDUAL, ORGANIZATIONAL, TECHNOLOGICAL AND INDUSTRY FACTORS EFFECTS ON INNOVATION CAPABILITY OF DAIRY SMES IN PAKISTAN: KNOWLEDGE SHARING AS MEDIATED

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ABSTRACT

Existing literature reveals a gap in the empirical knowledge on innovation capability in the dairy sector of Punjab, Pakistan. Innovation capability is a key player in the growth and success of a business. Therefore, the major objective of this study was to examine the mediating role of knowledge sharing on trust, motivation, training & development, supervisor support, ICT use, and industry cluster resources with innovation capability of the dairy sector. This research contributes to the growth of GDP through the dairy sector. The research framework in the study was based on the diffusion of innovation and the resource- based view theories. The data were collected from dairy farm owners and managers in the study locality, i.e. Punjab, Pakistan. The study instrument was 410 self-administered questionnaires which were distributed to the dairy farm mangers/owners through the simple random sampling technique. 254 valid questionnaires were used for the analysis. The SPSS and SMART PLS 3.0 were used for the basic screening of the raw data and testing the hypothetical statements. The study found that motivation, training & development, supervisor support and industry cluster resources have positive significant impacts on knowledge- sharing. Furthermore, motivation, training & development, ICT used and industry cluster resources also have positive impacts on innovation capability; and knowledge- sharing mediated the relationship between motivation, training & development, supervisor support and innovation capability. The results of the study provide important insights to outcome, policy- makers and researchers to further understand the effects of the innovation capability of dairy SMEs (small medium enterprises) in Pakistan. This study suggested that managers and owners of dairy farms must provide motivation, training & development and supervisor support to enhance the innovation capability of dairy workers.

Keywords: Innovation capability, knowledge sharing, dairy sector, Punjab Pakistan.

ABSTRAK

Tinjauan terhadap kajian yang sedia ada menunjukkan adanya jurang dalam pengetahuan empirikal tentang keupayaan inovasi dalam sektor tenusu di Punjab, Pakistan. Keupayaan inovasi adalah pemain utama dalam pertumbuhan dan kejayaan sesebuah perniagaan. Oleh itu, objektif utama kajian ini adalah untuk mengkaji peranan pengantara bagi perkongsian pengetahuan ke atas amanah, motivasi, latihan dan pembangunan, sokongan penyelia, ICT dan sumber industri kelompok dengan keupayaan inovasi sektor tenusu. Kajian ini memberi sumbangan yang besar kepada pertumbuhan KDNK melalui sektor tenusu. Rangka kerja penyelidikan dalam kajian ini adalah berdasarkan kepada penyebaran inovasi dan teori berasaskan pandangan - sumber . Data telah dikumpulkan daripada pemilik ladang tenusu dan pengurus daripada kawasan kajian iaitu Punjab, Pakistan. Instrumen kajian adalah sebanyak 410 soal selidik yang direka sendiri dan diedarkan kepada pengurus ladang tenusu / pemilik melalui teknik persampelan rawak mudah. Sebanyak 254 soal selidik yang sah telah digunakan untuk dianalisis. Perisian SPSS dan SMART PLS 3.0 telah digunakan untuk pemeriksaan asas data mentah dan ujian penyata hipotesis . Kajian ini mendapati bahawa motivasi, latihan dan pembangunan, sokongan penyelia dan sumber industri kelompok mempunyai impak positif yang besar kepada perkongsian pengetahuan. Tambahan pula, motivasi, latihan dan pembangunan, penggunaan ICT dan sumber industri kelompok juga mempunyai kesan positif ke atas keupayaan inovasi, manakala perkongsian pengetahuan telah menjadi pengantara antara motivasi, latihan dan pembangunan, sokongan penyelia dan keupayaan inovasi. Hasil kajian ini penting kepada hasil, penggubal dasar dan penyelidik untuk terus memahami kesan keupayaan inovasi IKS (industri kecil dan sederhana) tenusu di Pakistan. Kajian ini mencadangkan agar pengurus dan pemilik ladang tenusu memberi motivasi, latihan dan pembangunan serta sokongan penyeliabagi meningkatkan keupayaan inovasi dalam kalangan pekerja tenusu.

Kata kunci: keupayaan inovasi, perkongsian pengetahuan, sektor tenusu, Punjab Pakistan

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LIST OF ABBREVIATION

TR Trust

MO Motivation

TD Training & Development

SS Supervisor Support

TE Technology Factor

IN Industry Cluster Resources

KS Knowledge Sharing

IC Innovation Capability

ICT Information Communication Technology

GII Global Innovation Index

UHT Ultra High Temperature

PDDC Pakistan Dairy Development Corporation

PDA Punjab Dairy Association

SME Small Medium Enterprise

SMEDA Small Medium Enterprise Development Authority

FAO Food Agriculture Organization

IT Information Technology

KM Knowledge Management

GDP Gross Domestic Products

HRM Human Resource Management

HR Human Resource

RBV Resource Based View

SEM Structural Equation Modeling

SPSS Statistical Packages for Social Sciences

PLS Partial Least Square

CR Composite Reliability

CA Cronbach's Alpha

VIF Variance inflation Factor

AVE Average Variance Extract

GOF Goodness of Fit

SD Standard Deviation

SE Standard Error

KMO Kaiser–Meyer–Olkin

TOL Tolerance

UL Upper Limit

LL Lower Limit

PES Pakistan Economic Survey

EPS Enterprise Survey

BCIP Business Climate in Pakistan

WB World Bank

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

In the 21st century, innovation capability is viewed as an important component to survive in the global business world (Yeşil, Koska, & Büyükbeşe, 2013; Corrocher & Solito, 2017; Strobel & Kratzer, 2017). Innovation capability is now taken place as the success of firms and growth for any country (Mawson & Brown, 2017; Woschke, Haase, & Kratzer, 2017; Zou, Guo, & Song, 2017). It is clearly stated that innovation capability provided more benefits to the firms such as eliminating the cost of the firms, product differentiation from competitors and produce a better quality of the existing products and uplifting the services (Eren, Kabadayi, & Sahin, 1999; Hult, Hurley, & Knight, 2004; Kilelu, Klerkx, & Leeuwis, 2013; Ngo & O'Cass, 2013; Dutta & Lanvin, 2016; Johnston & Marshall, 2016). In the study of Lin (2007) mentioned that if the firms do not practice their capability for the development then no firms can survive in the current competitive environment. It is argued that the innovation is a capability through which managers can find the solution of their business-related problem (Porter, 1990; Henard & Szymanski, 2001; Hult, Hurley, & Knight, 2004).

Therefore, innovation capability has become generally recognized as a major source to competitive success and for the economic growth (Sena, 2004; Francis & Bessant, 2005).

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Appendix I

QUESTIONNAIRES

Dear Sir/Madam,

I am inviting you to participate in my research project entitled "**Individual, organizational, technological and industry factors effects on innovation capability of Dairy SMEs in Pakistan: Knowledge Sharing as Mediated**". The present study will investigate the impact of Industry, Technological, organizational and individual factors which are shaped by the surrounding environment in the SMEs dairy sector of Pakistan. I hope you will be able to assist me by completing the enclosed questionnaires. All information provided will be treated as private and confidential. It will be used for academic purposes. As is normally in academic research, I shall not disclose the names of individuals who provided me with particular information. All data will be analyzed in a collective manner and will be not attributed to name individuals.

The survey should take approximately 15 minutes to answer. I shall be grateful if you could complete the enclosed questionnaires.

Thank you in advance for your time and cooperation.

Yours sincerely

Muhammad Imdad Ullah
P.hD Scholar (Management)
University of Utara,
Malaysia

Part I

1. Demographic Profile of Dairy SMEs

Please tick (√.) the appropriate box to answer the question.

1.1 Dairy Farm Type

Public	Private

1.2 Dairy Farm Status

Declining	Growing

1.3 Size of Dairy Farm

Employee<=15	Employee 16 to 25	Employee>=26

1.5 Age of dairy farm

Less Than and equal to 05 years	6-10 years	11-14 years	More than 15 years

1.6 Location of dairy Farms

Lahore Division	Multan Division	DG Khan Division	Faisal Abad Division

Part II

Strongly Disagreed	Dis-agreed	Neutral	Agreed	Strongly Agreed
SD (1)	**D (2)**	**N (3)**	**A (4)**	**SA (5)**

2. Innovation Capability

The following questions ask you about the extent of your judgment on the tool of acceptance, generation of new ideas, processes, products or services. Please indicate your agreement or disagreement on the following statements by indicating your appropriate response based on the following scale.

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)
2.1	Our company always tries for new ideas					
2.2	Our company try to find new ways of doing things					
2.3	Our company is creative in its operating methods					
2.4	Our company is commonly the first in the market to give new products and services					

2.5	Our firm always paid for creativity and take suggestions in the innovation domain					
2.6	Our new product introduction has increased during the last five years					

Strongly Disagreed	Dis-agreed	Neutral	Agreed	Strongly Agreed
SD (1)	**D (2)**	**N (3)**	**A (4)**	**SA (5)**

3. Knowledge Sharing

The following questions ask you about the extent of your judgment on Communicating to others what one's personal intellectual capital. Please indicate your agreement or disagreement on the following statements by indicating your appropriate response based on the following scale.

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)
3.1	In our firm employee shared their work reports and documents with other employees.					
3.2	In our firms employee shared their experience with other organization members.					
3.3	In our organization knowledge sharing with colleagues is an enjoyable experience.					
3.4	Our employee provides knowledge at the request of other colleagues.					
3.5	When our colleagues learned something new, they share with me and all of us.					
3.6	In our firm employee shared their work reports and documents with other employees.					

4. Individual Factors

The following questions ask you about the extent of your judgment on the degree to which an individual believes and loyalty another party to be trust worthy and about an individual or Unit's willingness to act.

Please indicate your agreement or disagreement on the following statements by indicating your appropriate response based on the following scale.

4.1 Trust

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)

4.1.1	Our firms have fully trust on the expertise of employee that they have.					
4.1.2	Our firms believe that our employee do not exploit for their own interest.					
4.1.3	Our firm trust on employee that would help us in innovation.					

Strongly Disagreed	Dis-agreed	Neutral	Agreed	Strongly Agreed
SD (1)	**D (2)**	**N (3)**	**A (4)**	**SA (5)**

4.2 Motivation

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)
4.2.1	Our firm would like more opportunities to share information					
4.2.2	Our firms motivated to share best practice knowledge					
4.2.3	In our firm exchanging information would be motivate and encourage					

5. Organizational Factors

The following questions ask you about the extent of your judgment on initiatives encourages employees to coherent their own concerns, ideas and initiations to investigate novel views and solutions to problems and promotes ideas further. Please indicate your agreement or disagreement on the following statements by indicating your appropriate response based on the following scale.

5.1Training & Development

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)
5.1.1	Our Company provides multiple career path opportunities for employees to move across multiple functional.					
5.1.2	Our company provides training for developing innovative ideas.					
5.1.3	Our company sponsor social events for employees to get new knowledge.					

5.1.4	Our company offers an orientation program that trains employees on the history and processes of the organization.					
5.1.5	Our company use job rotation techniques to develop new skills of employees.					
5.1.6	Our company use performance appraisals techniques for skill development and training for future advancement					

Strongly Disagreed	Dis-agreed	Neutral	Agreed	Strongly Agreed
SD (1)	**D (2)**	**N (3)**	**A (4)**	**SA (5)**

5.2 Supervisor Support

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)
5.2.1	Our supervisor encourages us to develop new ideas, new development and be creative					
5.2.2	Our supervisor provides equal opportunities at work place for new idea					
5.2.3	Our Supervisor actively supports our new development at work.					
5.2.4	Our firm always feel that supervisor give respects and makes use the expertise and knowledge for innovative ideas					
5.2.5	Our needs and goals are important for supervisor in firm					

6. Technological Factors

The following questions ask you about the extent of your judgment on degree to which knowledge management is supported by the use of its. Please indicate your agreement or disagreement on the following statements by indicating your appropriate response based on the following scale.

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)
6.1	Employees make extensive use of electronic storage (such as online databases and data warehousing) to access knowledge.					
6.2	Employees use knowledge networks (such as groupware, intranet, virtual communities, etc.) to communicate with colleagues.					

6.3	Our company use technology that allows employees to share knowledge with other persons inside the organization.					
6.4	Our company use technology that allows employees to share knowledge with other persons outside the organization.					

Strongly Disagreed	**Dis-agreed**	**Neutral**	**Agreed**	**Strongly Agreed**
SD (1)	**D (2)**	**N (3)**	**A (4)**	**SA (5)**

7. Industry Factors

The following questions ask you about the extent of your judgment about a new organization form that enhances the depth and breadth of cooperation and competition and brings together various industries to form a cluster relationship networks. Please indicate your agreement or disagreement on the following statements by indicating your appropriate response based on the following scale.

No.	Items	SD(1)	D(2)	N(3)	A(4)	SA(5)
7.1	Our Company use cluster to obtain individuals with talent and with high educational levels.					
7.2	Our company use to obtain experienced and required core technique talents.					
7.3	Our company can retain professional technical talents					
7.4	Our company use cluster to obtained technical interaction and innovation from the employees' flow.					

Appendix 2

Common Method Variance

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.688	20.778	20.778	7.688	20.778	20.778
2	3.690	9.972	30.750			
3	2.715	7.339	38.089			
4	2.193	5.927	44.016			
5	2.165	5.851	49.867			
6	1.730	4.677	54.544			
7	1.588	4.292	58.836			
8	1.334	3.605	62.441			
9	1.087	2.939	65.380			
10	1.029	2.782	68.163			
11	.966	2.611	70.774			
12	.864	2.336	73.110			
13	.779	2.106	75.216			
14	.753	2.035	77.251			
15	.657	1.775	79.025			
16	.630	1.703	80.728			
17	.604	1.633	82.361			
18	.524	1.416	83.777			
19	.507	1.369	85.146			
20	.492	1.330	86.476			
21	.462	1.249	87.726			
22	.443	1.196	88.922			
23	.438	1.184	90.106			
24	.399	1.077	91.183			
25	.382	1.032	92.215			
26	.346	.935	93.150			
27	.325	.878	94.028			
28	.304	.822	94.850			
29	.296	.799	95.648			
30	.264	.713	96.361			
31	.243	.656	97.017			

32	.237	.642	97.659			
33	.213	.575	98.234			
34	.190	.514	98.747			
35	.164	.444	99.192			
36	.158	.427	99.619			
37	.141	.381	100.000			

Extraction Method: Principal Component Analysis.

Appendix 3

Outlier Test:

Extreme Values

		Case Number	Value
Mahalanobis Distance	Highest 1	90	45.49483
	2	91	32.79602
	3	207	29.03180
	4	209	26.22347
	5	235	23.67131
	Lowest 1	94	.52210
	2	174	.59337
	3	78	.61265
	4	103	.63216
	5	64	.64750