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Exploring Factors Impacting Organizational Adaptation Capacity of Punjab Agriculture & Meat Company (PAMCO)

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ABSTRACT

Background: Worldwide organizations face various risks, and the key to sustainability is adaptive capacity linked to resilience. The study is part of the Ph.D. thesis for the capacity assessment of PAMCO under environmental factors. PAMCO, a government entity, is mandated to establish modern Halal meat processing & value addition facilities under the global quality compliance regime and institute a service delivery platform to promote commercial meat production, processing, value addition, and marketing mechanism. **Aim:** This study explored factors influencing PAMCO's adaptation capacity to respond to disruptions. **Methods:** A study on PAMCO's organizational resilience has been performed using a mixed-method approach. The corporate and financial records of the organizations have been reviewed critically, and the issues highlighted have been discussed with the senior management to finalize the findings. **Sample:** Thirty respondents were selected using the non-probabilistic purposive sampling method comprising management officials from different cadres. **Results:** The results display that several variables positively impact adaptation capacity directly and indirectly through mediation and serial mediation. The hypotheses' results supported the hypothesized model. **Conclusion:** The study highlighted the importance of leadership and vision sharing along with the need for establishing a risk management culture within the organization, where risk management is seen as a shared responsibility in developing the organization's adaptive capacity.

Keywords: Risk; Organizational Resilience; Sustainability; Adaptation Capacity; Leadership

1. Background

Punjab Agriculture & Meat Company (PAMCO) is a government-owned organization promoting Pakistan's Agri-livestock sector. As a public sector entity, PAMCO is prone to various risks that could impact its operations. This study aims to identify the factors impacting the adaptive capacity of PAMCO and how leadership can help build organizational resilience. Organizational resilience denotes an organization's adaptation capacity to cope with disruptions (Annarelli & Nonino, 2016). This paper explores factors involved in effective risk management in building organizational resilience.

Due to seasonality and perishability factors, the Agri-livestock sector is more prone to risk than other sectors and requires extensive risk management to ensure resilience (Behzadi *et al*., 2018). The economy at local & global levels is converting into more complex, and uncertain, subjecting them to disrupting incidences frequently (Ben-Amar *et al*., 2014). Organizations suffer due to intense competition, macroeconomic challenges, disruption, and shifts in customer priorities (Bogodistov & Wohlgemuth, 2017).

2. Literature Review

Risk management evolved after World War II and focused on self-insurance to ensure organizational resilience and sustainability (Dionne, 2013). Alliance with internal & external stakeholders through effective networking enhances the organizational capacity to respond to disruptions (Allred *et al*., 2011). With the fast pace of technological advancements, local and global organizations face sustainability issues for which innovation and creativity is required for their businesses to remain competitive (Damanpour & Schneider, 2006). This study analyzed the factors impacting adaptive capacity linked to organizational resilience.

Stakeholder theory emphasizes the role of management in ensuring the value maximization of stakeholders, including investors (Shad *et al*., 2019). Adopting an integrative approach in crisis management involves effective stakeholder networking and enhances adaptive capabilities (Bundy *et al*., 2017). The value creation by project risk management ensures business sustainability (Willumsen *et al*., 2019). To remain competitive, organizations create competitive edge through innovations in dynamic capabilities in the short-term leading to sustainability in the long term (Dixon *et al*., 2014).

2.1 Model Development & Research Hypotheses

Resilience theories create two distinct epistemic groups comprising natural and social science (Welsh, 2014). The empirical conclusions enhance the knowledge of the association among organizational resilience, leadership capacity, and risk management manner. These findings assist organizations in policymaking for developing organizational resilience (Lisdiono *et al*., 2022). Operational risk is manifested in organizational resource utilization and risk management is focused on enhancing quality in service delivery (Dvorsky *et al*., 2021).

Team-centric leadership creates synergy in the organizations, and a shared vision is required for strategic planning in the long run (Kozlowski *et al*., 2016). Research studies show that resilient leadership is vital for the organizational capacity to respond to operational disruptions (Morales *et al*., 2019). However, there has yet to be a consensus worldwide on the significant contributing factors impacting organizational resilience, which has been a gap in this research field. Various factors impact the sustainability of the agriculture sector entities for which capacity assessments are required for devising sustainable strategies (Boyabatl *et al*., 2017).

The Adaptation Capacity (AC) construct has been used in the research model to gauge organizational resilience through effective risk management in Punjab Agriculture & Meat Company (PAMCO). As per discussions and in line with the prior studies (Morales *et al*., 2019; Zahra, 1996), the following hypotheses have been developed, and the research model proposed has been illustrated in Figure 1, the research model for PAMCO's Organizational Resilience:

Hypothesis (H1): Vision Sharing (VS) positively impacts the Adaptive Capacity (AC) of PAMCO

Hypothesis (H2): Innovation & Creativity (IC) positively & indirectly impact PAMCO’s Adaptive Capacity (AC) through Functions & Responsibility (FR) & Vision Sharing (VS)

Hypothesis (H3): Perspective Network (PN) positively & indirectly impact PAMCO’s Adaptive Capacity (AC) through Vision Sharing (VS)

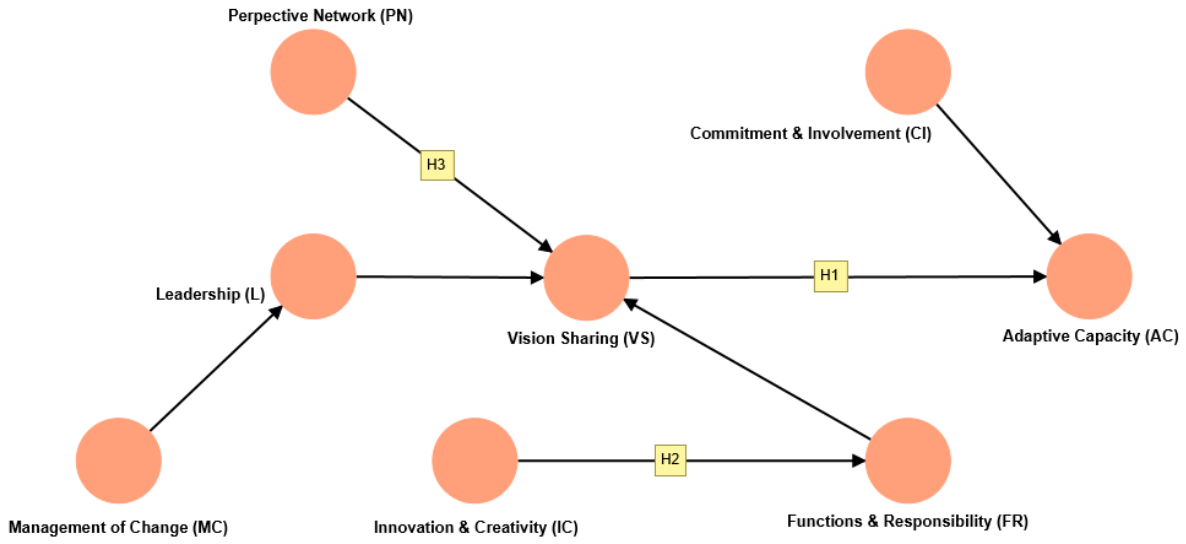

Figure 1: Research Model for PAMCO's Organizational Resilience

The above-stated hypotheses reveal that there are following main objectives of this study:

I. To test the direct impact of variables on Adaptation Capacity (AC).

II. To test the indirect impact of variables on Adaptation Capacity (AC) through mediation & serial mediation.

In continuation to outlining the research objectives following are the main research questions for which the study has been carried out:

1) What are the key factors impacting the adaptation capacity of Punjab Agriculture & Meat Company (PAMCO)?

2) How should risk management culture manifest in Punjab Agriculture & Meat Company (PAMCO)?

3) How does risk management contribute to PAMCO's resilience?

3. Methods

3.1 Research Design and Setting

A comprehensive study was conducted for PAMCO, exclusively among the company management officials. The organizational resilience of PAMCO has been analyzed using a mixed-method study wherein the quantitative data has been analyzed using appropriate statistical tools.

The study intended to explore the composite interrelations among multiple constructs. Adaptation Capacity (AC) was an endogenous variable, while other constructs have a positive impact on AC either through mediation or serial mediation.

3.2 Sample Size, sampling, and Procedures

A sample size of 30 has been considered sufficient for using PLS-SEM (partial least squares structural equation modeling) to address the research purposes, as this method is recommended even in study models with less than 100 samples (Hair *et al*., 2006; Hair Jr. *et al*., 2021; Mohammed *et al*., 2022). The number of variables includes eight hypothesized constructs, whereas the observed variables comprise 35 constructed items and have been adopted from previous studies (Morales *et al*., 2019).

Thirty participants comprise management officials from different departments of PAMCO, who consented to participate in the study. For the selection of respondents purposive sampling was used (Etikan *et al*., 2016). The questionnaire was electronically sent to the participants in Google form,

followed by the interviews. After the collection of data, the same has been transcribed into SPSS 20 & SmartPLS 4 for further processing and obtaining results.

Table 1: Shows the Frequencies of the Demographic Variables

Variable	Type	Frequency (No)	Percentage
Gender	Male	26	87%
	Female	4	13%
Age Group	31-40 years	7	23%
	41-50 years	13	43%
	51-60 years	6	20%
	>60 years	4	13%
Hierarchy	Top Management	8	27%
	Middle Management	13	43%
	Line Management	9	30%
Professional Experience	<5 years	4	13%
	6-10 years	8	27%
	11-20 years	10	33%
	>20 years	8	27%
Qualification	Bachelor's degree	6	20%
	Master's degree	13	43%
	MS/ Mphil Degree	8	27%
	Ph.D.	3	10%

3.3 Instruments

The survey form used comprise nine segments: the first part contained the demographic details, whereas the other eight parts measured the organizational resilience of PAMCO through impact of multiple variables on adaptation capacity (AC) for which thirty five constructed items used have been adopted from prior studies (Morales *et al*., 2019). The thirty-five constructed items used have been replied by a six-point Likert scale (6 = strongly agree, 5= agreement, 4 = some agreement, 3 = some disagreement, 2 = disagree, and 1 = strongly disagree). The prior studies reported the internal consistency of the variables satisfactory as all the alpha values have been found greater than 0.80 (Morales *et al*., 2019).

3.4 Ethical Approval and Consent to Participate

This study has been conducted in accordance with ethical guidelines for research involving human participants, with informed consent and privacy protection.

3.5 Statistical Data Analysis

The investigation involved identifying key variables and patterns in the data and interpreting the findings in the context of the research questions. Microsoft Excel, IBM SPSS 20 & SmartPLS 4.0 have been used to analyze demographic & statistical data for measurement model assessment demonstrating construct reliability and convergent & discriminant validity.

4. Results

4.1 Descriptive Statistics Results

This segment displays the analysis of the data. The factor loading for each of the 35 constructed items of the organizational resilience model of PAMCO computed using SmartPLS 4.0.

4.1.1 Constructed Items Reliability

The factor loading for all the indicators exceeds the value of 0.70 except for MC4 which is 0.691 and is considered as a good loading.

4.2 Measurement Model Evaluation

The measurement model evaluation performed through construct reliability, convergent & discriminant validity (Ab Hamid *et al*., 2017; Hair *et al*., 2019).

4.2.1 Construct reliability & Convergent Validity

The external loadings for the factors predicting organizational resilience through the adaptation capacity of PAMCO were found to be high, while the results of the construct reliability and validity analysis for these factors are presented in Table 2.

Table 2: Construct Reliability & Validity

	Hypothesized Constructs	**Cronbach's alpha ≥ 0.70**	**Composite reliability (rho_a) ≥ 0.70**	**Composite reliability (rho_c) ≥ 0.70**	**Average variance extracted (AVE) ≥ 0.50**
AC	Adaptation Capacity	**0.939**	**0.941**	**0.948**	**0.646**
CI	Commitment & Involvement	**0.897**	**0.898**	**0.936**	**0.830**
FR	Functions & Responsibility	**0.909**	**0.913**	**0.936**	**0.786**
IC	Innovation & Creativity	**0.857**	**0.933**	**0.908**	**0.767**
L	Leadership	**0.862**	**0.866**	**0.908**	**0.712**
MC	Management of Change	**0.787**	**0.791**	**0.863**	**0.614**
PN	Perspective Network	**0.852**	**0.858**	**0.900**	**0.693**
VS	Vision Sharing	**0.836**	**0.843**	**0.901**	**0.753**

The construct consistency has been measured by Cronbach's alpha and the composite reliability (rho_a & rho_c), being greater than the threshold value of 0.70 for each construct. The convergent validity has been validated through Average variance extracted (AVE), being greater than the threshold value of 0.50 for each construct.

4.2.2 Discriminant Validity

Through Discriminant validity, the measurement model is validated by determining how the variables vary in the correlation, and the same is measured through correlation ratios in Heterotrait–Monotrait ratio of correlations (HTMT Ratio) matrix and Fornell–Larcker Criterion (Ab Hamid *et al*., 2017; Hair *et al*., 2019).

Heterotrait–Monotrait Ratio (HTMT)- Matrix

The HTMT ratio has been computed with the assistance of SmartPLS 4.0 to measure the discriminant validity, and the same has been disclosed in Table 3.1.

Table 3.1: Discriminant Validity- HTMT Ratio

	Hypothesized Constructs	AC	CI	FR	IC	L	MC	PN	VS
AC	Adaptation Capacity								
CI	Commitment & Involvement	0.775							
FR	Functions & Responsibility	0.695	0.679						
IC	Innovation & Creativity	0.739	0.745	0.557					
L	Leadership	0.603	0.736	0.473	0.625				
MC	Management of Change	0.590	0.644	0.484	0.807	0.719			
PN	Perspective Network	0.443	0.492	0.191	0.551	0.550	0.766		
VS	Vision Sharing	**0.894**	**0.879**	0.742	**0.881**	**0.879**	0.783	0.667	

The suggested threshold value of 0.9 has been used in the current study (Ab Hamid *et al*., 2017; Hair *et al*., 2019). The HTMT value across the Commitment & Involvement (CI) and Adaptation Capacity (AC) is 0.775, and in the same manner, the rest of the values have been disclosed in the prescribed manner. It is evident from Table 3.1 that all the HTMT values for predictor variables are less than the threshold value of 0.9, thereby confirming the discriminant validity of the constructs used for this study.

Fornell–Larcker Criterion

For establishing discriminant validity, with the assistance of SmartPLS 4.0, the Fornell–Larcker Criterion has been applied, and the results have been disclosed in Table 3.2.

Table 3.2: Discriminant Validity- Fornell & Larcker Criterion

	Hypothesized Constructs	AC	CI	FR	IC	L	MC	PN	VS
AC	Adaptation Capacity	**0.804**							
CI	Commitment & Involvement	0.718	**0.911**						
FR	Functions & Responsibility	0.643	0.616	**0.887**					
IC	Innovation & Creativity	0.717	0.688	0.547	**0.876**				
L	Leadership	0.553	0.651	0.422	0.587	**0.844**			
MC	Management of Change	0.516	0.546	0.407	0.695	0.604	**0.783**		
PN	Perspective Network	0.410	0.432	0.140	0.472	0.468	0.619	**0.832**	
VS	Vision Sharing	0.800	0.763	0.655	0.779	0.750	0.637	0.567	**0.868**

Through Fornell–Larcker Criterion, it has been determined that the square root of the AVEs related to all the variables of PAMCO's organizational resilience model on the diagonals (bold values) were greater than the correlations among the variables (conforming row and column values) (Table 3.2) which shows good discriminant validity (Ab Hamid *et al*., 2017).

4.3 Structural Model

With the assistance of SmartPLS 4.0, the hypothesis formulated for this study has been evaluated through the computation of various statistical measures to assess the interrelationship among different constructs to measure PAMCO's organizational resilience.

H1: Vision Sharing (VS) Impact on Adaptation Capacity (AC)

Vision Sharing (VS) impact on Adaptation Capacity (AC) has been found significant due to t- statistics being higher than 1.964 and p-value less than 0.05. Consequently, the hypothesis is accepted, and it is concluded that VS positively impacts AC.

Table 4: Parameters of Direct & Indirect Hypotheses

N	Hypothesis	Original Sample (O)	Sample Mean (M)	Standard deviation (STDEV)	T- statistics (O/STDEV)	P-values	Decision
H1	VS > AC	0.603	0.601	0.159	**3.787**	**0.000**	Supported
H2	IC > FR > VS > AC	0.143	0.155	0.067	**2.145**	**0.032**	Supported
H3	PN > VS > AC	0.186	0.185	0.069	**2.705**	**0.007**	Supported

H2: Innovation & Creativity (IC) impact on Adaptation Capacity (AC) through Functions & Responsibility (FR) & Vision Sharing (VS)

The results, as displayed in Table 4, indicate that H2 is statistically significant (T-value = 2.145, above the critical value of 1.964, and p-value = 0.032 below the threshold value of 0.05), thereby supporting the hypothesis indicating the positive relationship between Innovation & Creativity (IC) and the Adaptation Capacity (AC) via Functions & Responsibility (FR) & Vision Sharing (VS).

H3: Perspective Network (PN) impact on Adaptation Capacity (AC) through Vision Sharing (VS)

The results, as displayed in Table 4, indicate that H3 is statistically significant (T-value = 2.705, above the critical value of 1.964, and p-value = 0.007 below the threshold value of 0.05), thereby supporting the hypothesis indicating the positive relationship between Perspective Network (PN) and the Adaptation Capacity (AC) via Vision Sharing (VS).

5. Discussion

The results provide valuable insights into how organizations can increase their resilience. The discussion on each variable impacting adaptation capacity has been described as follows.

5.1 Functions & Responsibility (FR)

The study found that Functions and responsibility (FR) have a direct and positive impact on Vision Sharing (VS) and an indirect and positive impact on Adaptation Capacity (AC) through Vision Sharing, which is in line with the prior studies (Morales *et al*., 2019).

5.2 Innovation & Creativity (IC)

The study found Innovation and creativity (IC) enable organizations to understand better and implement risk mitigation strategies, which leads to a shared vision among employees and enhances the organization's ability to adapt to change. This is an important finding, suggesting that organizational resilience can be built by fostering innovation and creativity, which is in line with the prior studies (Damanpour & Schneider, 2006; Morales *et al*., 2019; Zahra, 1996).

5.3 Perspective Network (PN)

The study found that Perspective Networks (PN), which include strong relationships with stakeholders, have a positive impact on Vision Sharing (VS) and Adaptation Capacity (AC). This means that organizations with solid PNs can better develop a shared vision among employees and adapt to change, enhancing their resilience. This is finding is in line with the prior studies (Kozlowski *et al*., 2016; Morales *et al*., 2019).

5.4 Vision Sharing (VS)

The study found that Vision Sharing (VS), which includes goal setting, flexibility, effective crisis handling, and deploying company philosophy, has a positive impact on Adaptation Capacity (AC), which is in line with the prior studies (Allred *et al*., 2011; Morales *et al*., 2019) on the topic.

Overall, the study provides essential guidance for organizations seeking to build resilience and prepare for future challenges. By prioritizing risk management and building a culture of risk management within their organizations, organizations can increase their resilience and ability to adapt to changing circumstances.

6. Conclusion

This study provides theoretical and practical insights on risk management and organizational resilience highlighting the importance of leadership and vision sharing within PAMCO. The study emphasizes the need for a risk management culture within an organization, where risk management is seen as a shared responsibility rather than just the responsibility of a few individuals. The research also highlights the significance of innovation and creativity in developing the adaptation capacity of the organization.

This study found that organizations with robust risk management systems can better anticipate and mitigate potential risks, which helps them be more resilient during the phases of disruption. Adaptation capacity includes pivoting rapidly to changing circumstances and adjusting processes and procedures as needed. The organization can increase its resilience and ability to adapt to changing circumstances.

7. Limitations and Further Studies Requirements

This study offered valuable practical knowledge of organizational resilience but still, this study has limitations due to being restricted to a single entity. The results need to be more generalizable to other organizations for which, in the future, research should be carried out. Furthermore, the sample has been drawn using purposive sampling technique using a small no of 30, which was sufficient for this study; however, to study across a broad base of industry, a larger sample size, and random sampling techniques are suggested for future research.

8. Declaration

8.1 Ethics Approval and Consent to Participate: This study has been conducted in accordance with ethical guidelines for research involving human participants, with informed consent and privacy protection. The data used in the study is not openly available due to privacy & secrecy issues; however, the related data & information, including the constructed items, have been provided in the supplementary material.

8.2 Conflicts of Interest: The author proclaims no conflict of interest.

8.3 Acknowledgement: All the authors are acknowledged, and all the required details are mentioned.

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