

THE MEDIATING ROLE OF INNOVATION AND CHANGE IN THE RELATIONSHIP BETWEEN ORGANIZATIONAL LEARNING AND THE SUSTAINABILITY OF BANKS

Jeena Ann John ^{*}, Danilo C. Diotay ^{**}, Jayendira P. Sankar ^{**},
Sayed Haytham Yaseen Alawi ^{**}

^{*} Corresponding author, University of Technology Bahrain, Salmabad, Bahrain
Contact details: University of Technology Bahrain, 1213 Block 712 Bldg 829, Salmabad, Bahrain
^{**} University of Technology Bahrain, Salmabad, Bahrain



Abstract

How to cite this paper: John, J. A., Diotay, D. C., Sankar, J. P., & Alawi, S. H. Y. (2023). The mediating role of innovation and change in the relationship between organizational learning and the sustainability of banks [Special issue]. *Corporate Governance and Organizational Behavior Review*, 7(2), 399–408.
<https://doi.org/10.22495/cgobrv7i2sip18>

Copyright © 2023 The Authors

This work is licensed under a Creative Commons Attribution 4.0 International License (CC BY 4.0).
<https://creativecommons.org/licenses/by/4.0/>

ISSN Online: 2521-1889
ISSN Print: 2521-1870

Received: 30.12.2022
Accepted: 23.05.2023

JEL Classification: O31, O350, O360, M000, M140
DOI: 10.22495/cgobrv7i2sip18

In this research paper, we focused on the variable that could influence the sustainability of banks. According to Bahrain Economic Vision 2030, sustainability is one of the guiding principles. Ninety-nine (99) managers working in different banks have participated in the survey. The perspectives of the managers are considered in this study. The collected data was tested in SmartPLS 3.0 to have more accuracy in the results. The four hypotheses were decided to be accepted or rejected based on the path analysis, specifically the p-value significance at 0.01, 0.05, and 0.10. Descriptive statistics, factor analysis, correlation, regression, reliability, discriminant validity tests were conducted. From the hypothesis testing, it is relevant that there is no direct relation between organizational learning and sustainability. It is indirectly related to innovation and change. The model verification is based on the samples collected from the managers of each bank. However, the hypothesis requires further verification in different business contexts. There are different factors influencing sustainability, which have not been included in our research such as economic, environmental, and social factors. These could be analyzed in future research.

Keywords: Innovation and Change, Sustainability, Organizational Learning, Banks, Economic Vision, Managers, Path Analysis

Authors' individual contribution: Conceptualization — J.A.J. and D.C.D.; Methodology — J.P.S. and S.H.Y.A.; Formal Analysis — J.A.J. and J.P.S.; Writing — Original Draft — J.A.J., D.C.D., and J.P.S.; Writing — Review & Editing — S.H.Y.A.; Supervision — D.C.D. and S.H.Y.A.; Project Administration — J.A.J. and J.P.S.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

1. INTRODUCTION

Modern banking businesses are constantly changing their technologies and marketing strategies. According to Olmo et al. (2021), the financial crisis significantly declines the banking industry's

reputation in terms of profitability and insolvency risk. The banks need to adopt a sustainable strategy to strike a balance between long-term objectives and short-term performance expectations. Nosratabadi et al. (2020) indicated in their studies that sustainable business practices takes initiative to support

the economy, society, and environment. It can have a significant impact on profitability. Sustainability is an important consideration for banks as they seek to promote environmental and social responsibility while maintaining their economic viability. Banks can benefit from incorporating sustainability-focused organizational learning programs into their strategic plans — as this can help them to improve their competitiveness and societal value.

Feeney et al.'s (2022) study was to explore the role of organizational responses toward sustainability through learning. The finding suggests that there are different ways to learn and have sustainable decision-making. Imran et al.'s (2022) research explores the relationship between organizational culture and organizational performance looking at the role of innovation. It finds that organizations that invest in innovative ideas and technologies can improve their performance as they are able to create new products and services.

Innovation is a powerful force for growth and development. Innovative ideas can enhance productivity and competitiveness and can be a catalyst for social change. It is believed that innovation is an essential component of a strong and vibrant economy and that it is a critical driver of progress and development in emerging markets. Banks are some of the most innovative and dynamic organizations in the world. They are constantly changing — in terms of both products and services to meet the changing needs of their customers. It is essential for the long-term success of any organization. Banks that are willing to adapt to changes could remain relevant and competitive in a changing world. Pi and Yang (2023) have done an analysis of the data of China's A-share listed banks from 2003 to 2018. It is resulted that cultural diversity has an impact on the banks' innovation. Diffusion of innovation (DOI) theory describes a model which is used in information systems (IS) research to explain the adoption of new technology by users. Everett Roger developed this theory in 1962 highlighting the spread of ideas through certain specified populations.

Hermelingmeier and von Wirth (2021) suggested that organizational learning theories have been used to describe how changing processes in businesses are related to sustainability. Kurilov et al. (2020) state that the majority of banking operations, including payments and transfers, financing, and capital management, will be carried out using cutting-edge methods and technologies. Organizational learning is an essential component of organizational success. Organizations that are able to learn from their mistakes and failures — and adapt and improve based on feedback — are often better able to achieve their goals. Organizations can benefit from focusing on organizational learning as this can help them to become more efficient, agile, and competitive.

This research paper provides an overview of the role of sustainability in banking looking at both organizational learning and innovation and change. The literature review provides a summarized review of previous research on the relationship between independent and dependent variables. The research methodology includes quantitative research techniques as they allow for a holistic understanding of

how innovations can improve bank performance. The final result presents a detailed statistical analysis of the data providing valuable insights for further research.

According to Bahrain Economic Vision 2030¹, the guiding principles are sustainability, competitiveness, and fairness. The country is expected to have private sectors that should drive the economy of Bahrain by 2030. Several resources will be used to improve the human capital through education and training. The banking sector is taking various efforts to encourage and enhance sustainability. According to Abdulla et al. (2020), it was advised that the key players — investors, shareholders, creditors, and debtors — improve their understanding of the concept of sustainability and its significance in the business in order to make better investment decisions.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature. Section 3 presents the methodology used for the study. Section 4 presents the results and discusses the findings. Finally, Section 5 concludes the paper.

2. LITERATURE REVIEW AND DEVELOPMENT OF THE HYPOTHESES

Future-oriented organizational learning and innovation processes are emergent and organic meaning that they have to be dealt with in a different manner on an organizational level (Peschl, 2022). This implies that an organization has to learn how to reduce control both on its employees and concerning its processes. Oh and Kim (2022) prove that organizational learning has an influence on innovation — direct and indirect. It is important for organizations to understand how organizational learning can help to inform innovative decisions. It can leverage existing knowledge and experiences to create new value for the business. According to Mai et al. (2022), three organizational learning subprocesses (knowledge acquisition, knowledge distribution, and knowledge interpretation) play mediating roles in the relationship between leadership traits and business innovation. Gachanja et al. (2020) investigated the relationship between organizational learning and innovation output for improved performance in Kenya. The findings done through correlation and regression indicate that there is a significant influence between organizational learning and innovation. Organizational change is important and significant for the sectors practically or academically. Rass et al. (2023) suggest that organizations can benefit from incorporating a constant learning culture confirming the quicker organizational transformation change. This resulted in the development of the first hypothesis:

H1: There is an impact of organizational learning on innovation.

Forcadell et al.'s (2019) results imply that the banking sector's corporate sustainability is improved by service innovation performance. From an organizational standpoint, the degree to which people and product quality satisfy factors like economic, social, and governance is related to business sustainability. Innovative banking industry tactics could improve the sector's sustainability

¹ <https://www.evisa.gov.bh/Vision2030Englishlowresolution.pdf>

profile. According to Chatterjee et al. (2023), a company's ability to create dynamic relationships with its suppliers and customers can help to improve its sustainability performance — and can also lead to increased customer loyalty and goodwill. The partial least squares structural equation modeling technique helped Xu et al. (2023) test their hypothesis. The authors found that digital strategy and digital capability can be strong predictors of innovation which was found to have a positive effect on the company's overall sustainability performance. This resulted in the development of the second hypothesis:

H2: There is an impact of innovation on change and sustainability.

Cognitive learning factors are essential in understanding how organizations can develop their own sustainable organizational development (Turi et al., 2019). The leadership of learning organizations like universities should focus on creating an organizational structure that promotes a strong organizational knowledge base — as this can be essential in helping them to improve their competitiveness and sustainability. According to Opoku et al. (2020), a strong organizational learning environment with clear goals and objectives can help to drive change in organizations — and a focus on organizational learning is essential in driving sustainable development within different industries. Organizational learning can be a powerful force for change — as understanding how a company has evolved over time can be key in driving sustainable business strategies and outcomes (Raiden & King,

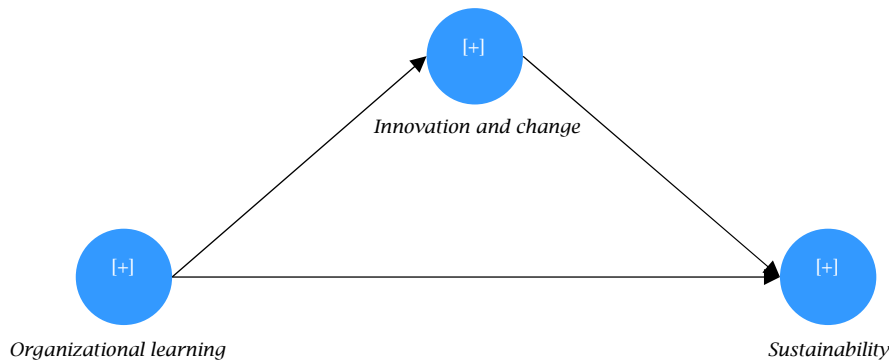
2021). Information and communication technology (ICT) can be a powerful tool for creating a more sustainable business environment (Eismann et al., 2021). This can be even considered as a suggestion that ICT can be a powerful force for change — as it can help to connect disparate processes to achieve organizational goals and drive change in the overall organizational structure. This resulted in the development of the third hypothesis:

H3: There is an impact of organizational learning on sustainability.

Through the use of competitive advantage as a moderator, Priyanto and Murwaningsari (2022) seek to examine how organizational learning and sustainability innovations (SIs) affect company performance. Indirectly or directly, empirical evidence indicates that SIs significantly improve the performance of businesses. The investigation shows a relationship between bank performance and organizational culture parameters. Innovation has evolved into one of the key components that firms must consider in order to maintain performance. According to Battistella et al. (2021), sustainable businesses learn through interactions with internal and external stakeholders, social learning as opposed to reflective learning, and by taking practical steps to implement environmental and social benefits. This resulted in the development of the fourth hypothesis:

H4: There is a mediating relationship between innovation and change and the relationship between organizational learning and the sustainability of banks.

Figure 1. Conceptual framework



Theories of organizational learning tend to concentrate on the mental states of organization members. Behavioral theory focuses on critical variables that can affect the organization. Proto-learning and deutero-learning are two different learning paths that can drive change in organizational performance. Proto-learning and deutero-learning are two key factors in driving sustainable business performance — and focusing on these areas can help to create a more resilient and competitive organization. The conceptual model for this study is developed from the literature. To understand the mediating role, four hypotheses have been developed to test the link between the variables. *H1* and *H3* are more concentrated on the direct influence of organizational learning on innovation and change, and secondly, on business sustainability in terms of the social aspect. In *H4*,

innovation and change is considered as the mediating variable between organizational learning and sustainability.

3. RESEARCH METHODOLOGY

A total of 99 managers were considered for the study. As per the Central Bank of Bahrain, there are 364 financial institutions. There are 100 banks listed under the section of the Banking sector. In this study, we have targeted one manager as a respondent from each bank. The biggest limitation was to collect the responses from the banks' managers. The Google Surveys were distributed and it took approximately 10 minutes for the respondents to fill out the survey. Gathering data through surveys is a powerful way of learning about people's knowledge, attitudes, and behavior (Fink, 2003).

This system of collecting information is used to analyze, compare, and understand people's responses. By using surveys, researchers can gain insights into how people think and act in certain situations. The responses were later tested in SmartPLS 3.0.

The methodology section describes the research design, the sample, and the methods for data collection and analysis (Battistella et al., 2021). The study makes an effort to increase our understanding of sustainable businesses with variables of *Organizational learning, Innovation and change*. Descriptive statistics, factor analysis, correlation, regression, reliability, and discriminant validity were applied to test on the data. Descriptive statistics are a powerful tool for informing decision-making and by focusing on these areas, organizations can improve their overall competitiveness and business performance. P-values are a powerful tool for helping to determine whether the study hypothesis is correct — and that effect size is a critical factor in determining the importance and clinical relevance of the hypothesis. Confidence intervals help provide a context for the effect size — and this can help to improve the overall rigor of the hypothesis testing process. P-values and effect sizes are two critical factors that can help to improve hypothesis testing and overall study validity (Laccourreye et al., 2021). Factor analysis is a statistical technique that can help to understand how data relates to different factors. According to

Alkarkhi and Alqaraghuli (2020), factor analysis can be used to produce wonderful results when the original variables are highly correlated. The variables associated with each factor have a strong correlation with each other and have a very weak relationship with other factors. This allows researchers to identify patterns within the data that may have otherwise been overlooked. With factor analysis, researchers can identify and remove redundant variables while still preserving the variability within the data. This can make the data set more manageable and easier to interpret.

4. RESULTS AND DISCUSSION

In this section, we have presented descriptive statistics, reliability and validity, discriminant validity, measurement model, factor analysis, correlation, regression, and path model on hypothesis testing. The results and discussion section of a research paper is critical in conveying the findings of the study and providing meaningful interpretations. The results section should provide clear and concise summaries of the data collected and analyzed. This section includes interpretations and some of the findings. The discussion section should provide an in-depth interpretation of the results, highlighting the implications of the findings. The discussion section offers insight and analysis.

Table 1. Descriptive statistics

<i>Descriptives</i>	<i>Innovation and change</i>	<i>Organizational learning</i>	<i>Sustainability</i>
Minimum	1	1	4
Maximum	5	5	5
Mean	3.878	3.920	3.670
Median	4.15	4	4.0
Standard deviation	0.965	0.923	1.203
Variance	0.931	0.852	1.447

The Likert scale is a quick and convenient method to gather subjective information on attitudes, opinions, feelings, and ideas about a given object or person. The Likert scale is a popular method for conducting quantitative surveys. It is a type of rating scale that allows respondents to indicate the strength of their agreement or disagreement with a statement. It typically consists of a set of statements that a respondent can rate on a scale of one to five, ranging from “strongly disagree” to “strongly agree”. Values in the range of 3.41-4.20 indicate the respondents agreed with

the items in the instrument. Table 1 shows comparative average mean values for each indicator: *Innovation and change* (3.878), *Organizational learning* (3.920), and *Sustainability* (3.670). According to Sekaran and Bougie (2016), descriptive statistics for a single variable can be determined by analyzing its frequencies, measures of central tendency (e.g., mean, median, mode), and measures of dispersion (e.g., range, standard deviation). This allows researchers to gain an understanding of the characteristics of a single variable and compare it to other variables.

Table 2. Construct reliability and validity

<i>Variable</i>	<i>Cronbach's alpha</i>	<i>Composite reliability</i>	<i>Average variance extracted</i>
<i>Innovation and change</i>	0.963	0.967	0.694
<i>Organizational learning</i>	0.945	0.953	0.669
<i>Sustainability</i>	0.951	0.958	0.673

According to Lin et al. (2007), a value of 0.70 or higher indicates adequate reliability. All of the constructs in the model have a reliability value greater than or equal to 0.80 indicating strong internal consistency and dependability. Al-Azawei (2018) asserts that its crucial to assess each factor's one-dimensionality when using SEM. The result of Cronbach's alpha showed that there is strong

consistency. The average variance extracted (AVE) values for each concept were higher than the recommended standard of 0.50 (Fornell & Larcker, 1981). This indicates that the items in each concept have acceptable convergent validity. When a variable's internal consistency is more than or equal to 0.70 this indicates the variable is unidimensional.

Table 3. Discriminant validity

	<i>Innovation and change</i>	<i>Organizational learning</i>	<i>Sustainability</i>
<i>Innovation and change</i>	0.833		
<i>Organizational learning</i>	0.902	0.818	
<i>Sustainability</i>	0.840	0.764	0.820

An individual item is said to load (it is highly correlated with) on its associated construct when the factor loading is 0.50 or higher. The factor loadings of items within a construct should be higher than the factor loadings outside of the construct. This indicates discriminant validity (Lin et al., 2007). The degree to which the latent variable *A* discriminates from other latent variables is known as discriminant validity. It should be more than AVE (Fornell & Larcker, 1981). A latent variable is a construct, concept, variable, or attribute that cannot be directly measured, but is hypothesized to explain variance in the measurable behaviors or

features observed. If the discriminant validity score is > 0.8 , then the latent constructs are considered to be distinguishable. If it is < 0.8 , then the latent constructs are considered to be not distinguishable. This could be one of the reasons that there is no significant direct relation between organizational learning capabilities towards sustainability. When the latent constructs are not distinguishable, this means the latent constructs are not well-defined (not well-developed) and could potentially be combined into one. In future studies, the researchers need to have constructs that have been well-developed or defined.

Table 4. Measurement model

<i>Fit summary</i>	<i>Saturated model</i>
Standardized root mean squared residual (SRMR)	0.056

SRMR can be considered as the measurement of model fit if the value is less than 0.08. According to Byrne (1998) and Diamantopoulos and Siguaw (2000), a value of 0.05 to 0.08 is acceptable for a large sample size. A value of less than 0.05 indicates there is a good fit between the model and the data. This means that we have captured the structure or essence of the data and that all observed and unobserved variables are strongly connected — indicating a strong model fit. To

determine the accuracy of the SRMR as a measure of exact fit, the likelihood ratio was used (Jöreskog, 1969). This benchmarking method provides a basis for comparing the SRMR to other tests of exact fit and helps researchers make informed decisions when selecting the best test for their data. A value of 0 indicates a perfect fit. Hu and Bentler (1999) suggest a cutoff value of ≤ 0.08 for a good fit. According to Prudon (2015), the formula for SRMR is as follows:

$$SRMR = \sqrt{\frac{1}{2} \sum (S_{ij} - I_{ij})^2} \quad (1)$$

Table 5. Factor analysis of organizational learning

<i>Organizational learning</i>	<i>Factor loading</i>
Organization reward employees on the source of quality information.	0.799
Organization has employees searching for external information.	0.783
Industry knowledge of products and services is a very important criterion for hiring new employees.	0.817
When making important decisions, top managers often seek information or advice from sources outside the company.	0.756
Top managers send employees to various seminars, workshops, and conferences.	0.748
Organization collects papers and articles that are interesting.	0.827
Team members are encouraged to have open communication.	0.800
Employees are encouraged to work on individual and team projects.	0.851
Information is exchanged inside the organization in an effective and efficient manner.	0.807
Externals experts are an extremely important source of information.	0.774

For samples under 100, an average value of 0.6 is appropriate. In Table 5, *Organizational learning* item has more than 0.6. The lowest factor score is “Top managers send employees to various seminars, workshops, and conferences” at 0.748. In order to choose a training or learning technique, one should consider the program’s quality and accessibility, the time allotted for learning, and the costs involved. The importance of “Top managers send employees to various seminars, workshops, and conferences” is that it gives employees opportunities to learn new skills and knowledge, and keeps them updated with the latest information. It can also help to improve

employee morale and productivity. Factor analysis is an important statistical tool that helps us to understand the relationships between different variables in our data. It allows us to identify patterns or relationships between various constructs and also helps us to refine our research questions. According to Neukam and Bollinger (2022), innovation could be a dangerous strategy for the business because it could pollute the environment or even consume resources. The ultimate objective of the business for sustainability is to create confidence among the employees and it will have a positive impact on the society.

Table 6. Factor analysis of innovation and change

<i>Innovation and change</i>	<i>Factor loading</i>
At work, employees frequently look for new ways to provide services.	0.792
Employees will occasionally present and try to sell others their original ideas.	0.797
Employee X occasionally has unique ideas at work.	0.812
Our bank believes in innovative products and processes.	0.801
Banks have introduced more services in the past 5 years.	0.799
We handle customer complaints and inquiries with the utmost care.	0.851
Our companies outperform the competition in terms of marketing innovation.	0.778
Management actually looks for innovative solutions.	0.820
The employees are not punished for the new ideas not being successful.	0.775
All levels of employees get useful feedback.	0.868
I rarely notice when something needs to change.	0.813
When I learn more about change I am a bit tensed up.	0.835

In Table 6, The highest value is 0.868 indicating “All levels of employees get useful feedback”. Constructive feedback can help employees feel more confident and successful in their job. Nikolić et al. (2020) suggested that without an organizational feedback culture, the performance management process is not practical. “The employees are not punished for the new ideas not being successful” is one of the items that have the least factor value of 0.775. This approach helps employees feel more comfortable taking risks and trying new things — and it also helps them feel more confident in their

work. Ahmed (2020) provides an insightful look into employee reactions to organizational change. It explains the different types of reactions employees may have, from resistance to enthusiasm, and the potential consequences. The article emphasizes the importance of communication and understanding employee perspectives, as well as the need for leaders to plan ahead and ensure employees are informed and supported throughout the change process. Overall, this article presents a clear and comprehensive picture of how employees react to organizational change.

Table 7. Factor analysis of sustainability

<i>Sustainability</i>	<i>Factor loading</i>
Relations with suppliers are excellent.	0.814
Long-term partner relationships with our suppliers.	0.765
Involving suppliers in our research and development processes.	0.747
No one has ever left because of internal issues.	0.817
Employee productivity is significantly higher than the industry average.	0.794
Workers have a lot of faith in the leadership.	0.812
There is strong employee trust.	0.872
Employees have a strong sense of loyalty to the company.	0.856
The workforce is willing to go above and above for the business.	0.864
Work costs per employee are significantly lower than the sector average.	0.739
Our organization has a relatively low absenteeism rate compared to its competitors.	0.712

In Table 7, the highest value is 0.872 indicating “There is strong employee trust” in the workplace. This is because of considering the work-life balance and caring about our employees’ wellbeing. Employee trust is important because it helps to create a positive working environment and allows employees to feel more comfortable talking to management about their needs. It also leads to high employee retention and productivity. The lowest factor (0.712) is “Our organization has a relatively low absenteeism rate compared to its competitors”.

This is because we have a strong culture of employee accountability and we make sure that all employees are aware of their responsibilities. This will help increase productivity and profits for our organization. According to Hall (2021), focus on trust can lead to improved productivity, collaboration, and conflict resolution. It also highlights the importance of establishing a baseline of trust between co-workers and allowing employees to resolve conflicts on their own.

Table 8. Correlation and regression

	<i>R</i>	<i>R</i> ²	<i>P-value</i>	<i>Results</i>
<i>Organizational learning</i> → <i>Innovation and change</i>	0.899	0.8068	p < 0.001	Significant large positive relationship
<i>Innovation and change</i> → <i>Sustainability</i>	0.797	0.635	p < 2.001	Significant large positive relationship

R is a number between -1 and +1 that represents the relationship between the variables. These could suggest both a positive and a negative association. Variables with negative correlations are inversely connected. The correlation’s strength is indicated by “+/-” increasing or decreasing. The strength of the link cannot be predicted by statistical significance. All of the dataset’s components have correlation coefficients of greater than 0.70 and a p-value of less than 0.001 in Table 8. Strong connection with extremely high statistical

significance (p < 0.001). The findings suggest that organizational learning skills and creativity have a very high positive link. Over 0.7 is regarded by Quinnipiac University as a very strong association (Akoglu, 2018). Table 9 below shows the strong direct relation between *Organizational learning* and *Innovation and change* at an F-value of 118.8463. Table 10 also shows the strong direct relationship between *Innovation and change* and *Sustainability* at an F-value of 172.0197. This predicts that H1 and H2 are accepted.

Table 9. H1 testing

Source	DF	Sum of squares	Mean square	F-statistics	P-value
Regression	1	78.9581	78.9581	118.8463	< 0.001
Residual	99	65.7728	0.6644		
Total	100	144.7309	1.4473		

R-square (R^2) equals 0.8068. It means that 80.6% of the variability of Y is explained by X . Correlation (R) equals 0.899. It means that there is a strong direct relationship between X (*Organizational learning*) and Y (*Innovation and change*).

X predicted Y , $R^2 = 0.81$, $F(1.99) = 118.85$, $p < 0.001$; $\beta = 0.96$, $p < 0.001$.

Overall regression: Right-tailed, $F(1.99) = 118.8463$, $p\text{-value} = 0$. Since $p\text{-value} < \alpha (0.05)$,

$H1$ is accepted. Organizational learning on innovation and change can be a great way for organizations to keep up with market trends and maintain a competitive edge. Studies have shown that employee input and feedback can help organizations learn how to adapt and change in order to better meet the needs of their customers. This can lead to a more productive and innovative workplace, and ultimately more profit for the organization.

Table 10. H2 testing

Source	DF	Sum of squares	Mean square	F-statistics	P-value
Regression	1	91.8626	91.8626	172.0197	< 0.001
Residual	99	52.8683	0.534		
Total	100	144.7309	1.4473		

According to Table 8, R^2 is 0.6347, which indicates that X accounts for 63.5% of the variability of Y ; R , or correlation, is equal to 0.797. It denotes that X (*Innovation and change*) and Y (*Sustainability*) have a significant direct link.

X predicted Y , $R^2 = 0.63$, $F(1.99) = 172.02$, $p < 0.001$; $\beta = 0.96$, $p < 0.001$.

Overall regression: Right-tailed, $F(1.99) = 172.0197$. Since $p\text{-value} < \alpha (0.05)$, $H2$ is accepted. Sustainability is an important aspect of innovation and change. As technology advances, organizations need to find ways to balance environmental concerns with their desire for innovation — and this can be a difficult balance to find.

Figure 2. Path coefficients model

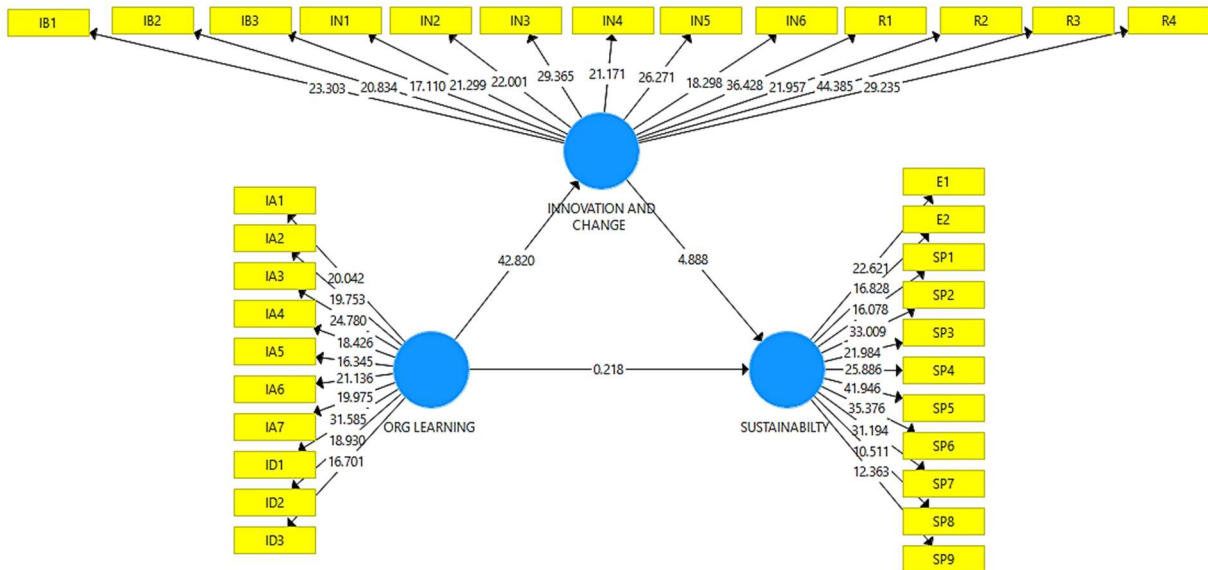


Table 11. Hypothesis testing

Path coefficient	Original sample	Sample mean	Std. Dev.	T-statistics	P-value
H1: Organizational learning → Innovation and change	0.902	0.903	0.022	42.820	0.000***
H2: Innovation and change → Sustainability	0.808	0.804	0.164	4.888	0.000***
H3: Organizational learning → Sustainability	0.035	0.044	0.171	0.218	0.837

Note: * $p\text{-value} < 0.05$, ** $p\text{-value} < 0.01$, *** $p\text{-value} < 0.001$.

According to the study by Alsabbagh and Al Khalil (2017), there is a positive relationship between organizational learning and innovativeness. Their finding suggests that organizational learning

can be an effective tool for increasing the level of innovativeness. The result of the study actually supports our findings ($t = 42.820$; $p = 0.000$). $H1$ is accepted. Innovation is an important element for

organizations, as it can help them to develop resources that could support the organization's sustainability efforts. The study by Kuzma et al. (2020) indicated that there is a positive relationship between innovation and sustainability. According to Table 11, there is a positive significance between innovation and sustainability ($t = 4.888$; $p = 0.000$). $H2$ is accepted. However, our study results that organizational learning does not have a direct influence on sustainability, as it is not a core aspect of organizational sustainability strategies. Sustainability could be considered an important aspect of organizational learning. It is clear that

many organizations still need to do more in order to fully integrate sustainability into their operations. Sustainability is especially important in banks. For example, banks can offer sustainable banking products, such as low-interest loans or environmentally friendly mortgages. Banks can also reduce their carbon footprint by investing in renewable energy sources, such as wind or solar. In this study, $H3$ is rejected. The result does contradict the study done by Ngendahimana et al. (2021) where organizational learning has a significant influence on microfinance institutions' performance in Rwanda.

Table 12. Specific indirect effect

Path coefficient	Original sample	Sample mean	Std. Dev.	T-statistics	P-value
H4: Organizational learning → Innovation and change → Sustainability	0.729	0.724	0.162	4.498	0.000***

Note: * p -value < 0.05, ** p -value < 0.01, *** p -value < 0.001.

Table 12 shows that organizational learning has an indirect effect on sustainability. According to Punyasai et al. (2022), organizational performance, organizational innovation, and organizational learning have a direct influence on organizational sustainability. As per the result, $H4$ is accepted. Mediating innovation and change between organizational learning and sustainability is an important part of creating a successful and forward-thinking business. Organizations must look for ways to bridge the gap between these two concepts and create a holistic approach that emphasizes both learning and sustainability. This means investing in technology and resources that help employees gain skills and knowledge while also reducing their environmental impact. Doing so allows businesses to reap the benefits of innovation while also establishing trust and loyalty with employees and customers.

5. CONCLUSION

This study is basically to get an understanding of certain factors that helps the banks to sustain in the present and future. The research instrument was adopted from several research sources and a reliability test was undertaken with the respondents in Bahrain. All the constructs in Cronbach's alpha had more than 0.8, indicating strong dependability. The most encouraging factor,

which we could observe, was that the employees are encouraged to openly communicate and exchange information in an effective manner, which can be considered as a stronger contribution towards organizational learning. Employees have good trust in themselves and this helps for the sustainability of any business. As per the results, organizational learning has an indirect effect on sustainability through innovation and change. The reason for the rejection of the direct effect could be only considering items relating to information acquisition and information distribution for organizational learning. In the future, the researchers could have more of the components, such as information interpretation, knowledge integration, organizational memory, and knowledge institutionalization to understand the direct effect on sustainability.

From our study, we recommend that organizations focusing on mediating innovation and change between organizational learning and sustainability were more likely to be successful and have increased customer loyalty. Learning is essential to successfully implementing sustainable practices. Organizations investing in sustainability have the chance of providing employees with learning opportunities where they are more likely to experience positive outcomes. The study concluded that organizations must focus on both learning and sustainability to achieve the best results.

REFERENCES

- Abdulla, Y., Ebrahim, R., & Naser, H. (2020). Sustainability in the banking sector: The case of Bahrain. In *2020 Second International Sustainability and Resilience Conference: Technology and Innovation in Building Designs (51154)* (pp. 1-4). The Institute of Electrical and Electronics Engineers (IEEE). <https://doi.org/10.1109/ieeconf51154.2020.9319949>
- Ahmad, N., Youjin, L., Žiković, S., & Belyaeva, Z. (2023). The effects of technological innovation on sustainable development and environmental degradation: Evidence from China. *Technology in Society*, 72, Article 102184. <https://doi.org/10.1016/j.techsoc.2022.102184>
- Ahmed, A. (2020, August 26). Employee reactions to organizational change. *Chron*. <https://smallbusiness.chron.com/employee-reactions-organizational-change-17732.html>
- Akoglu, H. (2018). User's guide to correlation coefficients. *Turkish Journal of Emergency Medicine*, 18(3), 91-93. <https://doi.org/10.1016/j.tjem.2018.08.001>
- Al-Azawei, A. (2018). Predicting the adoption of social media: An integrated model and empirical study on Facebook usage. *Interdisciplinary Journal of Information, Knowledge, and Management*, 13, 233-258. <https://doi.org/10.28945/4106>
- Alkarkhi, A. F. M., & Alqaraghuli, W. A. A. (Eds.). (2020). Chapter 9 — Factor analysis. In *Applied statistics for environmental science with R* (pp. 151-171). Elsevier. <https://doi.org/10.1016/B978-0-12-818622-0.00009-5>

7. Alsabbagh, M., & Al Khalil, A. H. (2017). The impact of knowledge management on organizational learning (An empirical study on the education sector in Damascus city). *International Journal of Academic Research in Business and Social Sciences*, 7(4), 560-578. <https://doi.org/10.6007/IJARBS/v7-i4/2833>
8. Battistella, C., Cicero, L., & Preghenella, N. (2021). Sustainable organisational learning in sustainable companies. *The Learning Organization*, 28(1), 15-31. <https://doi.org/10.1108/TLO-05-2019-0074>
9. Byrne, B. M. (1998). *Structural equation modeling with LISREL, PRELIS and SIMPLIS: Basic concepts, applications and programming* (1st ed.). Psychology Press. <https://doi.org/10.4324/9780203774762>
10. Chatterjee, S., Chaudhuri, R., Kumar, A., Aránega, A. Y., & Biswas, B. (2023). Development of an integrative model for electronic vendor relationship management for improving technological innovation, social change and sustainability performance. *Technological Forecasting and Social Change*, 186(Part B), Article 122213. <https://doi.org/10.1016/j.techfore.2022.122213>
11. Diamantopoulos, A., & Siguaw, J. A. (2000). *Introducing LISREL*. SAGE Publications. <https://doi.org/10.4135/9781849209359>
12. Eismann, K., Posegga, O., & Fischbach, K. (2021). Opening organizational learning in crisis management: On the affordances of social media. *The Journal of Strategic Information Systems*, 30(4), Article 101692. <https://doi.org/10.1016/j.jsis.2021.101692>
13. Feeney, M., Grohnert, T., Gijsselaers, W., & Martens, P. (2022). Organizations, learning, and sustainability: A cross-disciplinary review and research agenda. *Journal of Business Ethics*, 184, 217-235. <https://doi.org/10.1007/s10551-022-05072-7>
14. Fink, A. G. (2003). *The survey handbook*. SAGE Publications.
15. Forcadell, F. J., Aracil, E., & Úbeda, F. (2019). The influence of innovation on corporate sustainability in the international banking industry. *Sustainability*, 11(11), Article 3210. <https://doi.org/10.3390/su11113210>
16. Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.2307/3151312>
17. Gachanja, I. M., Nga'nga', S. I., & Kiganane, L. M. (2020). Influence of organization learning on innovation output in manufacturing firms in Kenya. *International Journal of Innovation Studies*, 4(1), 16-26. <https://doi.org/10.1016/j.ijis.2020.02.001>
18. Hall, J. (2021, March 14). Why a focus on employee trust is essential. *Forbes*. <https://www.forbes.com/sites/johnhall/2021/03/14/why-a-focus-on-employee-trust-is-essential/?sh=111559aa43ee>
19. Hermelingmeier, V., & von Wirth, T. (2021). The nexus of business sustainability and organizational learning: A systematic literature review to identify key learning principles for business transformation. *Business Strategy and the Environment*, 30(4), 1839-1851. <https://doi.org/10.1002/bse.2719>
20. Hu, L.-t., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
21. Imran, M., Ismail, F., Arshad, I., Zeb, F., & Zahid, H. (2022). The mediating role of innovation in the relationship between organizational culture and organizational performance in Pakistan's banking sector. *Journal of Public Affairs*, 22(S1), Article e2717. <https://doi.org/10.1002/pa.2717>
22. Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika*, 34, 183-202. <https://doi.org/10.1007/BF02289343>
23. Kokkaew, N., Peansupap, V., & Jokkaw, N. (2022). An empirical examination of knowledge management and organizational learning as mediating variables between HRM and sustainable organizational performance. *Sustainability*, 14(20), Article 13351. <https://doi.org/10.3390/su142013351>
24. Kurilov, K., Bogatyrev, D., & Zabolotny, G. (2020). Management of innovation processes of Russian banks based on cluster analysis. In *Proceedings of the International Scientific Conference "Far East Con" (ISCFEC 2020)* (pp. 1155-1161). Atlantis Press. <https://doi.org/10.2991/aebmr.k.200312.160>
25. Kuzma, E., Padilha, L. S., Sehnem, S., Julkovski, D. J., & Roman, D. J. (2020). The relationship between innovation and sustainability: A meta-analytic study. *Journal of Cleaner Production*, 259, Article 120745. <https://doi.org/10.1016/j.jclepro.2020.120745>
26. Laccourreye, O., Jankowski, R., & Lisan, Q. (2021). Mastering the descriptive statistics used in otorhinolaryngology. *European Annals of Otorhinolaryngology, Head and Neck Diseases*, 138(5), 387-390. <https://doi.org/10.1016/j.anorl.2020.12.004>
27. Lange, K., & Schmitt, E. M. (2019). *The social dimension of sustainable banking: Characteristics of and reasons for a greater focus on social aspects in sustainable banking*. Institute for Social Banking. https://www.social-banking.org/wp-content/uploads/2020/09/Impulse_Paper_The_Social_Dimension_of_Sustainable_Banking.pdf
28. Lin, H., Fan, W., Wallace, L., & Zhang, Z. (2007). An empirical study of web-based knowledge community success. In *2007 40th Annual Hawaii International Conference on System Sciences (HICSS'07)* (pp. 178c-178c). The Institute of Electrical and Electronics Engineers (IEEE). <https://doi.org/10.1109/HICSS.2007.65>
29. MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological Methods*, 4(1), 84-99. <https://doi.org/10.1037/1082-989X.4.1.84>
30. Mai, N. K., Do, T. T., & Phan, N. A. (2022). The impact of leadership traits and organizational learning on business innovation. *Journal of Innovation and Knowledge*, 7(3), Article 100204. <https://doi.org/10.1016/j.jik.2022.100204>
31. Neukam, M., & Bollinger, S. (2022). Encouraging creative teams to integrate a sustainable approach to technology. *Journal of Business Research*, 150, 354-364. <https://doi.org/10.1016/j.jbusres.2022.05.083>
32. Ngendahimana, V., Iravo, M. A., & Namusonge, G. (2021). Effect of strategic organizational learning on performance of micro finance institutions in Rwanda. *The Strategic Journal of Business & Change Management*, 8(1), 936-943. <http://www.strategicjournals.com/index.php/journal/article/view/1959>
33. Nikolić, T. M., Perić, N., & Bovan, A. (2020). The role of feedback as a management tool in performance management program. *Quality — Access to Success*, 21(177), 3-8. <https://www.researchgate.net/publication/343152520>
34. Nosratabadi, S., Pinter, G., Mosavi, A., & Semperger, S. (2020). Sustainable banking: Evaluation of the European business models. *Sustainability*, 12(6), Article 2314. <https://doi.org/10.3390/su12062314>
35. Oh, S.-Y., & Kim, S. (2022). Effects of inter- and intra-organizational learning activities on SME innovation: The moderating role of environmental dynamism. *Journal of Knowledge Management*, 26(5), 1187-1206. <https://doi.org/10.1108/JKM-02-2021-0093>

36. Olmo, B. T., Saiz, M. C., & Azofra, S. S. (2021). Sustainable banking, market power, and efficiency: Effects on banks' profitability and risk. *Sustainability*, 13(3), Article 1298. <https://doi.org/10.3390/su13031298>
37. Opoku, A., Ahmed, V., & Ofori, G. (2020). The sustainable development goals, organizational learning and efficient resource management in construction. *Resources, Conservation and Recycling*, 161, Article 104984. <https://doi.org/10.1016/j.resconrec.2020.104984>
38. Peschl, M. F. (2022). Learning from the future as a novel paradigm for integrating organizational learning and innovation. *The Learning Organization*, 30(1), 6–22. <https://doi.org/10.1108/TLO-01-2021-0018>
39. Pi, T., & Yang, X. (2023). Board culture and bank innovation: Evidence from China. *International Review of Economics & Finance*, 84, 732–755. <https://doi.org/10.1016/j.iref.2022.12.006>
40. Priyanto, P., & Murwaningsari, E. (2022). The effect of sustainability innovation, organizational learning on firm performance with competitive advantage as moderation. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 12(1), 257–275. <https://doi.org/10.6007/ijarafms/v12-i1/10832>
41. Prudon, P. (2015). Confirmatory factor analysis as a tool in research using questionnaires: A critique. *Comprehensive Psychology*, 4. <https://doi.org/10.2466/03.cp.4.10>
42. Punyasai, A., Siraphattada, Y., Sawasdiruk, J., & Techarattanased, N. (2022). Influences of organizational learning, organization innovation, and business performance on the sustainability of the companies listed on the Stock Exchange of Thailand. *Journal of Positive School Psychology*, 6(2), 2822–2834. <https://journalppw.com/index.php/jpsp/article/view/2001>
43. Raiden, A., & King, A. (2021). Social value, organisational learning, and the sustainable development goals in the built environment. *Resources, Conservation and Recycling*, 172, Article 105663. <https://doi.org/10.1016/j.resconrec.2021.105663>
44. Rass, L., Treur, J., Kucharska, W., & Wiewiora, A. (2023). Adaptive dynamical systems modelling of transformational organizational change with focus on organizational culture and organizational learning. *Cognitive Systems Research*, 79, 85–108. <https://doi.org/10.1016/j.cogsys.2023.01.004>
45. Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill-building approach* (7th ed.). John Wiley & Sons.
46. Turi, J. A., Sorooshian, S., & Javed, Y. (2019). Impact of the cognitive learning factors on sustainable organizational development. *Heliyon*, 5(9), Article E02398. <https://doi.org/10.1016/j.heliyon.2019.e02398>
47. Xu, J., Yu, Y., Zhang, M., & Zhang, J. Z. (2023). Impacts of digital transformation on eco-innovation and sustainable performance: Evidence from Chinese manufacturing companies. *Journal of Cleaner Production*, 393, Article 136278. <https://doi.org/10.1016/j.jclepro.2023.136278>