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The Role of Eco-Innovation in Achieving Pioneer Advantage a Survey Study of a Sample of Customers in Baghdad Mall

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Abstract: Purpose – Despite the perceptual link between Eco-innovation and Pioneer advantage, empirical research has shown conflicting results, which is why this study is looking at the relationship between eco-innovation and pioneer advantage.

Design/methodology/approach – This study operationalizes Eco-innovation as a strategic asset to achieve the pioneer Advantage, as the researcher distributed (150) questionnaire to consumers of the Baghdad Mall, of which the validity of the analysis (132) was analyzed by adopting the advanced statistical program (Smart PLS).

Findings – The main finding of this study is the favorable relationship between pioneer advantage and characteristics like eco-innovation. Finding that eco-innovation had an impact on pioneer advantage was unexpected.

Originality/value – This Study confirms the resource-based view that a valuable, rarely, and non-substitutable asset such as Eco-Innovation leads firms to enhance pioneer Advantage.

Keywords: Eco-Innovation, pioneer Advantage, Baghdad Mall.

Introduction

Eco-innovation will be a major force behind corporate attempts to combat climate change and realize "green growth." Eco-innovation demands that novel technologies be implemented more quickly and that existing solutions, including non-technological ones, be applied more broadly. It also provides chances to include new participants, create new sectors, and boost competition. In the ensuing decades, economies must undergo structural change (Oecd 2010).

The sustainability model must, however, maintain enduring performance (e.g., social, economic, and ecological) in order to link environmental concerns to human welfare, potentially insuring the wellbeing of nature. Without a doubt, sustainability has developed into a radical strategy for the corporation to combat the escalating environmental difficulties. Sustainability development improves the ecological performance of all sectors by reducing the adverse effects of the changing climate. In light of this assertion, the sustainability concept has chosen a novel strategy for fostering the socio-ecological development of international companies (Li, 2022).

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Numerous studies have indicated that people's awareness of green products and behaviors is relatively minimal. Students profess to have a thorough understanding of the environment, but in reality, their green abilities are lacking, according to studies that examine the awareness of green technology among students in various colleges. This study attempts to assess the community's need for the adoption of innovative technology. Many measures can be taken to do this. The most crucial initial step is educating the public about the benefits of this technology and introducing it to the society.

Section one: Scientific Methodology of Research

First: The problem of study

Over the past decades, the "**first-mover advantage"** or **pioneer advantage** has been extensively addressed in both marketing and management research literature. Theoretical explanations for these advantages have been found in the literature that prevent entry in recently. A number of important concepts have suggested that the advantages of the **first** mover go beyond these economic explanations and are usually, the result of psychological processes in the consumer's mind. This The behavioral model called analysis, while still relatively fragmented and has been increasingly recognized as a powerful source of conceptual explanations for this complex phenomenon However, a number of scientists point out that the competitive advantages that accumulate from some forms early on, whether economic or behavioral in nature, do not always apply to others due to different forces. This is contrary to the significant evidence in the market entry literature that suggests a relationship between the order of entry and long-term success. Externally particular to the first mover's state. (Mady, 2015:1).

Different agents can create and implement environmental innovation (companies, policies, associations, public and private organizations, etc.) and can be of a technological, organizational, social or institutional nature. Eco-innovation is defined as the production, assimilation or exploration of a new product, production process, service, management or work of an organization (its development or adoption), and in comparison, with related alternatives, generates fewer environmental risks, pollution and less negative impacts resulting from the use of resources and energy during its life cycle. & Pearson, 2007:4).

Incorporating novel ecological practices can be seen as a response to the demands and preferences of stakeholders in the larger environment, according to recent management study. The intensity of stakeholder pressure is a factor that encourages proactive environmental solutions based on steps to enhance the technology and regulatory environment that go above and beyond regulatory requirements, according to empirical data from several studies. (Garcés-Ayerbe, et al, 2019:2).

From the foregoing, the problem of the current study can be summarized by the following question: **What is the nature of the relationship between environmentally friendly innovation and the Pioneer advantage?**

Second: Objectives of the study

The current study aims to:

1. Identify the impact of environmentally friendly innovation in the Pioneer advantage.
2. Identify the impact of eco-friendly product innovation in the Pioneer advantage.
3. Identify the impact of eco-friendly process innovation on the Pioneer advantage.
4. Identify the impact of environmentally friendly marketing innovation in the Pioneer advantage.
5. Identify the impact of environmentally friendly organizational innovation in the Pioneer advantage.

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Third: The importance of the study

The importance of the study is highlighted by the fact that environmentally friendly innovation is an essential element to protect communities and individuals against environmental risks as well as to achieve sustainability as a feature of the times.

Fourth: Justifications for the study

1. The existence of a knowledge gap indicated by previous studies between the two study variables.
2. The current study tests two study variables in the Middle East environment.

Fifth: Hypotheses of the study:

The study is based on a main hypothesis:

(1) H1 There is an impact of eco-innovation in the Pioneer advantage.

Four sub-hypotheses are branched out from this hypothesis.

H1-1 There is a positive impact of eco-friendly product innovation in the Pioneer advantage.

H1-2 There is a positive impact of innovation of environmentally friendly processes is found in the Pioneer advantage.

H1-3 There is a positive impact of environmentally friendly marketing innovation in the Pioneer advantage.

H1-4 There is a positive impact of environmentally friendly organizational innovation in the Pioneer advantage.

Sixth: The hypothetical scheme of the study

The hypothetical scheme of the study includes two main variables: 1) environmentally friendly innovation, and 2) the Pioneer advantage. Figure 1 reviews the hypothetical scheme of the study.

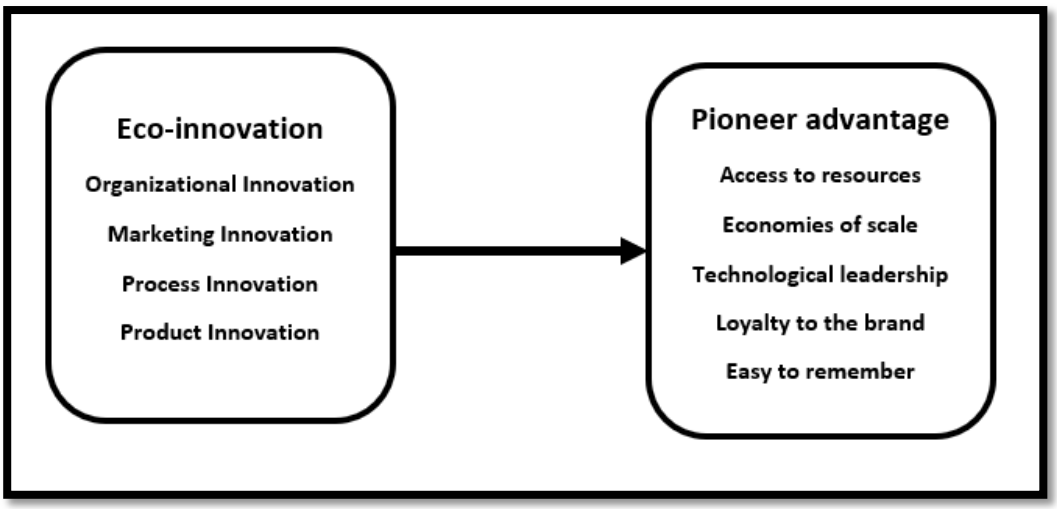

Figure (1) Hypothetical Scheme of the Study

Source: Preparation of researchers according to the hypotheses of the study

Seventh: Community and sample of the study:

The study community included the customers of the Baghdad Mall, where the researchers tried to obtain the largest possible number of customers as they were able to distribute (150) questionnaires, (137) questionnaires were retrieved that were valid for analysis (132).

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Eighth: Scale Design

The measures of previous studies were adopted in the measurement of study variables, where the environmentally friendly innovation variable was measured through a scale (Astuti, et al,2019) which includes four subdimensions, while the Pioneer advantage variable was measured through a scale (Kalyanaram, et al, 1995) which includes five subdimensions.

Ninth: Statistical Methods

The study will adopt descriptive analysis with its measures of centrality and dispersion as well as the *modeling of partial least squares* (PLS-SEM) through the Smart PLS program.

Section two: Literature review

First: Concept of Eco-innovation

Sustainable innovation or environmentally friendly innovation is the process of developing new ideas, behaviors, products and processes that contribute to reducing environmental burdens or to achieving environmentally defined sustainability goals. Some authors have narrowly referred to eco-friendly or eco-innovation as simply reducing environmental impacts by reducing waste. The idea of eco-innovation is much broader. It may include, for example, new products (such as products that may be difficult to mitigate their impact on the environment) as well as products that improve human life factors apart from minimizing waste, for example safety and other quality aspects. Life. That environmentally friendly innovations may include the development and introduction of new products (environmental technologies), new markets and new systems (such as transportation) as well as the introduction of environmental dimensions on a very large scale in economic strategies. These types of optimizations clearly allow for a creative and comprehensive transformation of the innovation space i.e., radical innovation – rather than just replacing or increasing/developing the process. (Hellström, 2007: 151)

An innovation that can improve business performance as well as care about the environment is an environmentally friendly innovation that is defined as "a process of product development taking into account the reduction of the negative impact of resource use. The application of environmentally friendly innovation not only solves the serious global environmental problem, but also serves to increase the competitive excellence of the company. This means that as consumer awareness of both products and the production process is better suited to the environment, a company that applies ecological innovation will enjoy better competitive distinction compared to other companies (Astuti, et al,2018:14).

From the above, environmentally friendly innovation can be defined as "the application of sustainability dimensions in all the company's business, which leads to the company obtaining competitive advantages compared to other competing companies."

Second: Dimensions of Eco-innovation

Eco-innovation is an effort to create new procedures and goods that will raise their value and dramatically lessen their adverse effects on the environment. (OECD, 2010) defines eco-innovation as the adoption of new or significantly superior processes, marketing strategies, organizational structures, and institutional arrangements that result in environmental improvements relative to the applicable alternative (Astuti, et al,2019:8) Four dimensions of eco-innovation are as follows:

1- **Eco-product innovation:** Throughout a product's life cycle, eco-product innovation seeks to minimize resource use and environmental effects. Product innovation can take the form of significantly new commodity development or enhancements to currently available commodities (or services).

2- **Eco-process innovation**: When multiple outputs (goods or services) can be generated with few inputs, this is known as eco-process innovation.

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3- **Eco-marketing innovation**: Implementing new marketing strategies involves using techniques such as creating new product packaging, expanding product marketing channels, running promotions, and setting a new selling price. When seen from the perspective of ecological innovation, ecological marketing innovation activities might take the form of incorporating environmental considerations into the promotion of products, such as through eco-labeling. Therefore, ecological marketing innovation will be linked to ecological product and process innovation Ecology

4- **eco-organizational** innovation**:** Organizational innovation is the improvement of organizational management processes through new ways of doing business. Thus, environmental organizational innovation is associated with managerial efforts in order to change the red tape, procedures, mechanisms or organizational systems to produce environmentally friendly innovation

Third: The concept of the Pioneer advantage

The concept of "first-mover" or "Pioneer Advantage" is illustrative because it proves that the first entry of the market may gain some advantages over subsequent entrants, resulting in a sustainable competitive advantage over the former. Gómez-Villanueva, & Ramírez-Solís, 2013:35)

The phenomenon in which Pioneer brands usually outperform later entrants, the Pioneer advantage, has received a lot of attention in marketing literature (Angela., & Kukar- 2007:195). Pioneer Brand Advantage (PBA) has gained significant attention. Marketers are now cognizant of the complexity and breadth of this problem. (Alpert, & Kamins, 1994:244).

A Pioneer brand has been characterized as having numerous significant benefits over market-based affiliate brands over the years. A Pioneer brand is defined as the first to sell a product category, which may also be the first to invent a product. These benefits are connected to the development of entry barriers, high conversion costs, the development of a preference structure that favors innovators, and the development of the brand as "typical" for the product category. Similarly, theories and behavioral characteristics have been proposed to explain the Pioneer advantage. This includes classification, where it has been assumed that the Pioneer brand may become the prototype in the consumer's mind of the category he creates. Learning theory has also served as a theoretical basis for the advantage of a Pioneer brand (since a brand is the first to enter the category, consumers learn about it before any other brand); as well as excellence, Pioneer to brand recovery, consideration and selection with a greater probability than an affiliate brand (Kamins, et al,2007:594)

Pioneer is defined as the first appearance of a brand in the category of premium new products. In another definition, a brand is considered a leader if the brand is the first brand of a new type of product where he pointed out that consumers tend to have a positive perception of the Pioneer brand. This fact also illustrates the positive attitude of consumers towards the Pioneer brand in general. Taryadi, & Hananto, 2013:1)

Over the past decades, brands have become more strategic assets for marketers. Kotler (2003) defines a trademark as a name, terminology, symbols, designs, or any combination thereof, aimed at identifying the goods or services of the seller's group and distinguishing it from competitors.

The strategic concept of the Pioneer advantage emphasizes that companies that become among the first entrants to the market in one form or another, can take advantage of this situation in a long-term business success where the first mover is identified as a company: (1) produces a new product, (2) uses a new process, or (3) enters a new market, (Kerin, et al, 1992:13)

"The first moving" is synonymous with "pioneer". They are those Pioneer companies that: (1) develop patents or important technologies in a new product category, (2) the first to develop a model or model working in a new product category, or (3) the first to sell a new product. Mady, 2015:5).

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From the above, a Pioneer advantage can be defined as "the gains a company makes as a result of its proactive actions in responding to the requirements of all stakeholders."

Fourth: Dimensions of the Pioneer advantage

Kalyanaram, et al, 1995 identified five dimensions of the Pioneer advantage as it shows that the "first moving" (or pioneer) feature is the long-term reward that the first company may reap for entering a new market. There are five basic dimensions that underlie the first possible feature:

1- **Ease of recall**: The Pioneer brand in a new product category that people use or learn about is easier for them to recall. As a result, Pioneer brands can continue to be in the forefront of their considerations, encouraging ongoing and verbal purchases.

2- **Brand loyalty**: Consumers frequently prefer to purchase products from brands they have previously utilized (brand distribution; consumer brand loyalty). The cost of looking for different brands and the chance of trying a subpar brand are both avoided by sticking with the same brand. Brand loyalty can have particularly potent effects in emerging product categories since the initial triggers influence the expectations of the entire category. Basically, the first engines are considered prototypes that are judged against later subscribers. The first transmission engines determine the important attributes and the appropriate attribute levels. Thus, entrants may later be seen as below the standard set by the flagship or perceived as "me too" copies of the original trademark.

3- **Technological leadership**: Pioneers can work on the new product category's technological frontiers. As a result, they have the chance to get patents that might stop other businesses from entering a category or at least limit their ability to compete (types of innovation; intellectual property rights).

4- **Economies of scale and experience**: The first to move can also be the first to generate a significant amount of production and revenue. Due to the related expertise and potential cost savings, items of this size may be of higher quality and include more features than those of competitors.

5- **Resource capture**: The best raw resources, suppliers, customer sectors, and distribution channels may be secured by the first transit movers (channel marketing strategy). Later expats might be left with fewer preferable timetable possibilities. For instance, the initial engines can market to innovators who are keen to purchase novel products, while the later subscribers try to market to non-innovators. The early carriers can also expand their production lines, which enables them to appeal to a range of market sectors.

Section three: Statistical Analysis

The study adopted descriptive analysis with its measures of centrality and dispersion and used *Partial Least Squares* (PLS-SEM) modeling through the SmartPLS program.

First: Descriptive Analysis

Table (1) demonstrates the scale's descriptive analysis, utilizing the rate to gauge centrality and the standard deviation to gauge data dispersion, the results of the rate have shown that all the Items of the environmentally friendly innovation variable of the hypothetical mean of 3 (when using Likert scale) and this indicates the prevalence of all the variable Items in the organization under study, as the Items of the Pioneer advantage variable were higher than the hypothetical mean and therefore it indicates the prevalence of this variable in the researched organization, as the results of the descriptive analysis showed the proportions of Low standard deviation which indicates the accuracy of respondents' answers and their understanding of the Items .

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Table (1) Descriptive Analysis of Scale Items

Variable	Dimension	Items	Weighted average	Standard deviation
Eco-innovation	Product Innovation	X1-1	4.4853	0.74298
		X1-2	4.0294	0.69046
		X1-3	4.3235	0.85416
	Process Innovation	X2-1	4.4118	0.75775
		X2-2	3.9559	0.65640
		X2-3	4.0441	0.88830
	Marketing Innovation	X3-1	4.5588	0.65523
		X3-2	4.1493	0.70181
		X3-3	4.1176	0.87297
	rganizationa Innovation	X4-1	4.1176	0.78283
		X4-2	4.0588	0.77039
		X4-3	4.5294	0.80057
Variable	**Dimension**	**Items**	**Weighted average**	**Standard deviation**
Pioneer advantage	Easy to remember	Y1-1	3.9706	0.79119
		Y1-2	4.3824	0.82912
		Y1-3	4.3824	0.75369
	Loyalty to the brand	Y2-1	3.9265	0.79769
		Y2-2	4.0441	0.88830
		Y2-3	3.9412	0.66652
	Technological leadership	Y3-1	4.0294	0.75252
		Y3-2	4.2647	0.82168
		Y3-3	3.7941	0.90700
	Economies of scale	Y4-1	4.1029	0.73586
		Y4-2	4.1912	0.75819
		Y4-3	4.0882	0.85928
	Access to resources	Y5-1	4.1814	0.45778
		Y5-2	4.1642	0.47540
		Y5-3	4.1692	0.40585

Source: SmartPLS Software Output

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Second: Evaluation of the scale model

Evaluating the goodness of the scale or the so-called measurement model is one of the basic steps of analysis that precedes the process of testing hypotheses, and the measurement model in the modeling of least squares according to (Hair et al., 2014) is evaluated through four criteria and as shown in Table (2):

Table (2) Criteria for Evaluating the Measurement Model

Standard	Purpose	Minimum Acceptable
Cronbach Alpha	Measure reliability and consistency test	0.7
Composite reliability	Measure reliability and consistency test	0.6
Item's reliability (saturations)	Measure honesty test	0.7
Average Contrast Extracted (AVE)	Measure honesty test	0.5

Source: Preparation of researchers based on

Hair, J. (2014). *A primer on partial least squares structural equations modeling (PLS-SEM*. Los Angeles: SAGE.

Table (3) Test Results of the Measurement Model for the Eco-Innovation Variable

Items s	Saturations	Cronbach Alpha	Composite reliability	AVE
X1-1	0.855	0.738	0.712	0.608
X1-2	0.888			
X1-3	0.871			
X2-1	0.843	0.751	0.719	0.632
X2-2	0.881			
X2-3	0.852			
X3-1	0.886	0.727	0.712	0.610
X3-2	0.823			
X3-3	0.812			
X4-1	0.874	0.731	0.701	0.628
X4-2	0.846			
X4-3	0.887			

Source: SmartPLS Software Output

The results of the measurement model test are shown in Table 3, which demonstrates that all items met the permitted limits of saturation and that the variables met the standards for Cronbach's alpha, composite reliability, and AVE.

Table (4) Test Results of the Measurement Model for the Pioneer advantage Variable

Items	Saturations	Cronbach Alpha	Composite reliability	AVE
Y1-1	0.897	0.709	0.709	0.558
Y1-2	0.811			
Y1-3	0.805			
Y2-1	0.842	0.779	0.778	0.519
Y2-2	0.830			
Y2-3	0.822			

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Y3-1	0.807	0.724	0.732	0.509
Y3-2	0.857			
Y3-3	0.851			
Y4-1	0.827	0.736	0.795	0.541
Y4-2	0.867			
Y4-3	0.849			
Y5-1	0.887	0.786	0.795	0.613
Y5-2	0.866			
Y5-3	0.861			

Source: SmartPLS Software Output

The results of the test of the measurement model for the Pioneer advantage variable are shown in Table (4), which demonstrates that all Items reached the permissible limits of saturation and the variables reached the acceptable limits for Cronbach's alpha, composite reliability, and AVE.

Third: hypotheses tasting

In the structural model, path coefficients are used to test hypotheses., and the structural model is evaluated in the modeling of the least squares according to (Hair et al., 2014) through the criteria show in Table (5):

Table (5) Criteria for Evaluating the Structural Model

Standard		**Threshold (allowed limit)**
Significance of the path coefficient	T value	Greater than or equal to 1.96
	P value	Less or equal to 0.05
Interpretation coefficient	R^2	0.25 Weak, 0.5 Medium, 0.75 High

Source: Preparation of researchers based on

Hair, J. (2014). *A primer on partial least squares structural equations modeling (PLS-SEM*. Los Angeles: SAGE.

1. Test the main hypothesis

The main hypothesis stated that "there is a significant impact of environmentally friendly innovation in the Pioneer advantage" for the purpose of this hypothesis, the structural model was built and as shown in Figure 2 below:

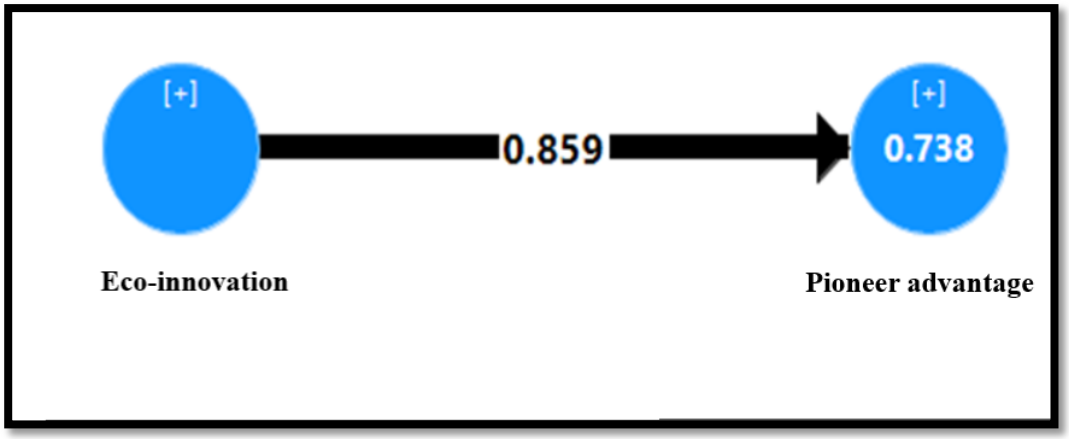

Figure (2) The structural model of a test of the first main hypothesis

Source: SmartPLS Software Output

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Table (6) Results of the evaluation of the structural model of the first main hypothesis

Hypothesis	track	VIF	Path coefficient	t Value	p Value	Result	Effect size f^2	R^2	R^2 Modified
H1	EI→PA	1	0.859	15.65	0	acceptance	2.698	0.738	0.735

Source: SmartPLS Software Output

The results reviewed in Table 6 showed that the path coefficient (direct effect) was (0.859) and with a determination coefficient $\mathbf{R^2}$ (interpretation) of 0.735) and to verify the significance of the path coefficient, both the value of t and **a**chieve the required limits in Table 5, which indicates the significance of the relationship and thus the first main hypothesis is accepted.

2. Testing sub-hypotheses

For the purpose of testing the sub-hypotheses of the main hypothesis (H1-1, H1-2, H1-3, H1-4), the structural model was constructed as shown in Figure 3 below:

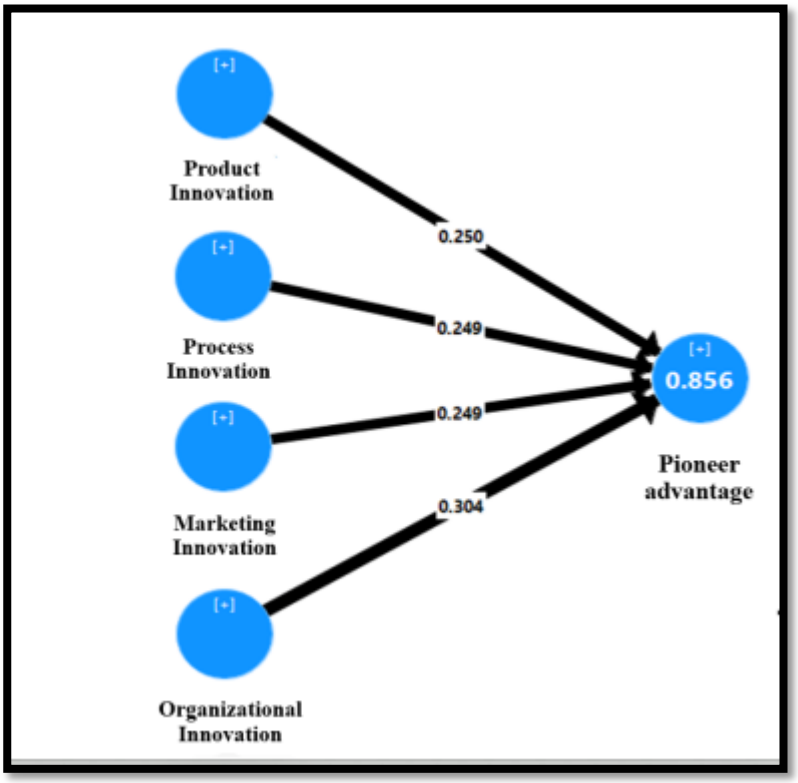

Figure (3) Structural model for testing sub-hypotheses

Source: SmartPLS Software Output

Table (7) Results of the evaluation of the structural model of sub-hypotheses

Hypothesis	track	VIF	Path coefficient	t Value	p Value	Result	Effect size f^2	R^2	R^2 Modified
H1-1	**EP→PA**	**2.501**	**0.250**	**2.822**	**0.015**	**acceptance**	**0.189**	**0.856**	**0.850**
H1-2	**EP→PA**	**2.347**	**0.249**	**2.277**	**0.004**	**acceptance**	**0.131**		
H1-3	**EM→PA**	**1.88**	**0.249**	**2.734**	**0.003**	**acceptance**	**0.131**		
H1-4	**EO→PA**	**1.408**	**0.304**	**3.044**	**0.002**	**acceptance**	**0.252**		

Source: SmartPLS Software Output

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The results of the analysis reviewed in Table 7 showed that the hypotheses (H1-1, H1-2, H1-3, H1-4) had met the required criteria of t value and p value and thus accepted these hypotheses.

Section four: Conclusions and Recommendations

First: Conclusions

1. Scientific efforts related to the subject of the study proved that there is a knowledge gap in the study of the interrelationships of the elements of the study, and this gave motivation to delve into this topic.
2. A Pioneer advantage is a critical element in achieving long-term success for an organization as proactive actions can contribute to opening wider horizons of success for the organizations that undertake it.
3. The results of the study indicate that the dimensions of environmentally friendly innovation can contribute effectively to enabling the organization to obtain the Pioneer advantage in the Iraqi environment specifically as Iraqi society thanks to technological development is aware of the importance of environmentally friendly products.

Second: Recommendations

1. Organizations in general and Manufacturing organizations in particular should promote a culture of environmentally friendly innovation by creating a culture that drives and increases this resource.
2. It is necessary to research ways to develop environmentally friendly innovation, by providing the factors for its prosperity.
3. The relevant regulatory authorities should monitor behaviors that threaten the environment because of their negative effects on society as well as conduct studies to encourage organizations to environmentally friendly behaviors, as these behaviors are a tool to distinguish the organization from its competitors towards environmentally friendly organizations.

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