

The impact of economic, environmental, and social sustainability on customer focus in the context of digitalisation and quality management: A field study on a sample of Algerian companies

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Abstract:

This study aims to identify the impact of economic, environmental, and social sustainability on customer focus under digitalization and quality management in a sample of Algerian companies. The questionnaire was used to collect primary data using the convenience sampling method from 57 companies in the Algerian West in Mascara and Mostaganem states. SPSS version 26 was used to present descriptive statistics, and Smart PLS 4 was used to conduct statistical tests related to the structural equation modelling (SEM) method that was followed in this study. The results showed that economic and social sustainability has a significant impact on customer centricity, while environmental sustainability did not show any significant effect.

Key Words : Sustainability, Customer Focus, Digitalisation, Quality management, PLS SEM.

JEL Classification: Q56, M31, M15, L15, C39.

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1. Introduction

In light of the rapidly evolving global economic landscape, sustainability has become a fundamental element in corporate strategies. Companies strive to balance economic, social, and environmental dimensions to ensure their continuity in a highly competitive business environment. With the advancement of digitalisation and the growing importance of quality management, customer focus has emerged as a key factor in achieving competitive advantage and enhancing organizational performance. Therefore, it has become essential to examine the relationship between sustainability and customer focus, particularly within the context of digitalisation and the adoption of modern quality standards.

On an economic level, companies in developing countries face increasing challenges related to sustainability, especially in an ever-changing business environment with rising market demands. In Algeria, the economic sector is a cornerstone of growth and development, with companies working to adopt strategies that ensure their sustainability and enhance their competitiveness. In this context, this study aims to analyze the impact of economic sustainability on customer focus in the context of digitalisation and quality management. Through a field study on a sample of Algerian companies, the research seeks to understand their adaptation to these transformations and the implications for their customer relationships.

1.1. Research problem

Based on the above, the research problem revolves around the following question:

To what extent do economic, environmental, and social sustainability, in the context of digitalisation and quality management, impact customer focus in Algerian companies?

1.2. Research hypotheses

- H1: Economic sustainability has a significant impact on customer focus in the context of digitalisation and quality management.
- H2: Environmental sustainability does not have a significant impact on customer focus in the context of digitalisation and quality management.
- H3: Social sustainability has a significant impact on customer focus in the context of digitalisation and quality management.

1.3. Research importance

The importance of this study stems from the increasing role of digitalisation and quality management in enhancing sustainability practices and improving customer experience. The importance of the study can be summarized as follows:

- Analyzing the relationship between the three dimensions of sustainability, digitalisation, and quality management to understand their impact on customer focus.
- Providing insights for Algerian companies on the importance of integrating sustainability with digitalisation and quality management to enhance customer satisfaction and achieve a competitive advantage.
- Contributing to academic literature by examining the influence of these factors in the context of emerging markets like Algeria.
- Enabling Algerian companies to adopt effective strategies for improving customer experience through sustainable practices supported by digitalisation and quality management.

1.4. Research objectives

This study aims to achieve the following objectives:

- Analyze the impact of economic, environmental, and social sustainability, in the context of digitalisation and quality management, on customer focus.
- Explore the role of digitalisation in strengthening the relationship between sustainability, quality management, and customer focus.
- Provide practical recommendations for Algerian companies on how to adopt sustainability and quality management practices in the context of digitalisation to enhance customer satisfaction and achieve competitiveness.

2. Literature review and theoretical framework of the study

2.1. Literature review

2.1.1. The study by Bonfanti et al (2025)

Title: The contribution of sustainable practices to the creation of memorable customer experience: Empirical evidence from Michelin Green Star restaurants.

This study aims to examine the contribution of sustainable practices to creating memorable customer experiences (CX) in upscale restaurants, particularly Michelin Green Star Restaurants (MGSRs). The study used a qualitative approach, analyzing interviews with 19 participants from these restaurants, selected from among the invitations sent to 498 restaurants. The findings reveal the sustainable practices adopted by MGSRs to enhance CX memorability, categorizing these practices according to theoretical dimensions of hospitality experience, such as functionality, authenticity, emotionality, engagement, and expressivity. The study highlights that partnerships between local suppliers, chefs, staff, and customers play a key role in creating memorable CXs. The study proposes a conceptual model that integrates sustainable practices within the dimensions of hospitality experience and provides practical suggestions for restaurant managers to enhance their competitiveness (Bonfanti, Bagnato, & Vigolo, 2025).

2.1.2. The study by Asha et al (2023)

Title: The influence of sustainable supply chain management, technology orientation, and organizational culture on the delivery product quality-customer satisfaction nexus.

This study aimed to examine the influence of sustainable supply chain management (SSCM), technology orientation (TO), and organisational culture (OC) on the relationship between product quality on delivery (POD) and customer satisfaction in textile industries in Bangladesh. Data was collected from 350 participants from industry employees in different departments such as supply chain management, production, and marketing. The researchers used a questionnaire to collect the data, and it was analysed using SPSS and PLS-SEM software. The results showed that SSCM has a partial positive effect in enhancing product quality and customer satisfaction, while technological orientation has a negative effect on the relationship between product quality and customer satisfaction, indicating that technological orientations should be used appropriately. Organisational culture was also found to have no significant effect on this relationship. The study also showed that sustainability in the supply chain contributes significantly to improving product quality and enhancing customer satisfaction, which enhances business sustainability in the textile industry (Asha, Dulal, & Habib, 2023).

2.1.3. The study by Peng (2023)

Title: Sharing economy and sustainable supply chain perspective: The role of environmental, economic, and social pillar of supply chain in customer intention and sustainable development.

The aim of this study was to analyze the impact of Sustainable Supply Chain Management (SSCM) practices in sharing economy platforms on achieving Sustainable Development Goals (SDGs), focusing on the environmental (environmental), economic (economic), and social (social) pillars and their role in enhancing customer intention. The study used a quantitative approach, where data were collected from 650 respondents via an electronic survey, and 260 responses were analyzed using Structural Equation Modeling (SEM) in AMOS software. The results showed that SSCM contributes to achieving SDGs by improving environmental, social, and economic performance, which enhances customer intention to use sharing economy platforms. Additionally, customer intention plays a mediating role in the relationship between SSCM practices and SDGs, where customer awareness of environmental and social issues motivates companies to adopt sustainable practices (Peng, 2023).

2.1.4. The study by Elg et al (2021)

Title: Digitalisation and quality management: problems and prospects

This study aimed to identify the roles played by quality management practitioners in digitalisation initiatives, focusing on the challenges and opportunities they face in the digitalisation journey. The study relied on a multiple case study methodology across four organizations in Sweden, involving 33 quality management practitioners who were interviewed using semi-structured interviews. The results showed that quality management plays various roles, ranging from leadership in some initiatives, such as "problem discovery and solving," to a follower role in others, such as "increased automation." Six roles for quality management practitioners were identified, distributed between exploitative roles (such as improving internal efficiency) and exploratory roles (such as searching for collaborative partners). The study emphasized three key managerial priorities to ensure the success of digitalisation: top management commitment, emphasizing the customer as a main driver, and integrating IT functions in a way that focuses on the customer (Elg, Birch-Jensen, Gremyr, Martin, & Melin, 2021).

2.1.5. The study by Joo and Shin (2018)

Title: Building sustainable business ecosystems through customer participation: A lesson from South Korean cases.

This study aims to analyse the role of customer engagement in building sustainable business ecosystems in South Korea. The study adopted a case study approach and selected four business cases from two different business types: Business-to-Business (B2B) and Business-to-Customer (B2C). Gathering information from in-depth interviews with company representatives, academic papers, business reports, news articles, and company websites, the study found that customer engagement significantly influences economic and social value creation within business ecosystems. It also identified four key strategic actions to build sustainable business ecosystems: Aligning the company's vision and investments with economic and social value, establishing organisational mechanisms that stimulate customer engagement and foster collaboration, nurturing customers within the ecosystem to increase their attachment to the company, and fostering co-evolution between suppliers and buyers to ensure ecosystem sustainability (Joo & Shin, 2018).

2.2. Theoretical framework of the study

2.2.1. Concept of Sustainability

Sustainability is a developmental approach aimed at meeting present needs without compromising the ability of future generations to meet their own needs, while maintaining a delicate balance between economic growth, environmental preservation, and social equity (Banco Santander, 2023).

Sustainability is categorized into three main types: Environmental Sustainability, Economic Sustainability, and Social Sustainability, as outlined below: (Banco Santander, 2023)

-Environmental sustainability focuses on ensuring the continuity of ecosystems and biodiversity while keeping pace with economic and social progress. This objective is pursued through the effective management of natural resources, including the reduction of water and energy consumption, minimization of waste, utilisation of recyclable materials, decrease in reliance on plastics, promotion of sustainable transportation, and protection of ecosystems and biodiversity.

-Economic Sustainability: Economic sustainability signifies the capacity of organisations to attain financial growth in a responsible manner that ensures the optimal use of resources while maintaining long-term financial stability and fostering sustainable economic development.

Social Sustainability:

-Social sustainability is concerned with the creation of more equitable and stable communities by improving quality of life, ensuring equal opportunities, and enhancing social well-being. This may be supported through affordable housing programs, the provision of fair economic opportunities, and the strengthening of social cohesion to ensure inclusive and sustainable development.

2.2.2. The relationship between sustainability and customers

The relationship between sustainability and customers is reflected in the following points: (Joo & Shin, 2018)

-Economic and Social Value Creation: Customers contribute to sustainability by participating in company activities, generating economic value (e.g., revenue from ads) and social value (e.g., solving community issues or pressuring governments).

-Internal and External Motivations: Customers are primarily motivated by internal factors like pride and enjoyment, but external incentives (compensation, fame) can boost participation and engagement.

-Role of Socialization: Providing open technologies, training programs, and social activities enhances customer participation and fosters social capital and communication within the ecosystem.

-Social Pressure on Companies: Customers can exert positive or negative social pressure on companies, urging them to adopt sustainable practices that align with environmental and social values.

-Challenges in Restricted Ecosystems: In ecosystems dominated by large companies, customer participation is limited, weakening the overall sustainability of the ecosystem. Customers have less influence on strategic decisions, reducing their ability to promote sustainability.

From the above, it becomes clear that The relationship between sustainability and customers is mutually reinforcing, as customers contribute to both economic and social value through their participation in activities like content production and community problem-solving, which

increases revenues and supports social causes. This alignment of economic practices with social concerns enhances sustainability. Internal motivations, such as pride, along with external incentives like compensation, boost customer participation. Socialization, through open technologies and training, fosters engagement, builds social capital, and promotes collaboration. Additionally, customers can exert social pressure on companies to adopt sustainable practices, influencing business decisions. However, in restricted ecosystems dominated by large companies, customer influence is limited, weakening the sustainability of the ecosystem, as the lack of effective participation reduces innovation and long-term sustainability.

2.2.3. The relationship between sustainability, product quality, and customer satisfaction

According to study of Asha et al (2023) that focused on supply chains, the relationship between sustainability, product quality and customer satisfaction in the context of technological orientation is as follows: (Asha, Dulal, & Habib, 2023)

- Sustainability in the supply chain plays a key role in improving product quality at delivery, as it contributes to minimising errors and defects in production, leading to higher quality products that meet customer needs and expectations. By adopting sustainable practices, companies can minimise waste and spoilage, enhancing operational efficiency and reducing costs, which has a positive impact on customer satisfaction.

- Technology plays an important role in optimising production and supply chain processes, speeding up deliveries and ensuring accuracy and quality. However, the impact of technology can be negative if it is not used appropriately or if it is not aligned with customer needs, which can lead to low customer satisfaction.

Overall, the combination of sustainability and technological orientation enhances product quality and reliability, leading to improved customer experience and satisfaction. When customers receive sustainable, high-quality products that are delivered in a timely manner, they are more likely to remain loyal to the company, giving companies a sustainable competitive advantage in the marketplace.

2.2.4. The role of quality Management in enhancing customer relationships in the digitalisation Era

It is worth noting here that quality management is a set of organized activities aimed at directing and controlling an organization to ensure a certain level of quality in its products or services (Hoyle, 2007). Digitalisation is a comprehensive process that requires a complete restructuring of the core aspects and business models within an organization. This transformation relies on advanced technologies such as big data analytics and artificial intelligence, and it is not limited to adopting technology to enhance efficiency. It also involves fundamental changes in how products and services are managed, tasks are performed, and markets are organized world (Cots, 2018).

Quality management plays an important role in strengthening its relationship with customers in the context of digitalisation through several aspects: (Elg, Birch-Jensen, Gremyr, Martin, & Melin, 2021)

- Improving Customer Interaction: By monitoring the digital solutions adopted within the organization, quality management contributes to ensuring a quick and effective response to any issues customers may face, such as improving communication through digital platforms and solving any problems related to products or services.

-Ensuring Improved Services for Customers: Quality management ensures that digital processes, such as automation and the development of new business models, align with standards that elevate service levels and achieve customer satisfaction. It works to ensure that digitalisations do not negatively impact service quality.

-Leadership and Monitoring Roles in Digital Initiatives: While quality management sometimes takes on a follower role in some digital initiatives (such as automation or the development of new business models), it assumes a leadership role in other initiatives like "Problem Solving and Discovery," ensuring quick and effective solutions that meet customer needs.

-Creating Value for Customers: Through digitalisation, quality management contributes to providing additional value to customers by improving communication and facilitating support processes via innovative digital platforms, thus enhancing their experience and providing more effective solutions.

Overall, the relationship between quality management and customers in the context of digitalisation lies in ensuring that digital changes do not negatively affect the customer experience but instead help to improve interaction and services provided, guaranteeing customer satisfaction and increasing the value delivered to them.

Based on the previous presentation, the relationship between sustainability and customer focus within the context of quality management and digitalisation can be summarized as follows:

-Sustainability and Quality Improvement: In the context of quality management and digitalisation, sustainability plays a pivotal role in enhancing product quality at delivery, which directly contributes to increasing customer satisfaction. By improving sustainable processes in the supply chain, errors and product damage are minimized, thus enhancing quality and customer satisfaction.

-Customer Interaction: Digitalisation, especially through digital solutions, enhances interaction between companies and customers. Within quality management, sustainability is an important factor in improving interaction by providing innovative communication platforms that support problem-solving and effective service delivery, which in turn improves customer experience and adds value.

-Leadership in Digital Initiatives: Within digitalisation, quality management takes a leadership role in initiatives like "Problem Solving and Discovery," ensuring quick and effective solutions that meet customer needs. Sustainability contributes to these initiatives by ensuring that sustainable digital solutions support customer satisfaction while minimizing environmental and social impacts.

-Encouraging Customer Participation: Sustainability motivates customers to participate in activities that create both economic and social value. Digitalisation can enhance this participation by providing open technologies and training programs, contributing to the building of social capital and fostering collaboration in the digital ecosystem.

The relationship between sustainability and customer focus in the context of quality management and digitalisation shows the importance of integrating sustainability into digital processes to ensure improved quality and customer satisfaction. Digitalisation provides tools to enhance communication with customers and encourages their participation in sustainability initiatives, strengthening the relationship between companies and customers and increasing loyalty and retention.

3. Methodology

This study relies on the descriptive analytical approach and structural equation modeling to examine the impact of economic, environmental, and social sustainability on customer focus in light of digitalisation and quality management in a sample of Algerian companies. The study relied on the following statistical methods and tools:

3.1. Sample and sampling technique

Due to the challenges of distributing and collecting questionnaires from the Algerian companies in the study sample, due to their widespread and dispersed nature, as well as the refusal of some companies to receive and fill out the questionnaire due to fears of information leakage and spying by competitors despite the explanations and guarantees provided to them, a convenience sampling method was used. The questionnaires were distributed to a sample of companies that offered help and support in filling out the questionnaires. The study included 57 companies active in Western Algeria, specifically in the cities of Mascara and Mostaganem. The questionnaires were distributed during the first three months of 2024.

This research employed convenience sampling, a method similarly adopted by other studies. For example, (Robert & Dwight, 2014) used this approach to study university students. (Park, Velez, Kannan, & Chorpita, 2020) also utilized convenience sampling to explore individuals' experiences and coping strategies related to the COVID-19 pandemic. Additionally, (Leiner, 2014) applied convenience sampling to collect opinions from voluntary participants, including undergraduate and doctoral students, through the SoSci panel, a well-known platform in Germany for creating questionnaires since 2011. Convenience sampling is one of the techniques detailed by (Saunders, Lewis, & Thornhill, 2012).

3.2. The study tool

This study relied on a questionnaire designed based on the available theoretical literature on the topic, especially the study of (Elg, Birch-Jensen, Gremyr, Martin, & Melin, 2021). The questionnaire was designed to include 2 items to measure the economic sustainability variable, 3 items to measure the environmental sustainability variable, 4 items to measure the social sustainability variable, 5 items to measure the customer-centricity variable, and 2 questions about the size and activity of the sample companies.

Based on previous studies and the methodology of the current study, a five-point Likert scale was used, which is limited between the answer 'strongly disagree' with a value of (1) and the answer 'strongly agree' with a value of (5).

3.3. Measurement instruments

To assess the reliability and validity of the study model according to structural equation modelling (SEM), a variety of statistical tools were used. These included factor loadings, Cronbach's alpha, composite reliability, and average variance extracted (AVE). In addition, discriminant validity was assessed using the Fornell-Larker criterion and the heterogeneous trait to monotrait ratio (HTMT). The explanatory power of the model was measured using the coefficient of determination (R^2) and effect size (F^2). To assess the fit of the model, indices such as the standardised root mean square residual (SRMR) and chi-square test (χ^2) were used. Finally, path coefficients were analysed to determine the strength and direction of the effect between the independent and dependent variables using T and P values.

This study relied on SPSS version 26 to extract descriptive statistics related to the companies (study sample), in addition to calculating the arithmetic mean and standard deviation of the study variables and paragraphs, while the rest of the statistical tests were based on Smart PLS 4.

4. Results and discussion

4.1. Results

4.1.1. descriptive statistics

Table 1 provides the descriptive statistics of the study sample, which includes 57 companies. It presents the distribution of companies based on their size in terms of the number of employees, as well as their classification by economic activity. This table helps in understanding the structure of the companies included in the study and their prevalence within different categories, contributing to analyzing the characteristics of the companies studied.

Table 1. Descriptive statistics for companies (study sample)

Characteristics		Frequency	Percent
Company sizes	Less than 10	14	24,6
	10-49 workers	23	40,4
	50-250 workers	17	29,8
	More than 250 workers	3	5,3
	Total	57	100,0
Company activity	Industrial	43	75,4
	Service	7	12,3
	Other	7	12,3
	Total	57	100,0

Source: Prepared by the researchers based on SPSS 26 output.

Based on Table 1, the distribution of companies according to their size shows that very small companies (fewer than 10 employees) constitute 24.6% of the sample, with a total of 14 companies. The largest category comprises companies with 10 to 49 employees, representing 40.4% of the sample, or 23 companies. Medium-sized companies, with 50 to 250 employees, rank second in distribution, accounting for 17 companies, or 29.8% of the total sample. Finally, large companies (more than 250 employees) are the least represented in the sample, with only 3 companies, making up 5.3% of the total.

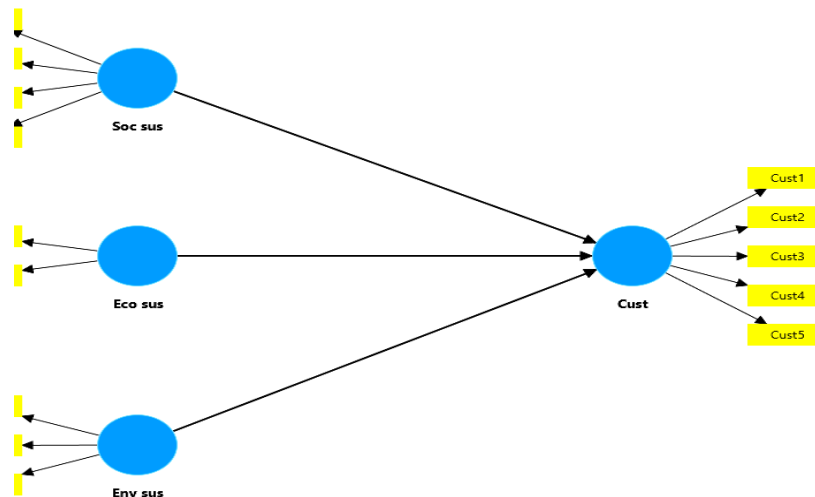
Table 1 also illustrates the distribution of companies by economic activity. Industrial companies form the largest share, comprising 75.4% of the sample, or 43 companies, highlighting the significance of this sector in the studied companies. In contrast, service companies account for only 12.3% of the sample, or 7 companies, the same percentage as other companies that do not fall under the industrial or service sectors, also totaling 7 companies. This distribution reflects the relative dominance of the industrial sector compared to other sectors.

Based on these findings, it can be concluded that most companies in the sample are small to medium-sized enterprises, with companies having fewer than 50 employees comprising approximately 65% of the total sample. This indicates that small and medium-sized enterprises dominate the study sample. Additionally, the industrial sector plays a major role in the economic activities of these companies.

4.1.2. Reliability and Validity Assessment

This section aims to assess the reliability and validity of the measurement model used in the study by analyzing factor loadings, Cronbach's alpha, and the average variance extracted. Evaluating these indicators is essential to ensure the accuracy of the tools used to measure different variables, such as economic, environmental, and social sustainability, as well as customer focus.

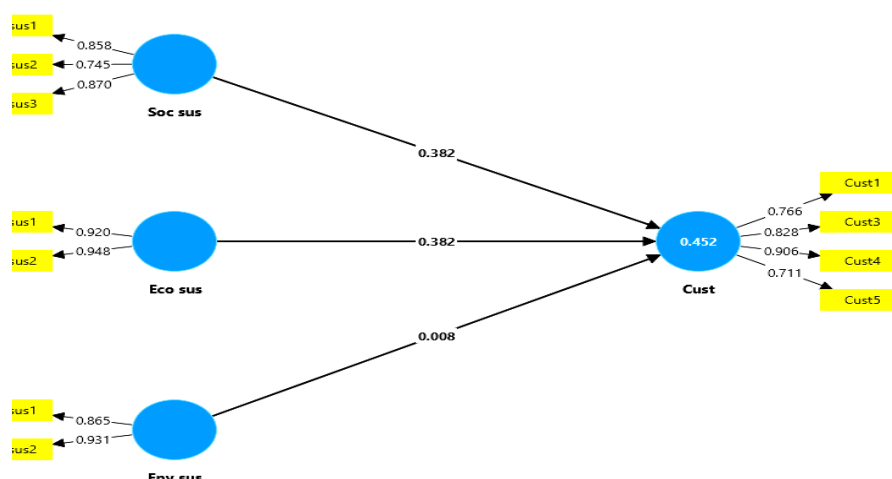
Fig.1. study model



Source: Prepared by the researchers based on Smart PLS 4 output.

To ensure model robustness, the model was run multiple times to evaluate factor loadings for each variable and analyze their relationships until the optimal model was found. Figure 1 shows the initial version of the model, while Figure 2 shows the final version, demonstrating its validity and reliability.

Fig.2. The result of structural model



Source: Prepared by the researchers based on Smart PLS 4 output.

4.1.2.1. Factor Loadings

Factor loadings reflect the degree of correlation between each item and the variable it measures, with values above 0.708 being preferable to ensure the validity of the item in measuring the variable (Hair, Risher, Sarstedt, & Ringle, 2019).

Based on Table 2, the factor loadings for economic sustainability were very high, with the first item scoring 0.920 and the second item scoring 0.948, indicating excellent measurement quality for this dimension. As for environmental sustainability, Table 2 shows that the factor loadings were 0.865 for the first item and 0.931 for the second item, indicating a strong correlation between the two items and the variable. For social sustainability, the factor loadings ranged from 0.745 for item two to 0.870 for item three, reflecting a good level of consistency in measuring this dimension. As for customer centricity, the factor loadings ranged from 0.711 for item five to 0.906 for item four, as shown in Table 2, which also indicates excellent measurement quality for this dimension.

Table 2. Measurement model.

Items	λ	α	CR	AVE	Mean	SD
Economic Sustainability		0.85	0.88	0.873		
Eco sus1	0.920				4,10	0,938
Eco sus2	0.948				4,28	0,796
Environmental Sustainability		0.76	0.82	0.807		
Env sus1	0.865				4,31	0,782
Env sus2	0.931				3,80	0,934
Social Sustainability		0.76	0.76	0.683		
Soc sus1	0.858				4,07	0,923
Soc sus2	0.745				4,15	0,774
Soc sus3	0.870				4,17	0,868
Customer Focus		0.81	0.84	0.650		
Cust1	0.766				3,89	1,029
Cust3	0.828				4,07	0,863
Cust4	0.906				3,84	1,014
Cust5	0.711				4,07	0,863

Note. CR=Composite reliability, α = Cronbach's alpha, AVE = Average variance extracted, λ = loading, SD=Standard deviation, Eco sus1, Eco sus2 are items of economic sustainability, Env sus1, Env sus2 are items of environmental sustainability, Soc sus1, Soc sus2, Soc sus3 are items of social sustainability, Cust1, Cust3, Cust4, Cust5 are items of customer focus.

Source: Prepared by the researchers based on SPSS 26 output (mean and SD), Smart PLS 4 (λ , α , CR, AVE).

4.1.2.2. Cronbach's Alpha

Cronbach's alpha is one of the most important indicators for measuring the internal consistency of items within each variable, with values above 0.70 considered a sign of good reliability (Nunnally & Bernstein, 1994).

Based on Table 2, the Cronbach's alpha for economic sustainability was 0.856, indicating a high level of internal consistency among the items, while environmental sustainability had a Cronbach's alpha of 0.767, which is an acceptable reliability level. For social sustainability, the Cronbach's alpha value was 0.765, reflecting an acceptable but slightly lower reliability

compared to other variables. Finally, the Cronbach's alpha for customer focus was 0.819, as shown in Table 2, demonstrating a high level of internal consistency among the items.

4.1.2.3. Average Variance Extracted (AVE)

The average variance extracted measures the proportion of total variance explained by the items of each variable, with values above 0.50 considered an indication of good discriminant validity (Henseler, Hubona, & Ray, 2016). Based on Table 2, the AVE for economic sustainability was 0.873, reflecting excellent quality in explaining total variance. The AVE for environmental sustainability was 0.807, as shown in Table 2, indicating a high level of discriminant and explanatory validity. Social sustainability had an AVE of 0.683, which is an acceptable level but lower than that of other variables. Lastly, the AVE for customer focus was 0.650, demonstrating that the items explain a good proportion of the total variance.

Based on Table 2, it is evident that the measurement model exhibits a good level of reliability and validity, as most factor loadings were high, indicating strong correlations between the items and their respective variables. Additionally, Cronbach's alpha values and AVE confirm the quality of the measurements, reinforcing the validity of the obtained results.

4.1.3. Evaluation of Model Validity and Structural Relationships

This section aims to evaluate the discriminant validity, explanatory power, effect size, and path coefficients of the research model. These evaluations were conducted using Smart PLS 4 and were based on established standards in structural equation modeling (SEM).

4.1.3.1. Discriminant Analysis Using the Fornell-Larcker Criterion

According to Table 3, the Fornell-Larcker Criterion demonstrates the discriminant validity among the variables in the study by comparing the square root of the Average Variance Extracted (AVE) for each variable with its correlations with other variables. This criterion requires that the square root of the AVE be greater than any correlation between the variables to ensure discriminant validity (Hair, Black, Babin, Anderson, & Tatham, 2006). According to Table 3, the square root of the AVE for the "Customer Focus" variable is 0.806, which is greater than its correlation with "Economic Sustainability" (0.586), "Environmental Sustainability" (0.488), and "Social Sustainability" (0.586), indicating that discriminant validity is achieved.

Table 3. Discriminant validity using Fornell-Larcker Criterion

	Customer Focus	Economic Sustainability	Environmental Sustainability	Social Sustainability
Customer Focus	0.806			
Economic Sustainability	0.586	0.934		
Environmental Sustainability	0.488	0.613	0.899	
Social Sustainability	0.586	0.522	0.644	0.827

Source: Prepared by the researchers based on Smart PLS 4 output.

For the "Economic Sustainability" variable, the square root of the AVE is 0.934, which is higher than its correlations with "Customer Focus" (0.586), "Environmental Sustainability" (0.613), and "Social Sustainability" (0.522), confirming its independence from other variables. The "Environmental Sustainability" variable has a square root of AVE of 0.899, which is greater than its correlations with "Customer Focus" (0.488), "Economic Sustainability" (0.613), and

"Social Sustainability" (0.644), reinforcing the validity of its distinction. Finally, the square root of the AVE for "Social Sustainability" is 0.827, which is higher than its correlations with the remaining variables, indicating that this variable also meets the discriminant validity requirement.

Based on these results, all variables fulfill the discriminant validity criterion according to the Fornell-Larcker method, supporting the reliability of the study model. This indicates that each variable measures a unique concept and does not significantly overlap with other variables, reinforcing the theoretical framework used in the study.

4.1.3.2. Discriminant Analysis Using the HTMT Criterion

According to Table 4, the Heterotrait-Monotrait Ratio (HTMT) criterion demonstrates the discriminant validity among the variables in the study. This criterion is based on comparing the ratio of the shared variance between different variables (Heterotrait) to the variance within the same variable (Monotrait). According to methodological guidelines, HTMT values should ideally be below 0.85 to ensure discriminant validity, while some studies consider 0.90 as the maximum acceptable threshold (Hair, Risher, Sarstedt, & Ringle, 2019). As shown in Table 4, the HTMT value for "Customer Focus" with "Economic Sustainability" is 0.687, with "Environmental Sustainability" is 0.599, and with "Social Sustainability" is 0.725, indicating that discriminant validity is achieved.

Table 4. Discriminant validity using HTMT.

	Customer Focus	Economic Sustainability	Environmental Sustainability	Social Sustainability
Customer Focus				
Economic Sustainability	0.687			
Environmental Sustainability	0.599	0.760		
Social Sustainability	0.725	0.647	0.821	

Source: Prepared by the researchers based on Smart PLS 4 output.

For the "Economic Sustainability" variable, the HTMT value between it and "Environmental Sustainability" is 0.760, and between it and "Social Sustainability" is 0.647, all within acceptable limits, confirming that this variable is distinct from the others. As for the "Environmental Sustainability" variable, the HTMT value between it and "Social Sustainability" is 0.821, which is within the acceptable range, further supporting the discriminant validity of this variable.

Based on these results, all variables meet the discriminant validity criterion according to the HTMT method, reinforcing the reliability of the study model. This indicates that the variables do not suffer from conceptual overlap, thereby supporting the accuracy of the proposed relationships in the research model. Consequently, these results can be relied upon to enhance the robustness of the statistical analysis and the conclusions drawn from the study.

4.1.3.3. R² estimation

The R² coefficient indicates the extent to which the independent variable explains the dependent variable in the study model. According to Hair et al (2019), R² is considered high if it is at 0.75, medium if it is at 0.50, and weak if it is at 0.25. The first two values indicate the model is able to explain a significant portion of the variance in the dependent variable.

Table 5. R² estimation.

	R²	Category
Customer Focus	0.452	Moderate

Source: Prepared by the researchers based on Smart PLS 4 output.

Based on Table 5, the R² value is 0.452, which indicates that the explanatory power of the model is in the medium category. This means that the independent variables of economic sustainability and environmental and social sustainability explain the changes that occur in the dependent variable of customer centrality to a moderate degree.

4.1.3.4. F² estimation

The F² coefficient is used to determine the extent to which each independent variable influences the dependent variable, helping to assess the strength of explanatory relationships within the research model. According to (Cohen, 1988), the effect is classified into three main categories: a large effect when its value exceeds 0.35, a moderate effect if it ranges between 0.15 and 0.35, and a small effect if it falls between 0.02 and 0.15, while a value of 0.00 indicates no significant effect.

Table 6. F² estimation

	f²	Category
Economic Sustainability → Customer Focus	0.159	Moderate effect
Environmental Sustainability → Customer Focus	0.000	No effect
Social Sustainability → Customer Focus	0.149	Small effect

Source: Prepared by the researchers based on Smart PLS 4 output.

Based on Table 6, the impact of "Economic Sustainability" on "Customer Focus" is moderate, with a value of 0.159, indicating the importance of this variable in explaining changes in customer focus. On the other hand, "Social Sustainability" recorded a small but significant effect, with a value of 0.149, suggesting its partial contribution to influencing customer focus. In contrast, "Environmental Sustainability" showed no significant effect, as its value was zero, indicating no clear influence on the dependent variable, Customer Focus.

4.1.3.5. Collinearity (VIF) of inner model

The Variance Inflation Factor (VIF) is a crucial statistical tool used to assess the presence of multicollinearity among independent variables. When the VIF value is less than 3, the model is considered free from multicollinearity, ensuring the independence of variables from each other and enhancing the reliability of statistical estimates (Hair, Risher, Sarstedt, & Ringle, 2019).

Table 7. Collinearity (VIF)- inner model-Matrix

	Customer Focus	Economic Sustainability	Environmental Sustainability	Social Sustainability
Customer Focus				
Economic Sustainability	1.675			
Environmental Sustainability	2.084			
Social Sustainability				

Social Sustainability 1.788

Source: Prepared by the researchers based on Smart PLS 4 output.

Based on Table 7, the values indicate the absence of a multicollinearity issue, as the VIF value for "Economic Sustainability" is 1.675, for "Environmental Sustainability" is 2.084, and for "Social Sustainability" is 1.788. These values reflect an acceptable level of independence among the variables, reinforcing the accuracy of the statistical analysis and ensuring the validity of explanatory relationships within the study model.

4.1.3.6. Model fit

Assessing model fit is a fundamental aspect of statistical studies, as fit indices help determine the extent to which the model aligns with actual data. The Standardized Root Mean Square Residual (SRMR) is one of the key measures for evaluating model quality, where values below 0.08 indicate a well-fitting model, while values close to this threshold are considered acceptable in some cases (Henseler, Hubona, & Ray, 2016).

Table 8. Model Fit

	Model	Estimated Model
SRMR	0.082	0.082
d_ ULS	0.444	0.444
d_ G	0.291	0.291
Chi-square	96.325	96.325
NFI	0.719	0.719

Source: Prepared by the researchers based on Smart PLS 4 output.

Based on Table 8, the SRMR value for both the Saturated Model and the Estimated Model is 0.082, which is approximately equal to the benchmark value of 0.08, indicating an acceptable model fit.

4.1.3.7. Path coefficient analysis

Path coefficient analysis is used to determine the significant effect of independent variables on the dependent variable, based on the P-value. When the P-value is less than 0.05, it indicates a significant effect of the independent variable on the dependent variable at a 5% significance level.

According to Table 9 and Fig 3, economic sustainability has a significant effect on customer focus, with a path coefficient of 0.382 and a P-value of 0.034, which is less than 0.05. Accordingly, hypothesis H₁ is accepted, indicating that economic sustainability significantly influences customer focus.

Table 9. Path coefficient

Paths	B	SD	T values	P values	confidence intervals		Decision
					2.5%	97.5%	
Economic Sustainability → Customer Focus	0.38	0.180	2.117	0.034	-0.049	0.663	H ₁ Accepted

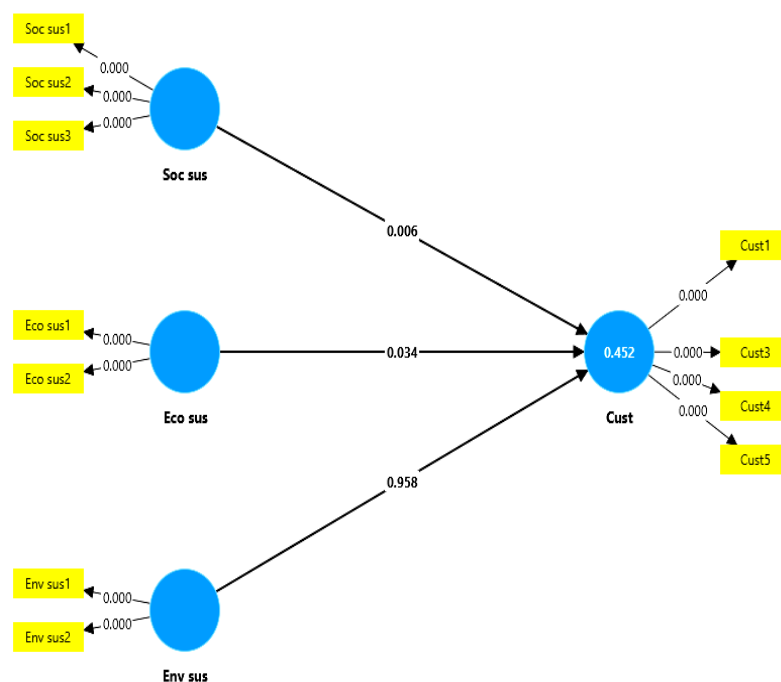
Environmental Sustainability → Customer Focus	0.00	0.162	0.052	0.958	-0.245	0.409	H ₂ Rejected
Social Sustainability → Customer Focus	0.38	0.138	2.766	0.006	0.094	0.631	H ₃ Accepted

Note. β = Path coefficient, SD= Standard deviation.

Source: Prepared by the researchers based on Smart PLS 4 output.

On the other hand, environmental sustainability does not have a significant effect on customer focus, as the path coefficient is 0.008 and the P-value is 0.958, which is greater than 0.05. As a result, hypothesis H₂ is rejected, indicating that environmental sustainability does not have a significant effect on customer focus.

Fig.3. The result of bootstrapping



Source: Prepared by the researchers based on Smart PLS 4 output.

Regarding social sustainability, it has a significant effect on customer focus, with a path coefficient of 0.382 and a P-value of 0.006, which is less than 0.05. Consequently, hypothesis H₃ is accepted, confirming that social sustainability significantly influences customer focus.

Based on these findings, it can be concluded that economic and social sustainability have a significant effect on customer focus, while environmental sustainability does not show a significant effect on customer focus.

4.2. Discussion

The current study indicates that the adoption of economic and social sustainability significantly contributes to enhancing companies' customer focus amid digitalisation and quality management. This finding is in line with the results of Bonfanti et al. (2025), Asha et al. (2023), and Joo & Shin (2018), which confirmed that sustainable practices—especially those focusing on the economic and social dimensions—enhance customer experience and generate economic and social value that benefits companies. The results suggest that investing in these aspects can

lead to improved business performance and competitive advantage, as demonstrated in the context of Algerian companies.

In contrast, the current study did not find a significant impact of environmental sustainability on customer focus, whereas Peng (2023) highlighted the importance of the environmental dimension in enhancing customer intention on sharing economy platforms. Additionally, Elg et al. (2021) emphasized the critical role of quality management in supporting digitalisation through a customer-centric approach. This discrepancy underscores the need to reexamine how the environmental dimension is measured and applied in specific contexts such as Algeria, calling for further research to achieve better integration among the different dimensions of sustainability.

5. CONCLUSION

In conclusion, the study's results indicate that adopting economic and social sustainability significantly enhances companies' customer focus, while the environmental dimension did not show a statistically significant effect. Based on these findings, it is recommended that business owners and quality managers focus on implementing economic and social sustainability practices by improving service quality and developing customer-centric marketing strategies to boost loyalty and achieve a sustainable competitive advantage.

Furthermore, the results suggest the need to reexamine the methods used to measure and apply the environmental dimension within the context of Algerian companies. Therefore, the study recommends further in-depth research to understand the factors that may hinder the impact of environmental sustainability on customer focus, and to develop an integrated model that encompasses all dimensions of sustainability, thereby contributing more effectively to achieving the objectives of digitalisation and quality management.

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6. Appendices

Table 1. Latent variables and its items

Latent variables	Items
Economic Sustainability	In addition to profit-making, your company contributes to reducing poverty by employing as many individuals as possible and improving their living standards. Your company implements projects that fulfill national needs or reduce dependence on a specific product or service (i.e., contributing to economic development in its field).
Environmental Sustainability	Your company offers products with specifications that help preserve the environment, such as using eco-friendly packaging. Your company uses renewable energy equipment to reduce the consumption of national resources and preserve them for future generations. Your company engages in waste recycling and reuse as part of its projects.
Social Sustainability	Your company implements its projects in accordance with the customs and traditions of the society. Your company strives to raise awareness among its employees about the importance of achieving sustainable development.

Customer Focus

Your company ensures justice and equality among its employees in recruitment, promotion, rewards, etc.

Your company seeks to employ women and ensures their protection, fairness, and equality with their male colleagues.

Your company focuses on the customer as the key driver in any digital initiative.

Your company develops quality management practices to better understand customer needs at every stage of the digitalisation process.

Your company enhances IT functions to improve understanding of customer needs.

Your company develops the necessary skills to provide better value to customers through digital initiatives.

The quality management department in your company develops real-time monitoring systems for product usage and warranty repairs.

Source: Prepared by the researchers based on some literature.