



**TECHNOLOGICAL INNOVATION AND
SUSTAINABILITY FOR BUSINESS
COMPETITIVE ADVANTAGE**

**COMPREHENSIVE
INSIGHTS IN
TECHNOLOGICAL
SUSTAINABILITY,
EDUCATION AND
BUSINESS**

Exploring Diverse Perspectives
and Impactful Strategies

**EDITED BY
ALLAM HAMDAN**

Comprehensive Insights in Technological Sustainability, Education and Business

TECHNOLOGICAL INNOVATION AND SUSTAINABILITY FOR BUSINESS COMPETITIVE ADVANTAGE

Series Editors: Allam Hamdan and Reem Khamis

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Comprehensive Insights in Technological Sustainability, Education and Business: Exploring Diverse Perspectives and Impactful Strategies

EDITED BY

ALLAM HAMDAN

Ahlia University, Bahrain



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About the Editor

Allam Hamdan is a Full Professor and is listed within the World's top 2% scientists list by Stanford University (2022–2025). He is the Dean of the College of Business and Finance at Ahlia University and is leading a mission driven process for International Accreditation for the college by AACSB. He achieved the highest (first) scientific research citation among the Arab countries according to Arcif for the last 7 years 2018–2024. He has been awarded the First Prize of Al-Owais Creative Award, UAE, 2019; 2017; the Second Prize of Rashid bin Humaid Award for Culture and Science, UAE, 2016; the Third Prize of Arab Prize for the Social Sciences and Humanities, 2015, in Qatar; and the First Prize of “Durrat Watan,” UAE, 2013. He is the Editor-in-Chief of the *Journal of Business and Socio-economic Development*. He is the Editor of book series titled “Technological Innovation and Sustainability for Business Competitive Advantage” in collaboration with Emerald.

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About the Contributors

Nisreen Riad Abdallah obtained a doctorate degree in media from the Department of Journalism at Cairo University in 2012.

Rola F. Abdallah has a master's degree in electrical engineering, specifically in Telecommunications from the University of Jordan, Amman, Jordan, in 2008. She joined UAEU in September 2013. She is currently an instructor in the electrical department at the College of Engineering. Before joining the College of Engineering, she had administrative positions at the University College, such as the head of the Developmental Instructional Unit in the academic year 2020/2021 and was the Math program coordinator from the year 2015 till the year 2020. Before the UAEU appointment, Ms. Rola worked in the College of Engineering at Al Ain University, besides teaching, she was in charge of nonacademic affairs, such as founding the Engineering Student Council, monitoring the University Electronic Forum, and organizing students' activities. She also worked at Ajman University of Science and Technology, Abu Dhabi University, and Khalifa University.

Nihad Ratib Abd Alrahman Al Awamrah has completed her qualifications in class teaching and is dedicated to advancing the field of education through innovative practices and research.

Mohammad T. Abu Al Wafa holds a master's degree in marketing with the interest of innovation marketing and consumer loyalty.

Qusai Isam Hasan Abu Fara, Master in Accounting from Zarqa University, Zarqa, Jordan, is interested in the fields of accounting and auditing, financial management, and the financial applications.

Professor Ibtehal Mahmoud Aburezeq is the Vice President for Development and Follow-up and the Dean of Student Affairs at Al Ain University in the United Arab Emirates. She holds a BA in Arabic Language and Literature, an MA in Curriculum and Instruction from the University of Jordan, and a PhD in Curriculum and Instruction from the University of Washington, USA. She previously worked at the University of Washington in Seattle and the Hashemite University in Jordan. Her research interests include teaching methods, instructional technology integration, and educational leadership. Her work has been published in national and international refereed journals and conferences. She has held several academic leadership roles, including Dean of Scientific Research and Graduate

Studies, and Dean of the College of Education. She received the Distinguished Researcher Award at Al Ain University.

Amer Omar Abu Salem is an Associate Professor at the Computer Center, Zarqa University, Jordan.

Fouz Abuzaid serves as the Curriculum Development Supervisor at the Saudi Arabian Drilling Academy (SADA) in Saudi Arabia. With a profound dedication to curriculum development, Dr Abuzaid has played a pivotal role in creating and enhancing educational programs specific to the drilling sector. Her work focuses on designing learner-centered curricula that incorporate innovative learning frameworks ensuring that trainees receive high-quality education aligned with industry needs.

Majdi Adheisat is an Assistant Professor at the Department of Educational Sciences, University of Petra, Amman Jordan.

Basheer A. Alalwan is a Professor at Al-Balqa Applied University, specializing in Physical Education. His research interests include volleyball, swimming, and sports administration, and he is dedicated to advancing knowledge and practical skills in these areas.

Khaled Tawfeq Al Assaf is interested in marketing information systems and marketing intelligence, with a focus on innovative and unconventional approaches.

Ali Ratib Alawamreh holds a PhD in Instructional Technology and serves as a faculty member at Zarqa University. His research interests focus on the integration of technology in education, particularly in the field of computer education. Dr Alawamreh is dedicated to exploring innovative methods for enhancing teaching and learning through digital tools and platforms, aiming to contribute to the advancement of instructional practices in both higher education and broader learning environments.

Khaled Aldheisat works at the Higher Education Accreditation Commission in Jordan. He leads the Arabic language team for learning disabilities initiatives targeting Syrian refugees and serves as an Accreditation and Quality Assurance Assessor for both the EFQM and Jordanian models.

Fatimah Mohammad AlHejoj is affiliated with the Ministry of Education, contributing to policy development and school supervision initiatives.

Hoda AlEslam Mohammad AlHejoj works at the Ministry of Education, focusing on educational development and academic support programs.

Mohammad Abdel Rahman Hasan AlHejoj is a faculty member at the World Islamic Sciences and Education University in Jordan, in the Arabic Language Department, College of Arts.

Shirin Abdallah Alimour, PsyD, is an Assistant Professor at Al Ain University, UAE, with 12 years of experience in Clinical Psychology, specializing in Clinical

Assessments, Psychological Disorders, Psychotherapy, and Cognitive Neuropsychology. In addition to clinical expertise, Alimour is actively engaged in advancing higher education frameworks. Her work explores how Artificial Intelligence (AI)-driven methodologies can enhance university rankings by incorporating mental health and well-being indicators into assessments of institutional excellence.

Abdessalam Aljaafreh is a Professor of Arabic Language Course Curricula, in the Class Teacher department in the school of educational sciences, at Zarqa University, Jordan.

Ali Alkhdour is affiliated with the University of Petra and has an interest in education research.

Hesham Alomyan is the Head of the Classroom Teacher Department at Petra University. His research focuses on enhancing learning experiences through innovative teaching strategies and the effective use of technology in education.

Reda S. M. Al-Mawadieh is the Dean of faculty of Educational Science, Zarqa University.

Khalil Al Qatawneh is a Professor of English education at Tafila Technical University (TTU) of Jordan. English learning and teaching, translation, instructional design, curriculum development, concept-based instruction, AI-based teaching and learning are among his priorities in research and education. He has published more than 30 articles in prominent journals in the field. Though primarily based at TTU, he worked for international, regional, and local universities, including Bridgewater State University of America, Dammam University of Saudi Arabia, and Amman Arab University of Jordan. As a certified translator, lately, he was awarded the Prize of Al Qarm for his translation of the book, "The Brain, The Story of You."

Abdullah Krieam Al-Qudah holds a PhD in Education Management and is a faculty member at Zarqa University. His research focuses on managing educational institutions, enhancing administrative strategies, and improving education system effectiveness through innovative approaches in organizational and leadership practices.

Ahmad Tawfig Al-Radaideh is an Assistant Professor at Jadara University, focusing on enhancing management practices through computer applications.

Abeer Mahmmod AlRaggad, a Lecturer at Zarqa University, holds a PhD in Curricula and Teaching Methods and a master's degree in Educational Administration. Her academic expertise focuses on curriculum development and innovative teaching strategies aimed at enhancing educational outcomes.

Nidal Al-Ramahi is the President of Zarqa University for Academic and Quality Affairs and a Professor in Accounting Information Systems. He has developed himself in the academic career as a successful Professor with more than 22 years of experience, to be involved and updated with the academic research work and

maintain a link to the corporate world through the experience that he gained by being a consultant and a trainer. Maintaining links with the corporate world helps to minimize the gap between academic teaching and corporate reality and enables him to help students to be successful in their career life.

Saja Zakaria Al-Rawash works in the Department of Health Management and Policy in Jordan. Her interests include quality assurance, healthcare technology, management, and preventive health strategies. She enjoys applying structured frameworks and engineering methodologies to achieve desired healthcare outcomes.

Sara Zakaria Al-Rawash, MSc in Finance from the University of Jordan, is an experienced academic and finance expert. With a background in teaching corporate finance, investment management, and Islamic finance, she has served as a Lecturer at the University of Jordan and contributed to curriculum development. Her research focuses on corporate performance and ownership structures, with publications in leading journals. Passionate about integrating innovative financial models in educational systems, she is dedicated to contributing to the evolution of university rankings by incorporating new performance metrics and enhancing financial literacy in academia.

Jafer Ahmad Al Salaheen teaches at Zarqa University and has a keen interest in educational philosophy, exploring the underlying principles and theories that shape educational practices.

Mahmoud Jamil Abdullah Al Salti is affiliated with Al-Zaytoonah University and has an interest in Islamic studies.

Wael Alsarawi holds a master's degree in marketing with the interest of social media and its impact on purchasing decision for residential property.

Eng. Anas Alshaheen is a Technical Trainer at the SADA, where he brings extensive industry experience and technical knowledge to his role. He plays a key part in training future professionals for the oil and gas sector. Eng. Alshaheen is committed to delivering practical and hands-on training that equips trainees with the skills and competencies required to excel in real-world drilling environments. His approach emphasizes safety, efficiency, and adherence to industry best practices, ensuring that trainees are well-prepared to meet the demands of the field.

Mustafa S. Al-Shaikh holds a PhD in marketing as a faculty member at Zarqa University. His research interests focus on the digital marketing. Al Shaikh is dedicated to exploring innovative methods for enhancing teaching and learning through digital tools and platforms, aiming to contribute to the advancement of instructional practices in both higher education and broader learning environments.

Husni Khalil Jamil Al-Shattarat is an Associate Professor in Accounting/Financial Accounting, at Zarqa University.

Eman Mohammad Al-Taharwah is a PhD holder in Business Administration with over 16 years of experience in academia and administration. Since 2020, she has served as Head of the Companies Registry Department at the Jordanian Social Security Corporation. She is known for her accuracy, organizational discipline, and continuous pursuit of learning and development.

Mohammad Saleem Al-Zboon is a Professor of Educational Foundations and a specialist and researcher in the field of education, with a focus on socialization, cultural issues, psychological aspects, political education, and moral education. Dr Al-Zboon has made significant contributions to contemporary educational thought, authoring several books that explore topics such as citizenship education and offering an in-depth introduction to the field of education. He is recognized as one of the leading figures in educational research, particularly in the areas of social development and ethical and political education.

Mamon Saleem Alzboun is an Assistant Professor in the Department of Curriculum and Instruction, Faculty of Educational Sciences, at Al-Balqa Applied University in Jordan. He has a strong academic background and has conducted numerous research studies in the field of curriculum and instruction. Dr Alzboun is recognized for his expertise in educational research and has made significant contributions to advancing knowledge in this field. He is committed to improving the quality of education through both his research and teaching.

Khaled Alzeaideen is interested in improving the use of social media tools by companies and individuals to enhance communication and outreach.

Mohammad Ahmad Abdelaziz Al-Zu'bi is an Associate Professor at the Early Childhood Department at Zarqa University, Jordan.

Ahlem Bartkiz is a Medical Biologist working in the Clinical Biochemistry Laboratory in Charles Nicolle Hospital, Tunis, Tunisia, with more than 14 years of experience. She is involved in several works concerning the preanalytical phase in medical testing.

Amira Ben Sassi is a PhD student leading a research work in the Biochemistry Laboratory of Charles Nicolle Hospital; she is involved into the training of interns in the sampling unit.

Ruaa Binsaddig is a faculty member at the College of Business Administration, University of Business and Technology in Saudi Arabia. She holds a PhD in corporate finance with research interests in capital structure, dividend policy, cash holdings, financial reporting, and corporate governance.

Kahena Bouzid is a Professor in Clinical Biochemistry and former Head of the department of clinical Biochemistry in Charles Nicolle Hospital, Tunis, Tunisia. She's also Lead Auditor ISO 9001:2015. With an experience of 22 years, she is leading and supervising several studies and professional research masters in quality management and urinary lithiasis. She has research papers published in international indexed journals.

Reema Wajeih Daraghma is a faculty member in the Department of Technology Education at the Faculty of Arts and Education, Palestine Technical University – Kadoorie.

Abdelhamid Deeb holds a master's degree in marketing with the interest of Relationship Marketing and Customer Loyalty, product quality, employee efficiency, communication, and commitment.

Fawzi F. Dweikat is a Professor and the Dean of School of e- Education at Hamdan Bin Mohammed Smart University (HBMSU) with a distinguished experience in the field of accreditation and quality assurance as he contributed to the preparation, development, review, and evaluation of many academic institutions and programs that received international and local accreditations through: CAA, MSCHE, ABET, AACSB, NASAD, and CAEP. Prior to joining HBMSU, he was the Manager of Educational Effectiveness at Zayed University and dual responsibilities of the Deputy Dean of the College of Education as well as the Head of Professional Diploma in Teaching at Al Ain University. He received his PhD in Instructional Technology from the University of Washington, USA. He has taught and developed a wide range of educational courses for multicultural and multi-level students in the United States, Jordan, and UAE. He maintained a research agenda includes learning assessment, professional development, blended learning, cloud computing, and mobile learning. His work has been published and presented in many leading educational journals and conferences.

Imane EL Imadi is a Professor of English at Hassan II University in Casablanca, Morocco. Her research focuses on education and technology, particularly in areas such as virtual exchange, English for specific purposes, discourse analysis, and educational media. She is currently researching topics like distance learning, hybrid learning models, flipped classrooms, and emerging technologies such as MOOCs, mobile learning, blockchain, and the metaverse.

Abdul Rahim El-Sharif is a Professor of Fundamentals of Islamic Religion, the Faculty of Sharia at Zarqa University, Jordan.

Zaineb Ghanmi is holding a master's degree in biotechnology and management of health industries from the Institute of Medical Technologies of Tunis. She was a trainee into the biochemistry laboratory of Charles Nicolle Hospital.

Khitam Ibraheem Hamarsheh works in the Educational Supervision Department at the Directorate of Education in Jenin, affiliated with the Ministry of Education. She focuses on supervising and developing teaching practices in public schools.

Mohammad Kanan is an Associate Professor with a PhD in Industrial Engineering from Wichita State University. Currently the Vice Dean of Scientific Research at the University of Business and Technology, he oversees research initiatives and funding. A skilled educator and researcher, Dr Kanan specializes in statistical quality control and supply chain management.

Ashraf Fouad Kan'an is a Professor at Zarqa University, specializing in Science Curriculum and Teaching Methods. He obtained his PhD in Science Curriculum

and Teaching Methods from the National University of Malaysia (UKM) in Selangor, Malaysia, in 2015. Dr Kanaan also holds a Master's degree in Science Curriculum and Teaching Methods from Yarmouk University in Irbid, Jordan, which he completed between 2003 and 2006. Additionally, he earned a Bachelor's degree in Biological Sciences from the Faculty of Science at Mutah University in Karak, Jordan. Dr Kanaan has a strong academic background and is highly experienced in the field of science education.

Khaled Lajmi is a health practitioner specialized in clinical biology holding a master's degree in quality management with an experience of 11 years. He is charged to be quality manager in biochemistry laboratory between 2021 and 2024. He participated into several scientific posters about quality management presented during national and international events. He was charged to teach quality of healthcare and patient's safety in several occasions.

May Mohadat teaches at an Islamic university, specializing in education and contributing to the development of educational practices within that context.

Samia Musleh, an Assistant Professor at Zarqa University, is interested in education research, focusing on student evaluation and assessment.

Abdallah Mishael Obeidat is a Lecturer at Jadara University, specializing research in business and management in IT. His research interests encompass the impact of AI, as well as organizational and environmental factors on strategic planning.

Mahmoud Odeh is an Associate Professor at Zarqa University. He completed his higher education and PhD at Reading and Coventry University, UK. Mahmoud holds more than 15 years' experience in both the practical and academic fields, with 56 international certificates in servers, computer virtualization, smart machine simulation, and cloud computing. The rapid evolution of cloud computing technology inspires his current research, primarily focusing on the implementation of innovative technology.

Kholod Naser Olimat is an Assistant Professor at Zarqa University, specializing in English language, with a particular interest in methods of teaching English.

Emad Qabalan holds a master's degree in Marketing with the interest of Satisfaction in the Relationship Between the Image and Customers' Loyalty.

Nayel Musallam Ramadnah has completed his studies in Education Management and is focused on enhancing educational management through the use of information communication technology.

Hassan Najib Rawash is an Assistant Professor at MIS Dept., at Jadara University, with the interest in Electronic Human Resources Management.

Nidal Aowad Kassab Shdaifat is an Assistant Professor in the Department of Educational Sciences, Zarqa University.

Sameer Aowad Kassab Shdaifat works in the Department of Educational Sciences as an Association Professor at Balqa'a Applied University/Huson college.

Hazem Khaled Shehadeh is an Associate Professor in the Department of Business Administration, Faculty of Economics and Administrative Sciences, Zarqa University, Jordan. He holds a PhD in Business Administration from Adamson University. He has published more than 40 research papers in various journals. His research interests include business intelligence, supply chain management, and human resource management. Shehadeh is dedicated to exploring innovative approaches in operations research and total quality management to improve the private sector and corporate governance.

Foreword

It is with great pleasure that I introduce this comprehensive work titled “Comprehensive Insights in Technological Sustainability, Education and Business: Exploring Diverse Perspectives and Impactful Strategies.” In an era marked by rapid technological advancements and the growing importance of sustainability and education in the business world, this book emerges as a timely and insightful resource.

With 23 chapters covering a wide array of topics, this book promises a deep dive into diverse perspectives and impactful strategies essential for navigating the complexities of the modern business landscape. The contributors, experts in their respective fields, have come together to offer a wealth of knowledge and practical insights that will undoubtedly benefit scholars, practitioners, and students alike.

As we embark on this journey through the intersections of technology, sustainability, education, and business, I encourage readers to engage critically with the ideas presented, to reflect on the implications for our rapidly evolving world, and to consider how we can collectively shape a more sustainable and prosperous future.

May this book serve as a guiding light, illuminating new pathways for innovation, collaboration, and positive change. I extend my gratitude to the authors, editors, and all those involved in bringing this valuable collection of work to fruition.

Prof Nidal Al-Ramahi
President
Zarqa University - Jordan

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Preface

This book represents a collaborative effort to delve into the intricate connections between technology, sustainability, education, and business in the contemporary landscape.

With 23 chapters meticulously crafted by experts in their respective fields, this book offers a panoramic view of the challenges and opportunities that arise at the intersection of these critical domains. From innovative technological solutions to sustainable business practices and transformative educational approaches, the chapters within this book seek to inspire, inform, and provoke thoughtful discourse.

We extend our sincere gratitude to the contributors whose expertise and dedication have enriched this book and made it possible. May the insights shared within these pages spark new ideas, collaborations, and innovations that pave the way for a brighter tomorrow.

Best regards,

Editor

Allam Hamdan

Dean, College of Business and Finance,
Ahlia University, Bahrain

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Chapter 1

The Impact of Innovation Marketing Elements on Consumer Loyalty: A Case Study for the First Engineer Company for Technology Solutions – State of Qatar

*Mustafa S. Al-Shaikh^a, Mohammad T. Abu Al Wafa^a,
Mohammad Kanan^b, Khaled Tawfeq Al Assaf^a
and Ali Ratib Alawamreh^a*

^aZarqa University, Jordan

^bUniversity of Business and Technology, Saudi Arabia

Abstract

The purpose of this chapter is to know the effect of the elements of innovative marketing in achieving customer loyalty, and it includes independent variables of innovative marketing elements (innovative product, innovative distribution, innovative promotion, innovative pricing) and the dependent variable of customer loyalty. This was achieved through the descriptive analytical method was used by the researchers; because it is pertinent to the study's purpose, a method for gathering data, a questionnaire was created. The study sample was selected from the customers of the First Engineer Company. It including (400) a questionnaire. The most important result mentioned there is an impact of the elements of innovative marketing (innovative product, innovative distribution, innovative promotion, innovative price) on achieving customer loyalty to the First Engineer. The two variables have a high positive correlation with one another: 44% of customer loyalty is due to innovative promotion and the explanatory power of the price innovation variable amounted to approximately (27.4%). This indicates that the variable "innovative promotion" has the largest explanatory power on the dependent variable "customer loyalty achievement." The study recommended

conducting studies to identify innovative promotion methods and employ highly qualified and experienced cadres in the field of sales.

Keywords: Responsible consumption and production; innovation marketing; customer loyalty; first engineer company for technology solutions; innovation pricing; Qatar

1. Introduction

In view of the rapid changes, the world is witnessing at all levels, the need for innovation has emerged to ensure survival in the markets and to achieve a competitive advantage. Innovative marketing is also considered one of the basic pillars of any development and excellence in the organization, as it allows for achieving a competitive advantage in order to win customer loyalty through the elements of the creative marketing mix due to its significance and advantageous effects on the organization. The elements of innovative marketing are innovative product, innovative distribution, innovative promotion, and innovative pricing (Abu Qahf, 2003). Innovative marketing is one of the most crucial strategies for overcoming obstacles, adjusting to modern advancements, and responding to shifting needs and demands in order to ensure client loyalty and happiness (Khult, 2014).

This study's goal is to determine how innovative marketing strategies affect the First Engineer company customers' loyalty, by clarifying the services provided and the extent of innovation in them. Innovative marketing is one of the most crucial contemporary marketing strategies that helps businesses grow their market shares, which has a direct or indirect effect on consumer loyalty, which is the intended outcome of this study, and provide services and create enduring relationships with clients. Hence, the present chapter attempts to answer the question: Do the elements of innovative marketing affect customer loyalty? From the foregoing, this is one method to formulate the study's problem. Does the innovative product, innovative distribution, innovative promotion, and innovative price affect customer loyalty of the First Engineer Technology Solutions Company?

This study's goal is to determine the effects of innovative marketing elements (innovative product, innovative promotion, innovative distribution, and innovative price) on customer loyalty.

2. Study Importance

The importance of scientific study is in introducing institutions and researchers to the concept of innovative marketing and clarifying its elements, due to its importance in the field of marketing research, which has become very dependent on this type of concept, in addition to providing libraries with research contributions in the field of innovative marketing elements and their impact on customer loyalty. Regarding the useful aspect, the significance of the chapter

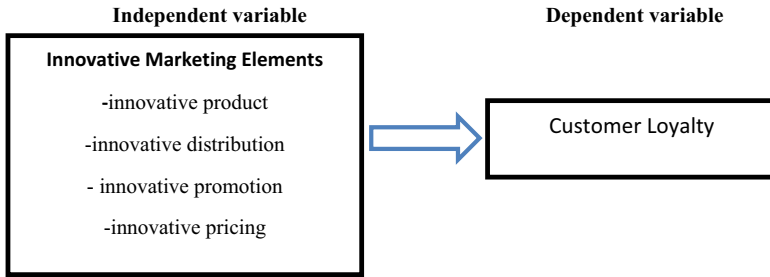


Fig. 1.1. Study Model.

appears due to the urgent need to conduct a case study for the senior engineer technology to make clear how innovative marketing affects gaining consumer loyalty.

3. Model of the Study

The model was created based on the studies of [Al-Foqaha & Azzam \(2021\)](#), [Al-Shaikh \(2013\)](#), [Kyei & Bayoh \(2017\)](#); [Shahwan \(2018\)](#), and [Shahwan & Abdel-hamid \(2020\)](#)) as shown in Fig. 1.1.

4. Theoretical Framework

- *Innovative marketing*: It is the creation and execution of a series of creative ideas, turning them into workable applications in one of the marketing mix’s components ([Fadel, 2018](#)). Innovative marketing is defined procedurally as the organization’s ability to create new ideas based on mixing the elements of innovative marketing in an innovative way that would develop marketing activities in the organization.
- *Customer loyalty*: Is a deep commitment by the customer to repurchase a specific product that he/she prefers, and this customer recommends others to buy it with a strong tendency, and does not switch from this product, even in the event of promotional methods aimed at distancing the customer from this product in favor of other products ([Muhammad Mansour Abu Jalil, 2014](#)). Customer loyalty is defined procedurally as the customer repeating the purchase process from the same company and preferring its products, regardless of offers from competing companies.
- *Innovation in the product*: It is defined as the ability of the organization to provide products that are completely new or to make additions or adjustments, whether traditional or few, to current goods or improving them so that they differ from existing products to one degree or another. Product innovation is described procedurally as making changes within the product design or creating a unique new product ([Murabai, 2016](#)).

- *Innovative price*: It is defined as providing better quick offers to customers, and this expresses improvements in a way that exceeds competitors, which is reflected in the cost and thus in the price or is reflected in the quality at a cost that is less than the added value in favor of the customer. Innovative pricing is defined procedurally as the use of unconventional methods in pricing the organization's products (Najm, 2003).
- *Innovative promotion*: It is defined as the effective tool in facilitating the exchange process, by informing customers about the company's products and their nature, through its various means that would give a clear perception of the company, and the reality and importance of its products to customers. Procedurally, innovative promotion is defined as any modern marketing communication techniques using informing or persuading target audiences of the relative advantages of a product or brand (Saudi & Bougherra, 2015).
- *Innovative distribution*: It is defined as the action of sending goods to the customer or industrial user through groups of individuals and institutions through which the temporal, spatial, and possession benefit of the goods is created. Innovative distribution is defined as creating new and novel approaches in the process of getting things to consumers (Mualla & Tawfiq 2015; Abu Jumaa 2003).

5. Previous Studies

The study of Yoo & Bai (2003) concluded that there is a large effect of innovation in the types of the marketing mix developed on the quality of hotel services, and this effect is due to marketing innovation in (the physical environment, marketing innovation in individuals, operations). The study of Bella (2019) showed the existence of a relationship between marketing innovations and its elements (innovation in the service product, pricing, promotion, distribution, physical environment, operations, individuals) which is a crucial part in strengthening the advantage over rivals, especially innovation in service product. And a study by Al-Akhras (2019) shows that innovative marketing contributes to the company obtaining a larger market share and increasing sales volume and profitability by meeting the desires of customers. Al-Sarhan (2015) concluded that there is a link between successful customer happiness and innovative marketing. A study by Tarif & Ben Sassi (2015) concluded that there was an effect of innovation in the elements of advertising and personal selling on the speed of spreading this new offer while there was no effect of the remaining two elements of stimulating sales and direct marketing on the speed of spreading the smartphone offer "Lenovo" among consumers. The study of Sadiq (2015) showed that most of the studied organizations are keen to acquire technological knowledge through the new products they offer to customers, as well as their interest in new customer trends through the information provided by innovative marketing. Al-Hawary and Ahmad (2018) and Eyad (2019)'s findings indicated that the improvement of effective communication and service quality is a key mediator for boosting loyalty to bank clients. Moreover, Marin Garcio et al. (2023)'s findings show that

innovation in technology promotes sustainability. A lively component of the retailer's reputation and customer happiness is suggested to be sustainability. Depending on the commercial format, the strength of these connections may change. Alzoubi et al. (2022)'s findings corroborated all of our hypotheses, demonstrating that there is a strong connection between using BLE technology to increase customer happiness, which encourages customers to become loyal to the business over time. Our research's findings demonstrated how the usage of beacon technology in marketing techniques had a favorable impact on consumer happiness and loyalty.

6. Methodology

6.1 Population and Sample

The participants in the study were people who had used the First Engineer. As for the study sample, the study population was intentionally sampled, who are the customers of the First Engineer Company. To achieve this goal (400), the study population received questionnaires. A total of 341 questionnaires were found, and the retrieval of (59) surveys was unsuccessful, as the proportion of retrieving questionnaires reached (85%) of the overall questionnaires. Thus, the number of questionnaires that can be analyzed becomes (341).

6.2 Hypothesis

H0. No statistically meaningful influence exists ($\alpha \leq 0.05$) in the elements of innovative marketing on customer loyalty. From the main hypothesis, we derive the sub-hypotheses:

H01. No statistically meaningful influence exists ($\alpha \leq 0.05$) between the innovative product component and customer loyalty.

H02. No statistically meaningful influence exists ($\alpha \leq 0.05$) between the element of innovative distribution and customer loyalty.

H03. No statistically meaningful influence exists ($\alpha \leq 0.05$) between the element of innovative promotion and customer loyalty.

H04. No statistically meaningful influence exists ($\alpha \leq 0.05$) between innovative pricing component and customer loyalty.

6.3 Testing Hypothesis

The main hypothesis (*H0*): No statistically meaningful influence exists ($\alpha \leq 0.05$) of the elements of innovative marketing on loyalty of the customer. To verify the theory, a multicollinearity test had been. The outcomes are shown in [Table 1.1](#):

The following key hypothesis was tested at the significance level of 0.05:

- When the computed *F* value was compared to the tabular *F* value, it was discovered that the calculated *F* value is (67.5) that exceeds its tabular value

Table 1.1. Shows the Outcomes of the Investigation Using Multiple Linear Regression.

DV	R	R ²	F	Sig.	IV	B	T	Sig
Customer loyalty	0.667	0.446	67.5	0.001	Innovative product	0.153	2.813	0.005
					Innovative distribution	0.258	5.325	0.001
					Innovative promotion	0.196	3.569	0.001
					Innovative price	0.092	1.725	0.085

Source: Author’s own.

(2.42) and the fact that there is a statistically significant relationship between the independent factors added together and the dependent variable serves as evidence.

- Compare the test’s level of significance to the study’s approved level of significance. To demonstrate a statistical effect’s presence, the level of significance for *F* reached (0.001), which is lower than the level of significance used in the study and has a value of 0.05, according to [Table 1.1](#).
- As a result, the alternative is accepted and the primary null hypothesis is rejected: “There is a statistically significant effect at a significant level ($\alpha \leq 0.05$) of the innovative product element on customer loyalty to Al-Muhandis Company.”
- Is inferred by the value of *R*; to show that there is a relationship between the independent and dependent variables, through [Table 1.1](#), the correlation coefficient was calculated to be (0.667), which is greater than (0.5) and shows a strong positive correlation between the independent variables (product innovation, distribution innovation, promotion innovation, and price innovation) and the dependent variable (achieving customer loyalty) [24].
- The findings demonstrated that the independent factors taken together have explanatory power: (product innovation, distribution innovation, promotion innovation, price innovation), regarding the dependent variable (achieving customer loyalty) and its value (44.6%), and it was assumed based on the determination coefficient *R*² value of 0.446. The table also makes it obvious that the independent variables’ degree of significance value is significant. Innovation in product, innovation in distribution, innovation in promotion, and innovation in price) at the significance level are statistically significant (0.05), which are, respectively, (0.005, 0.001, 0.001, 0.085). In order to identify which of the independent variables is more explanatory for the dependent variable, the analysis of gradient line regression was employed, as the test arranges the variables descending from the strongest explanation to the

Table 1.2. Results of the Stepwise Linear Regression Study to Test the Central Premise.

Model	Innovative Marketing	R	R ²	F	Sig.
1	Innovative product	0.597	0.356	187.514	0.001
2	Innovative distribution	0.651	0.424	124.527	0.001
3	Innovative promotion	0.664	0.441	88.49	0.001
4	Innovative price	0.524	0.274	128.165	0.001

Source: Author’s own.

weakest; To show the variables that explain the most, then the least, the outcomes of the linear gradual regression are shown in Table 1.2.

The outcomes of the test for linear regression in Table 1.2 indicated that the independent variables were divided into four groups classified according to the explanatory power of each group, approximately (42.4%). As for the third group, “innovation in the product” was formed into the “customer loyalty” variable and thus the explanatory ability of the second group increased to approximately (35.6%). As for the last of the groups, it was formed by adding the variable “innovation in price” to the group, customer loyalty, to raise the explanatory power to (27.4%);thus, the variable “innovation in price” is considered the least explanatory among the dimensions of the variable: “marketing innovation” over the variable: “customer loyalty.”

- First sub-hypothesis (H01): At the substantial level, there is no statistically significant impact ($\alpha \leq 0.05$) of the innovative product component on customer loyalty to the engineering company. To test the hypothesis, a straightforward linear regression test was employed. The test results are shown in Table 1.3:

The estimated value of *t* is higher than the tabular *t* (1.96), as shown in Table 1.3; this proves that there is a large effect between the variable of product

Table 1.3. Results of the First Sub-Hypothesis’s Basic Linear Regression Test.

DV	R	R ²	IV	B	t	T	Sig.
Customer loyalty	0.564	0.318	Innovative marketing	0.507	1.96	12.567	0.001

Source: Author’s own.

innovation and the variable of achieving customer loyalty. The significance level for the value of t was (0.001), which falls short of the value of the degree of importance intended in the study, which amounted to 0.05, and consequently, we accept the alternative hypothesis and reject the original sub-null hypothesis. “There is a statistically significant impact at a significant level ($\alpha \leq 0.05$) of the innovative product element on customer loyalty to Al-Mohandes Company.” It is noted that there is a positive relationship between the “elements of innovative marketing” and the variable “achieving customer loyalty,” as the correlation coefficient was $R = 0.564$, and the innovation variable in the product explains 0.31.8% of the dependent variable, which represents the coefficient of determination $R^2 = 0.318$ for the two variables. It is noted that the value of $B = 0.507$ indicates the amount of change that is expected to occur in the dependent variable, if there is a change of one unit in the independent variable. We infer from the value of B that an increase of one unit in the variable “product innovation” corresponds to an increase of 0.507 in the dependent variable “achieving customer loyalty.”

- The second sub-hypothesis: $H02$ At the substantial level, there is no statistically significant impact ($\alpha \leq 0.05$) of the element of innovative distribution on customer loyalty to the engineering company. The results of using a straight-forward linear regression test are displayed in [Table 1.4](#).

The table demonstrates that the computed t value exceeds the tabular t ; this demonstrates that the relationship between the variable “innovation in distribution” and the variable “achieving customer loyalty” is considerable. The level of importance for the value of t was also (0.001), which falls below the value of the level of significance that the study intends to use, which equaled 0.05. Accordingly, we accept the alternative theory while rejecting the second sub-null hypothesis: “There is a statistically significant effect at a significant level ($\alpha \leq 0.05$) of the element of innovative distribution on customer loyalty to the engineer’s company.” It has been shown that there is a favorable correlation between “innovation in distribution” and the variable “achieving customer loyalty,” as the correlation coefficient was $R = 0.597$, and the innovation variable in the distribution explains 35.6% of the dependent variable, and it represents the correlation coefficient $R^2 = 0.356$ for the two variables. It is noted that the value of B

Table 1.4. Results of the Second Sub-Hypothesis’s Basic Linear Regression Test.

DV	R	R^2	IV	B	t	T	Sig.
Customer loyalty	0.597	0.356	Innovative distribution	0.595	1.96	13.694	0.001