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of Master's degree in «Marketing Management»**

**The Impact of Technological Innovation 5G on Consumer
Choice Intention: The Mediating Role of Brand Image in the
Case of Djezzy**

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Abstract

This study examines the impact of 5G technological innovation on consumer choice intention, and investigates the mediating role of brand image, with specific reference to Djezzy in the Algerian telecommunications market. Three dimensions of 5G innovation are considered: network performance, connectivity capability, and technological integration. A quantitative approach was adopted, based on a structured questionnaire administered to a sample of 166 Djezzy customers. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that 5G technological innovation positively influences consumer choice intention toward Djezzy, with brand image playing a significant partial mediating role in this relationship. These findings offer actionable recommendations for telecom operators seeking to leverage technological innovation as a strategic brand-positioning tool in developing markets.

Keywords: 5G technological innovation, brand image, consumer choice intention, PLS-SEM, Djezzy, Algeria.

Résumé

Cette étude examine l'impact de l'innovation technologique 5G sur l'intention de choix du consommateur, et analyse le rôle médiateur de l'image de marque, en référence à Djezzy sur le marché algérien des télécommunications. Trois dimensions de l'innovation 5G sont opérationnalisées : la performance réseau, la capacité de connectivité et l'intégration technologique. Une approche quantitative a été adoptée, basée sur un questionnaire structuré administré à un échantillon de 166 clients Djezzy. Les données ont été analysées par la méthode PLS-SEM. Les résultats indiquent que l'innovation technologique 5G exerce un effet significatif sur l'intention de choix du consommateur envers Djezzy, avec un rôle médiateur partiel mais significatif de l'image de marque dans cette relation. Ces résultats offrent des recommandations pratiques aux opérateurs télécoms souhaitant exploiter l'innovation comme levier stratégique de positionnement dans les marchés en développement

Mots-clés : Innovation technologique 5G, image de marque, intention de choix du consommateur, PLS-SEM, Djezzy, Algérie.

ملخص

تسعى هذه الدراسة إلى فحص أثر الابتكار التكنولوجي لشبكات 5G على نية اختيار المستهلك، وتقصي الدور الوسيط لصورة العلامة التجارية، بالإشارة إلى شركة Djazzy في السوق الجزائري للاتصالات. تم تشغيل ثلاثة أبعاد لابتكار 5G: أداء الشبكة، وقدرة الاتصال، والتكامل التكنولوجي. اعتمدت الدراسة منهجاً كمياً قائماً على استبيان موزع على 166 عميلاً من عملاء Djazzy، وجرى تحليل البيانات باستخدام PLS-SEM. تشير النتائج إلى أن الابتكار التكنولوجي 5G تؤثر تأثيراً إيجابياً ومعنوياً على صورة العلامة، التي تؤثر بدورها على نية اختيار المستهلك تجاه Djazzy. تبين أن صورة وسيط جزئي بين أبعاد الابتكار ونية الاختيار. تقدم هذه النتائج توصيات عملية لمشغلي الاتصالات العلامة تؤدي دور لتوظيف الابتكار كأداة استراتيجية للتموضع في الأسواق الناشئة.

الكلمات المفتاحية: الابتكار التكنولوجي 5G، صورة العلامة التجارية، نية اختيار المستهلك، PLS-SEM، جيزي، الجزائر.

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List of Abbreviations

AI	:Artificial Intelligence
AMPS	:Advanced Mobile Phone System
AVE	:Average Variance Extracted
CDMA	:Code Division Multiple Access
CR	:Composite Reliability
CRM	:Customer Relationship Management
CSR	:Corporate Social Responsibility
DOI	:Diffusion of Innovation
EDGE	:Enhanced Data rates for GSM Evolution
eMBB	:Enhanced Mobile Broadband
EKB	:Engel-Kollat-Blackwell
FNI	:Fonds National d'Investissement (National Investment Fund)
GSM	:Global System for Mobile Communications
HD	:High Definition
HTMT	:Heterotrait-Monotrait Ratio
IBM	:International Business Machines
ICT	:Information and Communication Technologies
IMT	:International Mobile Telecommunications
IoT	:Internet of Things
ITU	:International Telecommunication Union
LTE	:Long-Term Evolution
MIMO	:Multiple Input Multiple Output
MMS	:Multimedia Messaging Service
mMTC	:Massive Machine-Type Communications
NFV	:Network Function Virtualization
PLS-SEM	:Partial Least Squares Structural Equation Modeling
SD	:Standard Deviation
SDN	:Software Defined Networking
SEM	:Structural Equation Modeling
SMS	:Short Message Service
SPSS	:Statistical Package for the Social Sciences
TACS	:Total Access Communication System
TAM	:Technology Acceptance Model
TPB	:Theory of Planned Behavior
URLLC	:Ultra-Reliable Low-Latency Communications
VIF	:Variance Inflation Factor
VR	:Virtual Reality

Introduction

The telecommunications sector has experienced significant technological changes over the past decade. Among these developments, the introduction of 5G technology represents a major step forward in terms of network performance, connectivity, and digital service capabilities. As competition among telecom operators intensifies, technological innovation has become an important factor influencing both brand perception and consumer behavior

In an increasingly competitive telecommunications landscape, companies must continuously innovate to sustain growth and maintain customer loyalty. Technological innovation, particularly the rollout of 5G networks, has become a central strategic driver for telecom operators, reshaping service delivery and altering the way consumers perceive and evaluate brands. In this context, brand image emerges as a critical mediator between the technological advances an operator delivers and the choices consumers ultimately make.

This dynamic is especially relevant in Algeria, where the telecommunications sector is undergoing rapid digital transformation. Operators such as Djezzy, Ooredoo, and Mobilis compete in an environment of growing consumer expectations and accelerating infrastructure modernization. Djezzy, as a leading operator, has been actively investing in technological innovation and brand positioning, making it a pertinent case for studying how technological innovation, particularly 5G, influences brand image and, in turn, consumer choice intention.

This study is therefore guided by the following central research question:

To what extent does 5G technological innovation impact consumer choice intention, and what mediating role does brand image play in this relationship with reference to Djezzy in the Algerian telecommunications market?

From this central question, the following secondary questions arise:

1. Q1: How do consumers perceive Djezzy's 5G technological innovation?
2. Q2: To what extent does 5G innovation influence Djezzy's brand image?
3. Q3: How does brand image influence consumer choice intention toward Djezzy?
4. Q4: Does brand image mediate the relationship between 5G innovation and consumer choice intention?

To answer these questions, we propose the following hypotheses:

- **Main Hypothesis:** 5G technological innovation has a significant positive influence on consumer choice intention, mediated by brand image.

This main hypothesis is operationalized through ten sub-hypotheses, developed and grounded in the empirical literature in Chapter One. These sub-hypotheses examine the three dimensions of 5G innovation network performance, connectivity capability, and technological integration and test their direct effects on brand image and consumer choice intention, as well as the mediating role of brand image in each of these relationships.

- **H1:** 5G technological innovation has a significant positive effect on Djazzy's on consumer choice intention toward Djazzy.
- **H2:** 5G technological innovation has a significant positive effect on Djazzy's brand image.
- **H3:** Brand image has a significant positive effect on consumer choice intention toward Djazzy.
- **H4:** Brand image mediates the relationship between 5G technological innovation and consumer choice intention.

The primary objective of this study is to analyze the impact of 5G technological innovation on consumer choice intention and to examine the mediating role of brand image, with specific reference to Djazzy in Algeria. More specifically, the study aims to:

- Identify consumer perceptions of Djazzy's 5G innovation.
- Evaluate the effect of 5G innovation on Djazzy's brand image.
- Assess the influence of brand image on consumer choice intention.
- Test the mediating role of brand image between 5G innovation and choice intention.
- Propose practical recommendations for Djazzy based on the findings.

This study focuses on the perceived and expected impact of 5G technological innovation on brand image and consumer choice intention. Given the recent introduction of 5G in Algeria, respondents' assessments are based mainly on their expectations and perceptions of the technology's potential benefits.

Methodology: This study adopts a quantitative approach using a structured questionnaire distributed to Djazzy customers in Algeria. The collected data were analyzed using Structural Equation Modeling (SEM) to test the proposed hypotheses.

CHAPTER ONE: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Section 1: Theoretical Framework of the Study

1. Diffusion of Innovation Theory (DOI)

The Diffusion of Innovation (DOI) theory, developed by Rogers, explains how new technologies are adopted and spread within a social system over time. According to Rogers (2003), diffusion refers to the process through which an innovation is communicated among individuals through specific channels. The theory highlights four key elements: the innovation itself, communication channels, time, and the social system.

In addition, DOI emphasizes that individuals adopt innovations through a process consisting of five stages: knowledge, persuasion, decision, implementation, and confirmation (Rogers, 1995). The rate of adoption is influenced by key attributes of the innovation, including relative advantage, compatibility, complexity, trialability, and observability, which shape users' perceptions of its value and usability.

In the context of this study, DOI provides a relevant framework for understanding how 5G is adopted among Djazzy customers in Algeria. In particular, observability plays a central role, as users can clearly perceive the difference between 4G and 5G in their daily activities, such as faster streaming and improved connectivity. This visible improvement strengthens consumers' perception of Djazzy as an innovative operator, thereby influencing brand image and consumer choice intention.

2. Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM), developed by Davis (1989) explains how users accept and use new technologies. According to Mugo et al. (2017), TAM focuses on user acceptance as a key factor in the success of technological systems, and is based on psychological theories such as the Theory of Reasoned Action.

The model identifies two main determinants: perceived usefulness and perceived ease of use. Perceived usefulness refers to the extent to which a user believes that a technology enhances performance, while perceived ease of use refers to how effortless the technology is to use (Harryanto, H. 2018). These factors influence users' attitudes and, consequently, their behavioral intention to adopt the technology.

In this study, perceived usefulness is particularly important for explaining the adoption of 5G by Djazzy customers. Consumers are not motivated solely by the novelty of 5G, but by

the tangible benefits it provides, such as faster communication, better connectivity, and improved digital experiences. These perceived advantages shape both brand image and consumer choice intention.

3. Brand Equity Theory

Brand equity refers to the added value that a brand provides to a product or service. According to Chen et al. (2025), it is a multidimensional concept influenced by consumer perceptions and emotional engagement. Aaker (1991) identifies key components of brand equity, including brand awareness, perceived quality, brand associations, and brand loyalty, while Keller (1993) emphasizes the role of consumer perceptions and experiences.

These perspectives suggest that strong brand equity leads to positive outcomes such as higher purchase intention and brand preference. It also plays a crucial role in differentiating firms in competitive markets.

In the Algerian telecommunications sector, brand equity is essential for understanding how consumers evaluate operators such as Djezzy. As 5G improves service quality and user experience, it enhances consumers' perception of the brand, making brand image a key factor influencing consumer choice intention.

Section 2: Empirical Literature Review

This chapter presents the theoretical foundations of the study by examining the key concepts of technological innovation, brand image, and consumer purchase intention. In the telecommunications sector, rapid technological advancements have significantly influenced how consumers perceive and evaluate service providers. However, the effect of innovation is not always direct, as consumers interpret technological developments through their perceptions of the brand.

1. Previous Studies on 5G Technological Innovation in Telecommunications

The increasing empirical evidence indicates that 5G technological innovation is a significant paradigm shift in the telecommunications industry, which transforms not only network structure but also service delivery models. Unlike previous generations, which mainly focused on improving communication efficiency, 5G introduces a multidimensional

framework of innovation characterized by extremely high data transmission speeds, ultra-low latency, and enhanced network efficiency. This dimension of network performance has been widely emphasized in the literature, as Nuriev et al. (2024) highlight, through a conceptual and empirical analysis of emerging digital ecosystems, that 5G enables real-time communication and supports advanced applications such as smart cities, autonomous systems, and industrial automation. Their findings confirm that improved performance is a key enabler of digital transformation.

In addition to performance, 5G is strongly associated with connectivity capability, particularly its ability to support massive device connections simultaneously. Skosana et al. (2024), through a systematic review of 3G, 4G, and 5G infrastructures, demonstrate that 5G provides a scalable and flexible architecture capable of supporting IoT-based systems and large-scale digital environments. Their comparative analysis confirms that connectivity is one of the most distinctive features of 5G, justifying its inclusion as a core dimension in this research model.

Beyond performance and connectivity, 5G is also characterized by technological integration, particularly with artificial intelligence, big data analytics, and cloud computing systems. Zamzami (2023), using deep learning-based predictive modeling, finds that AI-driven approaches significantly improve the understanding and forecasting of 5G adoption. This indicates that 5G innovation is not isolated but embedded within a broader digital ecosystem. Similarly, Bauer and Bohlin (2022) emphasize that 5G operates within an interconnected ecosystem where networks, applications, and regulatory frameworks jointly shape innovation outcomes, highlighting the systemic nature of technological innovation.

Overall, the literature consistently shows that 5G technological innovation contributes to improved network performance, enhanced connectivity, and advanced technological integration. These dimensions collectively explain the transformative impact of 5G in telecommunications. However, the studies also highlight challenges related to infrastructure readiness, investment requirements, and regulatory environments, which may influence the effectiveness of 5G deployment.

In the context of the Algerian telecommunications sector, these issues identified in the international literature are highly relevant, particularly regarding infrastructure readiness,

investment capacity, and the regulatory environment. With the ongoing acceleration of the national digital transformation strategy and the gradual rollout of 5G networks, the challenges highlighted globally also apply to Algerian telecom operators (Djezzy, Ooredoo, and Mobilis), with additional local specificities. Therefore, understanding the 5G innovation process in this context requires not only relying on global literature but also exploring the specificities of adoption, competition, and consumer responses within the Algerian telecommunications industry .

2.Previous Studies on Brand Image in the Telecom Sector

Brand image is an important concept in the telecommunication sphere that has been discussed extensively both in scholarly and professional literature. The purpose of this section is to summarize the main empirical research that examines the way the brand image is created, controlled and its influence on the customer related results within a highly competitive and technologically oriented environment.

The brand image has increasingly become a strategic resource that is critical to telecommunication firms especially in the markets where the homogeneity of the services and a high rate of competition are evident. It is no longer about visual identity or brand recognition, but it is about the overall perceptions, beliefs and experiences of the consumers with the brand. Gazi et al. (2024) note that brand image is a cognitive and emotional judgment of the customer about the services provided by a company, and it is a key factor in determining trust, satisfaction, and loyalty. Their quantitative study utilizing a structural equation modeling (SEM) approach has discovered that the brand image has a significant moderator effect on the relationship between customer relationship management (CRM) and major customer outcomes like customer loyalty and profitability. This implies that a well-crafted CRM strategies might not produce the best outcomes without a solid and favorable brand image.

On a comparable note, Ahmad et al. (2022) studied the determinants of brand image by considering corporate social responsibility (CSR) in the telecommunication industry. Their analysis, which is founded on survey results gathered among telecom experts in Jordan, indicated that there is a significant positive correlation between CSR dimensions and brand equity, which consist of brand reputation. The results show that the socially responsible practices increase the credibility and appeal of the telecom brands, which builds the image of the brands among the stakeholders. This point of view adds to the works of Gazi et al. (2024)

by focusing on the fact that brand image can be influenced by customer engagement, as well as the ethical and social stance of the firm.

Al-Hujri et al. (2025) examined how social media marketing activities (SMMAs) impact the brand-related outcomes in the telecom industry in the context of digital transformation. The study was conducted with the help of a quantitative methodology and SEM analysis and proved that SMMAs have a very strong positive effect on brand awareness and brand loyalty with customer satisfaction serving as a mediating variable. These findings underscore the role of brand image in the digital age as being co-created during online interactions and consumer engagement, and no longer being dominated by the firm. This observation is in line with the fact that digital platforms have become crucial instruments for underpinning brand perceptions and competitive positioning.

In addition, Suradi et al. (2024) offered a complementary view, considering customer engagement and its connection with brand image in a virtual telecom setting. Using a qualitative research design, which relied on the analysis of text-based data, the researchers discovered that emotional, cognitive, and behavioral engagement are critical towards enhancing brand image. It also brought in the fact that consumers are indeed involved in the process of creating brand perceptions by interacting and seeking information, which supports the dynamic and interactive brand image-formation process.

Comparatively, these studies converge on the point that brand image in the telecommunications industry is a multidimensional construct that is shaped by relational, social and digital aspects. Although Gazi et al. (2024) focus on its moderating influence on marketing performance improvement, Ahmad et al. (2022) point to the significance of CSR in creating a credible and reputable image. Comparatively, Al-Hujri et al. (2025) and Suradi et al. (2024) are concerned with the increasing role of online communication and customer interaction in determining brand perceptions. Although methodologies and contexts vary, all studies affirm that a strong brand image is a major contributor towards customer loyalty, satisfaction, and competitive edge.

Finally, brand image is a strategic tool in the telecommunications industry, as firms need to invest constantly in relationship management, social responsibility, and digital interaction to maintain a positive and differentiated market presence. With telecom services being intangible,

and the rise of technology that may affect customer interactions, the brand image management becomes crucial to shaping consumer perception and promoting long-term performance.

The international literature shows that brand image is never created in isolation - it is the result of the cumulative quality of service, communication and relationship building an operator provides over time. This is particularly important in Algeria, where telecommunication services are growing to be seen as a commodity and switching costs are minimal. Operators Djazzy, Ooredoo, and Mobilis are not just competing on price and service quality, but on the quality of consumer perceptions of the brand. It is this perceptual facet - and the role of Djazzy's 5G innovation in it - that the empirical examination of Chapter 2 explores.

3.Previous Studies on Consumer Choice Intention

The concept of consumer choice intention has been widely studied in previous literature, focusing on the cognitive, social, and technological factors, which impact the use of innovations. In this sense, a number of theoretical frameworks, especially the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT2 : Unified Theory of Acceptance and Use of Technology 2) have been applied in explaining the deliberate attitude of consumers to recent technologies, including in the most digitalized segment of the population, telecommunications.

Belmonte et al. (2024), in an empirical study, used an extended TAM model to examine the variables that affect the intention to use e-wallets. Through a sample population of 500 respondents and by applying the PLS-SEM technique, the study indicates that perceived ease of use, perceived usefulness, social influence, security, and most importantly trust greatly affect behavioral intention. To be more precise, trust proves to be the most defining factor in intention development, suggesting the crucial role of reliability perceptions in the technological setting.

Likewise, the article by Paraskevi et al. (2023) follows the UTAUT2 framework with the addition of mobile service quality variables to uncover the intention to use chatbots. Using a quantitative analysis, which is also grounded in structural equation modeling (SEM) as well, the findings indicate that performance expectancy, facilitating conditions, hedonic motivation, mobility, and trust have a positive impact on usage intention. Nevertheless, privacy issues have a detrimental effect on trust which indirectly influences intention. This paper therefore underscores the paramount issue of the quality of mobile services in influencing intentions in a digital environment.

Furthermore, Musa et al. (2024) adopt a more general approach and develop a systematic bibliometric review of over 1,000 articles that apply the TAM model in any marketing area. The results indicate that usage intention is a key variable in the determination of consumer behavior in relation to technological innovations. The results indicate that the major variables like perceived usefulness and perceived ease of use indirectly affect intention via attitude and cognitive perceptions. Moreover, this paper highlights how the research has been developing to more sophisticated digital settings, such as mobile technology, e-commerce, and new technologies, which underlines the applicability of TAM in new settings.

Analyzing these works, one can conclude that although the context of the studies varies (mobile payments, chatbots, digital marketing), they all lead to the same conclusion: consumer choice intention is greatly affected by a set of factors that are technologically oriented (usefulness, ease of use), psychologically oriented (attitude, trust), and contextually oriented (service quality, social influence). Nonetheless, there are differences in the methodology. Whereas Belmonte et al. (2024) and Paraskevi et al. (2023) prefer quantitative empirical studies based on SEM to address causal relationships, Musa et al. (2024) use a descriptive and analytical approach using literature review and bibliometric analysis.

Regarding outcomes, every study has affirmed that the perceived value and trust are decisive factors in determining intention, especially in digital settings that are likely to be uncertain and risky. These findings have implications in the particular case of new technologies like 5G in the telecommunications industry: it implies that consumers will adopt it based not just on their perceived technical performance, but on the capacity of operators to create a dependable and innovative brand image, which reinforces choice intention.

4.Previous studies linking 5G innovation and brand image

Technological innovation, particularly 5G, plays a central role in reshaping brand image in the telecommunications industry. The literature indicates that this impact can be understood through three key dimensions: network performance, connectivity capability, and technological integration. These dimensions collectively influence how consumers perceive telecom operators in terms of reliability, modernity, and innovation.

With regard to network performance, 5G improves data speed, service quality, and overall user experience, which directly affect brand perception. In this context, Li (2022), through an

empirical study on 5G and new media, demonstrates that enhanced technological experiences create more engaging and personalized interactions, strengthening consumers' emotional connection with the brand. Similarly, Tannady et al. (2022), using a quantitative approach, confirm that innovation positively influences brand image and subsequently affects consumer interest and purchase decisions. These findings highlight that performance-related improvements play a key role in shaping favorable brand perceptions.

In terms of connectivity capability, 5G enables large-scale and continuous connections between devices and users, improving accessibility and interaction with services. Wu (2022), focusing on IoT-based 5G environments, shows that improved connectivity allows firms to design more interactive and responsive digital experiences. This strengthens consumer engagement and contributes to building a more differentiated and competitive brand image, particularly in a sector where service continuity is critical.

Regarding technological integration, 5G facilitates the integration of advanced technologies such as IoT and intelligent digital systems, which reshape brand positioning. Chukurna et al. (2023), through an analysis of global telecom marketing strategies, demonstrate that firms adopting 5G within integrated digital strategies can strengthen their market positioning and project a more innovative brand identity. In the same perspective, Wu (2022) also emphasizes that integrating IoT within 5G ecosystems enhances brand experience and differentiation, reinforcing the importance of this dimension.

Overall, existing studies indicate that 5G innovation contributes to brand image development through improved performance, enhanced connectivity, and technological integration. While these findings provide strong theoretical support, they remain largely focused on global contexts and offer limited insights into emerging markets.

In the Algerian telecommunications sector, these insights are particularly relevant. As 5G deployment progresses, it is expected to influence consumer perceptions of operators such as Djezzy, Ooredoo, and Mobilis, especially in terms of service quality and technological advancement. In a market characterized by increasing digital adoption and strong competition, brand image becomes a key determinant of consumer attitudes and behavioral intentions. Accordingly, this study examines how the dimensions of 5G innovation affect brand image and subsequently shape consumer choice intention, with a specific focus on Djezzy in Algeria

5.Previous studies on Brand Image and Consumer Choice Intention

The brand image can be instrumental in determining the consumer behavior especially in purchase and choice intention in different sectors. This construct has been emphasized as an important determinant in the decision making process by consumers in a number of empirical studies. (Ramli & Sylvia, 2023) study the impact of electronic word-of-mouth (e-WOM) on purchase intention, incorporating brand image as an intermediary variable. The quantitative study, which is a sample of 110 consumers and statistically analyzed, demonstrates that the brand image has a significant and positive impact on purchase intention. The results suggest that consumers will purchase products relating to a strong and positive brand image as it promotes trust and the perceived risk decreases.

In contrast, (Widjaja, 2024) adopts a more comprehensive view, as it is a systematic review of 53 studies that were performed within the e-commerce setting. The paper identifies brand image as a psychological indicator that helps the consumer to make their decisions especially in the digital world where they cannot evaluate the product directly. The findings demonstrate that positive brand image enhances the confidence of consumers and their willingness to buy, underlining the role of the perceived reputation and brand credibility.

Moreover, Shammout et al. (2025) take a more integrative approach by examining the indirect impact of brand image on purchase intention through mediating variables, including trust and customer engagement. Their empirical research, which was carried out within the telecommunications industry, demonstrates that brand image plays an important role in building trust, which consequently increases customer engagement and purchase intention. The result of this finding is that there is no direct relationship between brand image and consumer intention but that they can be reinforced by relational and emotional processes.

Moreover, Lyu et al. (2024) examine the effect of brand-related factors, including logos, on consumer perception, attitude, brand image, and purchase intention through a systematic review. The research confirms that brand image serves as a pivotal mediator between consumer perception and behavioral intention, which means that it is a key factor in converting cognitive appraisals to actual buying decisions.

Comparatively, these studies lead to similar conclusion even though they differ in context and methodology. While Ramli and Sylvia (2023) and Shammout et al. (2025) use quantitative empirical designs to confirm causal relationships, Widjaja (2024) and Lyu et al. (2024) employ

systematic review designs to offer a broader theoretical picture. Nevertheless, all results consistently show that brand image plays a critical role in consumer choice intention either directly or indirectly through variables such as trust and engagement.

When applied to the telecommunications industry, especially due to the advent of new cutting-edge technologies like 5G, the findings indicate that a powerful and creative brand image can decisively affect consumer choice intention. With the increasing similarity in the performance of the telecom services in terms of technical performance, brand image has become one of the most important differentiators which affect the perception of the consumers, their level of trust and eventually their willingness to adopt and use the new technologies.

6. Identification of Research Gap

The review of previous literature highlights important contributions to understanding technological innovation, brand image, and consumer choice intention. However, these contributions remain largely fragmented across different research streams.

First, existing studies on 5G technological innovation primarily focus on its technical and operational aspects, particularly network performance, connectivity capability, and adoption behavior (Zamzami, 2023; Nuriev et al., 2024). While these studies provide valuable insights, they pay limited attention to how these dimensions influence consumer perceptions, especially brand image.

Second, a large body of research has examined brand image as a key determinant of consumer behavior, confirming its impact on satisfaction, loyalty, and purchase intention (Ahmad et al., 2022; Gazi et al., 2024). However, these studies generally analyze brand image independently, without linking it to technological innovation, particularly 5G.

Third, studies on consumer choice intention emphasize factors such as perceived usefulness, ease of use, trust, and social influence (Paraskevi et al., 2023; Belmonte et al., 2024). Nevertheless, most of this research is conducted in digital service contexts such as e-commerce, with limited application to the telecommunications sector.

Although some studies have explored the relationship between 5G innovation and brand image (Li, 2022; Wu, 2022; Chukurna et al., 2023), they mainly focus on direct effects

and do not integrate this relationship within a comprehensive framework that includes behavioral outcomes. In particular, the mediating role of brand image between 5G innovation dimensions (network performance, connectivity capability, and technological integration) and consumer choice intention remains insufficiently explored.

Furthermore, most existing studies rely on context-specific samples and quantitative approaches, which may limit their generalizability and fail to fully capture contextual differences across markets. This limitation is particularly evident in emerging markets.

In the Algerian telecommunications sector, despite ongoing digital transformation and increasing competition among operators, empirical research examining the impact of 5G innovation on brand image and consumer choice intention remains very limited.

Therefore, this study aims to address this gap by developing and empirically testing an integrated model that links 5G innovation dimensions to consumer choice intention through the mediating role of brand image. By focusing on the case of Djezzy in Algeria, this research provides both theoretical and practical contributions to understanding consumer behavior in a rapidly evolving technological environment.

7. Research Hypotheses

Based on the theoretical framework developed in Chapter One and the conceptual model presented above, ten research hypotheses were formulated to guide the empirical analysis. These hypotheses are organized into four groups, corresponding to the four relational dynamics tested in this study: (1) the direct effect of each dimension of 5G technological innovation on brand image; (2) the direct effect of brand image on consumer choice intention; (3) the direct effect of each innovation dimension on consumer choice intention; and (4) the mediating role of brand image between each innovation dimension and consumer choice intention.

Group 1: Effect of 5G Technological Innovation Dimensions on Brand Image

The first group of hypotheses examines whether each of the three dimensions of 5G technological innovation network performance, connectivity capability, and technological integration exerts a significant positive effect on the brand image of Djezzy as perceived by Algerian consumers. This relationship is grounded in the Diffusion of Innovation theory

(Rogers, 1962), which posits that the observable attributes of an innovation shape how it is evaluated by adopters, and in the literature on brand image formation, which identifies technological performance as a key driver of consumer-based brand associations (Aaker, 1991; Keller, 1993).

H1: Network performance of 5G technology has a significant positive effect on the brand image of Djazzy.

H2: Connectivity capability of 5G technology has a significant positive effect on the brand image of Djazzy.

H3: Technological integration of 5G technology has a significant positive effect on the brand image of Djazzy.

Group 2: Effect of Brand Image on Consumer Choice Intention

The second hypothesis examines the direct relationship between brand image and consumer choice intention. This relationship constitutes the core mediating link in the conceptual model and is grounded in brand equity theory (Aaker, 1991; Keller, 1993), which holds that a strong, positive brand image increases the likelihood that consumers will choose that brand over competitors. In the Algerian telecommunications context, a brand image associated with technological modernity, reliability, and innovation is expected to translate directly into a higher intention to subscribe to or remain with Djazzy.

H4: Brand image has a significant positive effect on consumer choice intention toward Djazzy.

Group 3: Direct Effect of 5G Technological Innovation Dimensions on Consumer Choice Intention

The third group of hypotheses tests whether each dimension of 5G technological innovation directly influences consumer choice intention, independently of its effect through brand image. This is grounded in the Technology Acceptance Model (Davis, 1989), which establishes that perceived usefulness and ease of use both of which map onto the innovation dimensions examined here are direct antecedents of behavioral intention. Testing these direct effects is also methodologically necessary: their significance or non-significance after the

introduction of brand image as a mediator determines whether mediation is partial or full, thereby validating the central mechanism of this study.

H5: Network performance of 5G technology has a significant positive direct effect on consumer choice intention toward Djezzy.

H6: Connectivity capability of 5G technology has a significant positive direct effect on consumer choice intention toward Djezzy.

H7: Technological integration of 5G technology has a significant positive direct effect on consumer choice intention toward Djezzy.

Group 4: Mediating Role of Brand Image

The fourth group of hypotheses tests the central mediating mechanism of this study: whether brand image fully or partially transmits the effect of each dimension of 5G technological innovation to consumer choice intention. This mediation logic is supported by brand equity theory (Aaker, 1991; Keller, 1993), which holds that technological attributes shape the mental representations consumers hold of a brand—its perceived quality, associations, and identity which in turn influence behavioral intentions. The expected direction of mediation full or partial is not specified a priori, as this is determined empirically by the significance of the direct effects (H5–H7) after the introduction of brand image into the model. A finding of full mediation would indicate that brand image is the exclusive pathway through which innovation attributes influence choice; a finding of partial mediation would indicate that both direct and indirect pathways coexist.

H8: Brand image fully or partially mediates the relationship between network performance of 5G technology and consumer choice intention toward Djezzy.

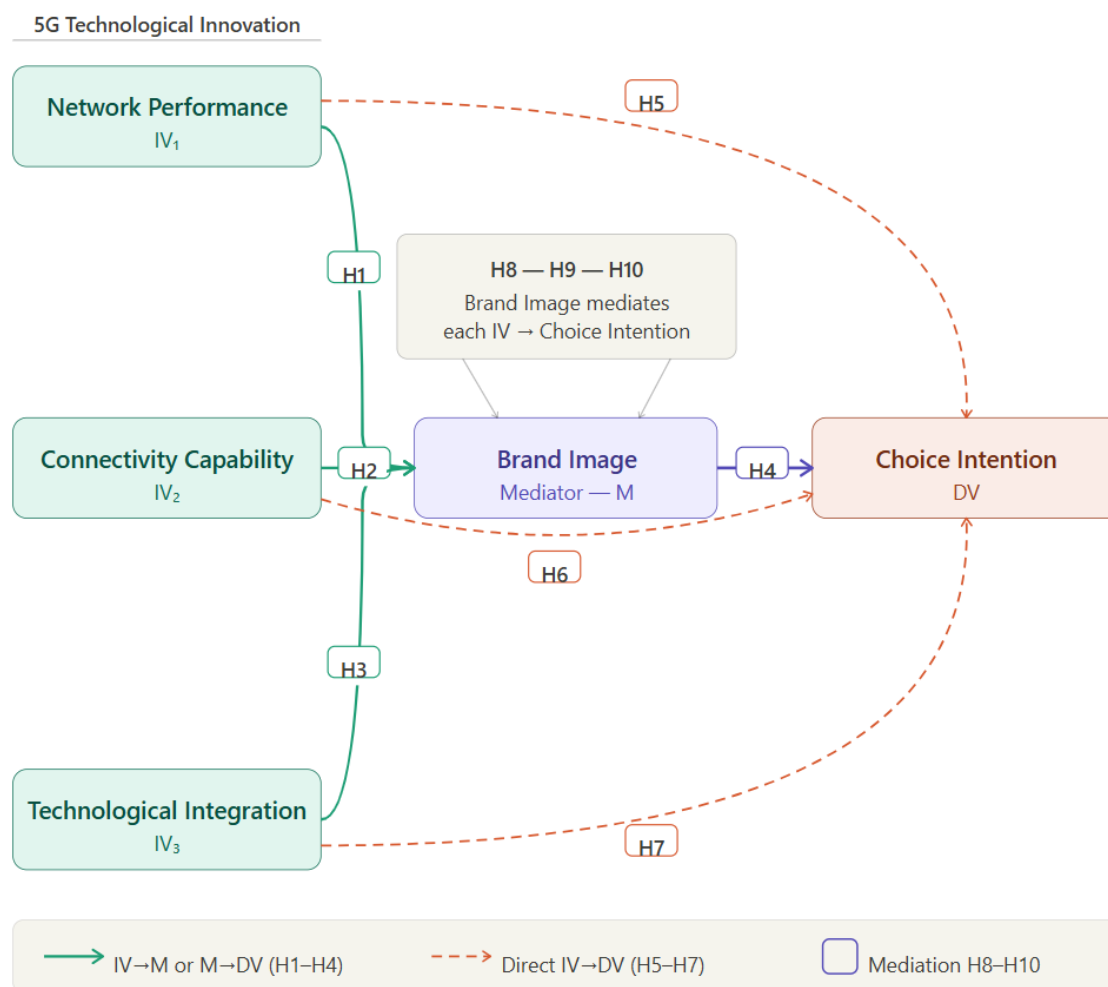
H9: Brand image fully or partially mediates the relationship between connectivity capability of 5G technology and consumer choice intention toward Djezzy.

H10: Brand image fully or partially mediates the relationship between technological integration of 5G technology and consumer choice intention toward Djezzy

Table 1 :Summary of research hypotheses:

H	Statement	Relationship tested
H1	Network performance → Brand image (+)	Innovation → Brand image
H2	Connectivity capability → Brand image (+)	Innovation → Brand image
H3	Technological integration → Brand image (+)	Innovation → Brand image
H4	Brand image → Consumer choice intention (+)	Brand image → Choice intention
H5	Network performance → Choice intention (+) direct	Innovation → Choice intention
H6	Connectivity capability → Choice intention (+) direct	Innovation → Choice intention
H7	Technological integration → Choice intention (+) direct	Innovation → Choice intention
H8	Brand image fully or partially mediates: Network performance → Choice intention	Mediation via brand image
H9	Brand image fully or partially mediates: Connectivity capability → Choice intention	Mediation via brand image
H10	Brand image fully or partially mediates: Technological integration → Choice intention	Mediation via brand image

These ten hypotheses collectively operationalize the conceptual model presented in Figure X and constitute the empirical agenda of this study. Their testing through PLS-SEM will allow for the identification of both the direct and indirect pathways through which 5G technological innovation influences consumer choice intention in the Algerian telecommunications market.

Figure 1 :Resreach model

Source :Developeped by the Authors based on previous studies

Section 3: Conceptual Framework

This section presents the fundamental theoretical concepts related to technological innovation, particularly 5G technology, as well as brand image and consumer choice intention. It section aims to clarify the key concepts employed in this research, highlighting their dimensions, determinants, and interrelationships, in order to build a coherent conceptual framework that explains the impact of 5G on brand image and consumer choice

1.Technological Innovation – 5G

Technological innovation drives economic transformation by introducing new products, processes, and organizational forms that reshape markets and create competitive advantage. In the telecommunications sector, this dynamic is most evident in the evolution toward 5G, a technology that goes beyond incremental improvement to redefine connectivity at a societal and industrial scale.

1.1. Definition of Technological Innovation

Technological innovation has been widely studied in economic literature, particularly through Schumpeter's concept of 'new combinations' the introduction of new products, production methods, markets, or organizational structures. Critically, innovation is not mere invention; it requires effective application within economic activity. The entrepreneur is central to this process as the agent of change who transforms ideas into concrete value (Schumpeter, 2013).

Contemporary perspectives view innovation as a dynamic, evolutionary process embedded in the economic system. Rather than an isolated event, it drives continuous transformation in markets and organizational forms, shaped by institutional, technological, and organizational forces (Ebner, 2025).

1.2. Types of Technological Innovation

Following Wronka-Pośpiech et al. (2025), technological innovation is classified into four main types:

1.2.1 Product Innovation

The introduction of new or significantly improved goods or services, focusing on enhanced functionality, quality, or user experience through changes in materials, software, or technical specifications.

1.2.2 Process Innovation

The implementation of new or improved production or delivery methods aimed at increasing efficiency, reducing costs, and improving quality through changes in techniques, equipment, or operational systems.

1.2.3 Marketing Innovation

The application of new marketing methods that alter product design, packaging, promotion, or pricing. This enables firms to address customer needs more effectively, enter new markets, or reposition existing products.

1.2.4 Organizational Innovation

New organizational methods in business practices, workplace structure, or external relations, aimed at improving performance through better knowledge sharing, decision-making, and internal coordination.

1.3 Role of Innovation in Competitive Advantage

Innovation plays a fundamental role in achieving competitive advantage by enabling firms to differentiate themselves in the marketplace. The role of innovation can be broken down into the following aspects:

1.3.1 Innovation as a Driver of Differentiation

Firms that successfully innovate create unique value propositions and establish a distinctive strategic position. By introducing new products, processes, or organizational forms, they differentiate themselves in ways that are difficult for competitors to replicate (Schumpeter, 1934).

1.3.2 Creative Destruction and Temporary Advantage

Innovation underlies Schumpeter's (1942) concept of 'creative destruction,' whereby new technologies continuously displace older ones. This generates temporary competitive advantages, which are eventually eroded by imitation and new market entrants. Firms must therefore engage in continuous innovation to sustain competitiveness.

1.3.3 Knowledge, Creativity, and Sustainable Competitiveness

Innovation is primarily driven by knowledge and, to a lesser extent, by creativity—both essential for generating new ideas and supporting growth. Firms that invest in knowledge development are better positioned to maintain sustainable competitive advantage in dynamic and uncertain environments (Cristescu & Nerisanu, 2021).

1.4. Technological Innovation in the Telecommunications Sector

1.4.1 Evolution of Mobile Communication Technologies

The progression from 1G to 5G reflects the transformation of mobile networks from basic voice systems to advanced high-speed digital ecosystems. Each generation introduced significant improvements in transmission technology, frequency spectrum, and supported services (Bello et al., 2026).

1G (1980s) relied on analog communication for voice only. 2G introduced digital standards such as GSM, enabling SMS, MMS, and basic internet access. 3G expanded capabilities with multimedia support and faster data speeds. 4G (LTE/WiMAX) represented a major leap with broadband-quality connectivity integrating voice, video, and data. 5G now delivers ultra-high data rates, near-zero latency, and massive device connectivity, enabling advanced applications such as IoT, smart cities, and autonomous systems.

Table 2: Evolution of Mobile Communication Generations

Generation	Technology / Standards	Data Rate	Frequency Range	Key Features
1G	AMPS, TACS	2 kbps	800–900 MHz	Analog, voice only
2G	GSM, EDGE, CDMA	14.4–64 kbps	850–1900 MHz	Digital, SMS/MMS, basic internet
3G	WCDMA, CDMA2000	144 kbps–2 Mbps	900–2100 MHz	Multimedia, mobile internet
4G	LTE, WiMAX	100 Mbps–1 Gbps	600–2500 MHz	HD video, broadband mobile
5G	Advanced technologies	>1 Gbps	410 MHz–7.125 GHz (FR1) / 24.25–71 GHz (FR2)	Ultra-fast, low latency, IoT support

Source : Adapted from Bello et al., 2026)

1.5. The Technology of 5G

1.5.1 Definition of 5G

Fifth-generation (5G) mobile networks represent a paradigm shift in information and communication technologies (ICT), driven by the limitations of 4G/LTE and the growing demand for sophisticated digital services. Designated by the ITU as IMT-2020, 5G is a global standard designed around three core use cases: Enhanced Mobile Broadband (eMBB), Massive Machine-Type Communications (mMTC), and Ultra-Reliable Low-Latency Communications (URLLC).

Unlike previous generations focused primarily on speed, 5G integrates communication, computation, and storage—notably through cloud and edge computing. It enables real-time interactions across interconnected ecosystems of humans, machines, and services, serving as a cornerstone of digital transformation in smart cities, e-health, intelligent transportation, and industrial automation (Yu et al., 2017).

1.5.2 Technical Characteristics of 5G

5G's technical capabilities are grouped here into three conceptual dimensions that serve as operationalized independent variables in this study:

- **Network Performance:** encompasses speed, latency, and overall transmission quality.
- **Connectivity Capability:** refers to the network's capacity to simultaneously support massive numbers of devices and applications.
- **Technological Integration:** reflects the degree to which 5G integrates with advanced systems such as AI, IoT, and data-driven platforms.

It is critical to emphasize that these dimensions are not treated as objective technical benchmarks. Rather, they function as perceptual drivers capturing how consumers subjectively evaluate 5G innovation based on their experiences with Djezzy's services. It is the consumer's perception of performance, not the underlying technical specifications, that drives brand image and choice intention. This framing aligns with both the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) theory. (Liang, F et al. 2024).

1.5.3 Service Categories

- **eMBB** (Enhanced Mobile Broadband): high-speed, high-capacity data services.

- **mMTC** (Massive Machine-Type Communications): massive IoT device connectivity with low energy consumption.
- **URLLC** (Ultra-Reliable Low-Latency Communications): critical applications requiring near-instantaneous, highly reliable communication.

1.5.4 Enabling Technologies

5G performance depends on several advanced technologies: Massive MIMO, Millimeter Wave (mmWave), Beamforming, and Small Cells, which together increase network capacity, improve signal quality, and optimize data transmission (Dubey et al., 2025). Its architecture further leverages Software Defined Networking (SDN), Network Function Virtualization (NFV), and edge computing to create a flexible, programmable network capable of dynamically adapting to diverse service requirements.

Table 3: Summary of 5G Technical Characteristics

Characteristic	Description	Values / Requirements (5G)	Source
Peak Data Rate	Maximum data transmission capacity	Up to 20 Gbps	Hassan & Ketikci (2025)
User-Experienced Data Rate	Actual data rate perceived by end user	Significant improvement over 4G	Yu et al. (2017)
Latency	Response time between transmission and reception	≈ 1 ms (URLLC)	Hassan & Ketikci (2025)
Connection Density	Connected devices per unit area	Up to 10^6 devices/km ²	Hassan & Ketikci (2025)

Characteristic	Description	Values / Requirements (5G)	Source
Mobility	Network support for high-speed movement	Up to 500 km/h	Hassan & Ketik (2025)
Spectrum Efficiency	Optimal use of radio spectrum	$\approx 3\times$ improvement over 4G	Hassan & Ketik (2025)
Energy Efficiency	Energy consumption per transmitted data unit	Up to $100\times$ more efficient than 4G	Hassan & Ketik (2025)

Source :Adapted from Hassan & Ketik (2025)

1.6. Advantages of 5G in Telecommunications

5G's advantages extend well beyond technical performance. For telecom operators, they represent both strategic differentiation opportunities and drivers of economic growth.

1.6.1 High Speed and Improved Network Performance

5G enables operators to offer advanced services ultra-HD streaming, cloud computing, augmented and virtual reality that were previously infeasible at scale. Higher capacity facilitates better traffic management and improved service quality, strengthening competitive positioning (Hassan & Ketik, 2025).

1.6.2 Ultra-Low Latency

Near-zero latency is essential for real-time applications such as autonomous vehicles, remote healthcare, and industrial automation. This capability enables entirely new service categories that 4G could not reliably support (Hassan & Ketik, 2025).

1.6.3 Massive Connectivity and IoT Expansion

5G's ability to connect millions of devices per km² supports the growth of smart cities, intelligent transport, and connected industries. Telecom operators are thus positioned as central enablers of broader digital transformation (Hassan & Ket, 2025).

1.6.4 New Business Models and Economic Impact

The integration of 5G with cloud and edge computing opens new revenue streams through edge analytics, smart network management, and platform-based services. This encourages investment and supports economic growth through more efficient and competitive digital ecosystems (Mao et al., 2017)

1.7. Consumer Perception of Innovation

Consumer perception of innovation refers to how individuals evaluate new technologies not only their technical features but their perceived value, usefulness, and relevance. In the telecommunications sector, perception plays a decisive role in technology adoption, shaping attitudes toward operators and influencing loyalty.

5.7.1 Perceived Usefulness

Perceived usefulness refers to the extent to which users believe a technology improves their performance or efficiency (Davis, 1989). It is a central determinant of adoption, strongly predicting behavioral intention to use a technology. In the 5G context, higher speed and improved network performance directly enhance perceived usefulness.

5.7.2 Perceived Modernity

Perceived modernity reflects the extent to which a technology is seen as advanced and up-to-date. It captures the symbolic value of innovation its association with progress and improved experience and positively influences consumer attitudes. 5G is widely perceived as a next-generation technology that supports future digital lifestyles.

5.7.3 Perceived Technological Superiority

Perceived technological superiority is the belief that a technology outperforms existing alternatives, closely related to Rogers' (2003) concept of relative advantage. Based on comparisons with prior generations, 5G's superior speed, lower latency, and expanded connectivity reinforce this perception, influencing consumer trust and adoption decisions.

Figure 2: Consumer Perception of 5G Innovation

Perceived Usefulness	Perceived Modernity	Perceived Technological Superiority
<i>Davis (1989)</i> Belief that 5G improves performance and efficiency in daily digital activities	<i>Rogers (2003)</i> 5G perceived as advanced, next-generation technology associated with progress and digital lifestyle	<i>Rogers (2003) — Relative Advantage</i> 5G seen as superior to prior generations in speed, latency, and connectivity capacity

▼ ▼ ▼

Consumer Behavioral Intention → Choice of Telecom Operator

Source: Adapted from *Rogers (2003)* and *Davis (1989)*

2. Brand Image

In this research, brand image functions as the central mediating variable between 5G technological innovation (independent variable) and consumer choice intention (dependent variable). When telecom operators deploy 5G, consumers do not translate this directly into a behavioral decision. Rather, they first form or revise their perception of the brand its quality, modernity, and trustworthiness and it is this updated brand image that ultimately drives their intention to choose or remain loyal to a given operator. This chapter establishes the theoretical foundations of brand image in order to justify and explain this mediating role.

2.1. Origin and Evolution of the Brand Image Concept

The concept of brand image has evolved significantly over time, reflecting major transformations in marketing thought and consumer behavior. Initially, brand image was considered a simple mental representation of a brand in the consumer's mind, mainly associated with product attributes and basic perceptions. However, with the development of competitive markets and the increasing importance of differentiation, the concept has become more complex and multidimensional.

According to Lee, James, and Kim (2014), brand image should not be understood as a static perception, but rather as a dynamic construct shaped by continuous interactions between the firm and the consumer. The authors emphasize that brand image integrates several dimensions, including cognitive, emotional, and symbolic elements, which together form the

overall perception of the brand. This perspective highlights that consumers do not only evaluate brands based on functional attributes, but also on meanings and experiences associated with them.

In its early stage, brand image was primarily:

- Product-oriented
- Based on functional attributes
- Controlled mainly by the company

With the evolution of marketing approaches, brand image became:

- Consumer-oriented
- Based on perceptions and experiences
- Influenced by both firms and consumers

Furthermore, recent research has emphasized the expanding boundaries of the brand in modern environments. Parris and Guzmán (2022) argue that brand image is no longer solely constructed by companies, but is increasingly co-created through interactions with consumers and other stakeholders. In the digital era, social media, online reviews, and user-generated content play a crucial role in shaping brand perceptions, making brand image more fluid and less controllable by organizations.

In the contemporary context, brand image is characterized by:

- Co-creation between firms and consumers
- Strong influence of digital platforms
- Continuous evolution over time

Mediating relevance: This co-created, evolving nature of brand image makes it a sensitive receptor for 5G deployment signals. As operators invest in 5G, consumers integrate this information into their brand perceptions—demonstrating why brand image is the natural link between technological innovation and choice behavior.

2.2. Definitions of Brand Image

The concept of brand image has been widely discussed in marketing literature, with several authors providing complementary definitions that highlight its multidimensional nature. Generally, brand image refers to the set of perceptions, associations, and impressions held by consumers toward a brand. These perceptions are formed through a structured process influenced by marketing actions and consumer experiences.

- **Cognitive Perspective (Keller, 1993)**

According to Keller (1993), brand image is defined as the set of brand associations held in the consumer's memory. These associations vary in strength, favorability, and uniqueness, and they play a central role in shaping how consumers perceive and evaluate a brand. In this perspective, brand image is closely linked to the cognitive structure of the consumer, reflecting how information about the brand is stored and organized through accumulated experiences and marketing stimuli.

- **Behavioral Perspective (Faircloth et al., 2001)**

From a behavioral perspective, Faircloth, Capella, and Alford (2001) consider brand image as a key determinant of brand equity, directly influencing consumer attitudes and behavioral intentions. A positive brand image contributes to stronger brand preference and loyalty, as consumers tend to associate favorable meanings and experiences with the brand. In this sense, brand image is not only a perception but also a driver of consumer decision-making.

This behavioral definition is of particular relevance to the present study: it positions brand image as the mechanism that transforms a consumer's perception of 5G innovation into a concrete intention to choose an operator.

2.3. Distinction between Brand Image, Brand Identity, and Brand Equity

In branding literature, it is essential to distinguish between brand identity, brand image, and brand equity, as these concepts are closely related but differ in their nature and function. According to Jain (2017), these three concepts represent different stages and perspectives of the branding process.

2.3.1. Brand Identity

Brand identity refers to the set of elements and values that a company defines to represent itself. It is internally developed and controlled by the organization, including brand name, logo, design, and communication strategy. Jain (2017) explains that brand identity reflects the company's vision and strategic positioning, as it aims to create a specific image in the minds of consumers.

2.3.2. Brand Image

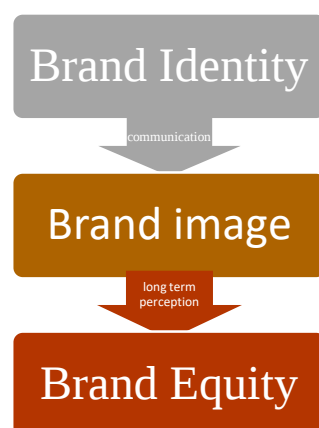
Brand image, in contrast, is externally oriented and reflects how consumers actually perceive the brand. It is formed through experiences, interactions, and exposure to marketing communication. According to Chaves (2017) brand image results from the interpretation of brand signals by consumers, which means that it may differ from the intended identity defined by the company.

2.3.3. Brand Equity

Brand equity refers to the value that a brand adds to a product or service. Jain (2017) highlights that brand equity is built through the interaction of several elements, including brand awareness, brand image, and brand loyalty. Chaves (2017) further emphasizes that strong brand equity depends on the alignment between brand identity and brand image.

- In the context of this thesis, brand image occupies the middle position: it is shaped by the company's 5G deployment decisions (brand identity dimension) and in turn drives consumer choice intention (brand equity dimension). This positioning confirms its theoretical suitability as a mediator.

Figure 3: Conceptual Relationship between Brand Identity, Brand Image, and Brand Equity



Source: Adapted from Jain (2017) and Chaves (2017)

2.4. Components of Brand Image

2.4.1. Brand Associations: Functional, Symbolic, and Experiential

Brand associations constitute a fundamental dimension of brand image, as they reflect the set of perceptions, beliefs, and meanings that consumers attach to a given brand. In the literature, brand associations are generally categorized into three main types, each contributing differently to the formation of brand image.

Functional Associations

Functional associations refer to the tangible and utilitarian attributes of a brand, such as product quality, performance, reliability, and price-value relationship. According to Šalčiuvienė et al. (2009), these associations are particularly relevant in contexts where consumers adopt a rational decision-making approach. In the telecommunications sector, 5G deployment directly feeds functional associations by demonstrating superior network speed, reduced latency, and enhanced connectivity all of which strengthen the brand's utilitarian image.

Symbolic Associations

Symbolic associations refer to the intangible and expressive meanings attached to a brand, including social status, identity, prestige, and self-expression. Koçak and Ruzgar (2017) argue that symbolic associations often have a stronger impact on brand preference than functional attributes, particularly where emotional and social factors dominate. In a 5G context, operators deploying cutting-edge technology become associated with modernity and leadership, reinforcing the symbolic dimension of their brand image.

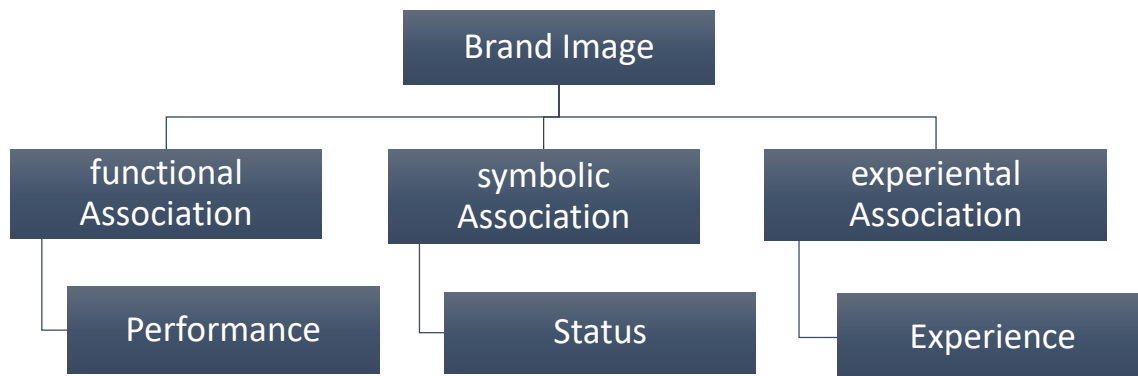
Experiential Associations

Experiential associations refer to the sensory, emotional, and cognitive experiences that consumers derive from interacting with a brand. Unlike functional associations based on rational evaluation, experiential associations are grounded in personal interaction and subjective perception. In the telecom sector, every 5G-enabled experience—faster streaming, seamless connectivity, innovative services contributes to a richer experiential association that cumulatively builds a stronger brand image.

- These three types of associations represent the pathways through which 5G innovation translates into brand image. Functional associations are reinforced by network performance; symbolic associations by the operator's innovation

positioning; and experiential associations by the quality of 5G-enabled services consumed daily.

Figure 4: Multidimensional Structure of Brand Image



Source: Adapted from Kevin Lane Keller (1993)

2.4.2. Strength, Favorability, and Uniqueness of Associations (Keller, 1993)

Beyond their typology, Keller (1993) identifies three qualitative dimensions that determine the effectiveness of brand associations: strength, favorability, and uniqueness.

- **Strength:** The degree to which associations are firmly established in memory. Strong associations are easily recalled and more resistant to competing information (Korchia, 2004).
- **Favorability:** The positive evaluation attached to associations. Favorable associations meet consumer expectations and generate positive brand attitudes (Korchia, 2004).
- **Uniqueness:** The distinctiveness of associations relative to competing brands. Romaniuk and Gaillard (2007) demonstrate that unique associations are directly linked to brand choice probability.

In a competitive telecom market, 5G deployment can create strong, favorable, and unique brand associations if the operator is among the first to launch the technology highlighting the strategic importance of timing in innovation deployment.

2.5. The Role of Perceived Quality in Brand Image Formation

Perceived quality is considered one of the most influential components in the formation of brand image. According to Afsar (2014), perceived quality directly affects the evaluation of the brand and its offerings, acting as a cognitive signal that reduces uncertainty and facilitates decision-making. Ardyansyah et al. (2022) further demonstrate that perceived quality contributes not only to strengthening brand image but also to reinforcing brand trust, which subsequently leads to increased brand loyalty.

In the telecom sector, 5G technology enhances perceived quality through superior network performance, making it a direct antecedent of positive brand image. This connection reinforces the mediating pathway posited in this research.

2.6 The Brand Image Formation Process

2.6.1. Sources of Image Formation

Brand image is not formed spontaneously, but rather emerges through a continuous and dynamic process influenced by multiple sources of information. According to Brondoni (2001), brand image results from a complex interaction between company-controlled communication and market-driven influences.

- **Direct Experience**

Direct experience refers to the consumer's personal interaction with the product or service. Rajagopal (2020) emphasizes that direct experience is one of the most influential sources of brand image, as it provides consumers with concrete and reliable information based on personal evaluation rather than external influence.

- **Communication**

Communication represents the set of messages transmitted by the company through various channels advertising, promotions, branding elements, and digital media. According to Brondoni (2001), communication plays a strategic role in positioning the brand and shaping initial perceptions before any direct experience occurs.

- **Word-of-Mouth**

Word-of-mouth refers to informal communication between consumers regarding their experiences and opinions. Rajagopal (2020) highlights that consumers tend to trust information from other consumers more than company-generated messages. In the digital era, word-of-mouth has gained even greater importance through online platforms and social media.

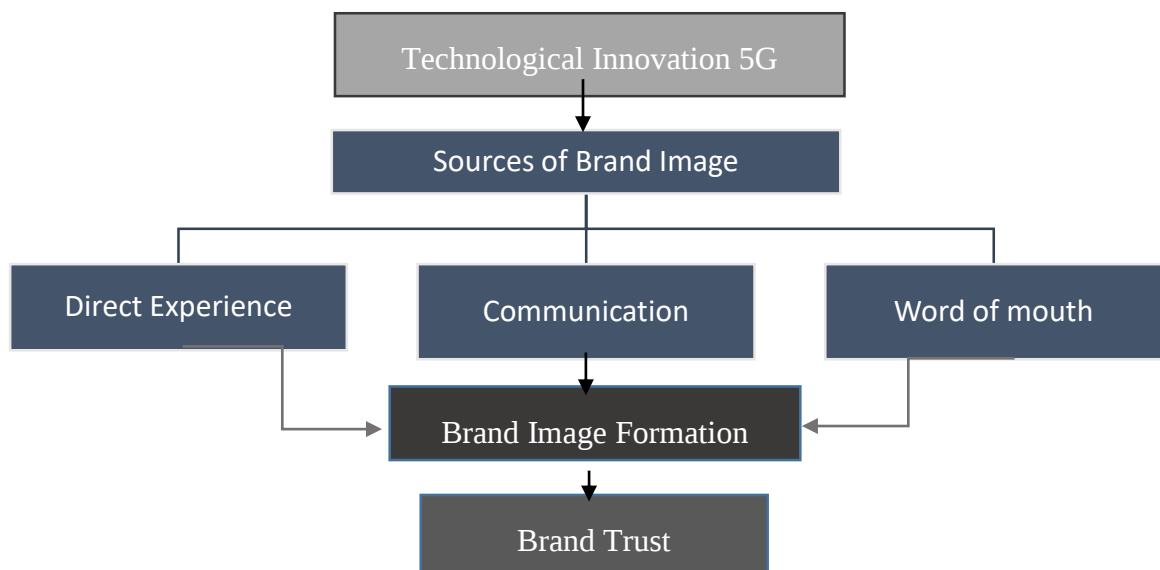
In a 5G context, all three sources converge: operators communicate their 5G leadership through advertising (communication); consumers experience 5G-enabled services in daily life (direct experience); and they share those experiences on social platforms (digital word-of-mouth). Each source contributes to updating brand image, which in turn influences choice intention.

2.7. The Role of Trust in Strengthening Brand Image

Trust represents a fundamental element in the development and reinforcement of brand image. According to Baral (2016), brand trust is built through perceived quality, past experiences, and brand credibility factors that reduce perceived risk and encourage consumers to rely on the brand. Dogan (2025) emphasizes the reciprocal relationship between trust and brand image: positive brand perceptions build trust, and trust in turn reinforces and stabilizes brand image over time.

For a mediating variable, this stability is critical: a trustworthy brand image is a consistent and reliable mediator, translating 5G innovation into durable consumer preferences rather than fleeting reactions.

Figure 5: The Brand Image Formation Process in the Context of 5G Technological Innovation



Source: Adapted from Brondoni (2001), Rajagopal (2020), Abdulaal and Al Mubarak (2019)

2.8. Brand Image in the Telecommunications Sector

2.8.1. Specificities of Brand Image in Telecom Services

Brand image in the telecommunications sector presents several specific characteristics that distinguish it from other industries, mainly due to the intangible nature of services and the central role of technology. Since services cannot be physically examined before consumption, consumers depend on perceived quality and reputation to evaluate the brand, increasing the importance of brand image as a key factor in reducing uncertainty and influencing choice.

According to Singh (2020), service quality dimensions such as reliability, responsiveness, and efficiency play a major role in shaping brand image. Kajtazi, Reshidi, and Baca (2025) further highlight that brand image has a significant impact on customer satisfaction and brand loyalty, implying a direct pathway from brand image to behavioral outcomes—including choice intention.

The telecom sector is also highly sensitive to service failures and rapid technological evolution. Any degradation in network performance can immediately damage brand image, while technological advancement especially 5G deployment can powerfully enhance it. This sensitivity makes brand image in telecom an especially dynamic and responsive mediator.

2.8.2. Key Dimensions of Brand Image in Telecom Services

Brand image in the telecommunications sector is structured around three key dimensions that reflect how consumers evaluate telecom services.

- **Perceived Service Quality**

Perceived service quality reflects the consumer's evaluation of overall telecom performance, including responsiveness, efficiency, and customer support. Javiya and Bhayani (2013) confirm that service quality factors significantly affect consumers' perception of mobile service providers, with higher quality strongly associated with a more positive brand image.

- **Perceived Innovation**

Perceived innovation refers to the extent to which consumers perceive a brand as technologically advanced and capable of introducing improved services. Molem, Akume, and Bihkongnyuy (2018) highlight that technological innovation enhances satisfaction and contributes to improving brand image. This dimension is the most directly activated by 5G deployment, as consumers perceive the operator as modern and competitive.

- **Network Reliability**

Network reliability stability, consistency, and coverage directly affects the user experience. Consumers expect uninterrupted connectivity, and any failure may lead to dissatisfaction and negatively impact brand image. Conversely, a reliable 5G network reinforces perceptions of quality and trust, further strengthening brand image.

These three dimensions represent the specific facets of brand image through which 5G deployment exercises its influence. Together, they mediate the relationship between the operator's technological investment and the consumer's ultimate choice intention.

2.8.3. The Impact of Technology Deployment (3G, 4G, 5G) on Operators' Brand Image

The deployment of advanced technologies has significantly transformed the telecommunications sector and plays a crucial role in shaping operators' brand image. In a highly competitive environment, technological advancement is perceived by consumers as an indicator of service quality, innovation, and market leadership.

- **Enhancement of Brand Recognition and Consumer Attraction**

The introduction of new technologies contributes to increasing brand recognition and attracting consumers. According to Sakshi, Bansal, and Balhara (2018), brand recognition plays a key role in influencing consumer attraction. The deployment of 4G and 5G strengthens the brand's presence and positions it as modern and innovative, making consumers more likely to be attracted to technologically advanced brands.

- **Strengthening Brand Associations and Image**

Consumers tend to associate advanced technologies with efficiency, reliability, and innovation. Setyadi et al. (2025) highlight that brand associations and awareness are closely aligned with brand image in the telecommunications sector. The implementation of new technologies enhances these associations by creating a perception of progress, thereby improving the overall brand image.

- **Perception of Innovation and Competitiveness**

Companies that invest in new technologies are perceived as market leaders, while those that lag behind may be viewed as less competitive. As a result, 5G deployment becomes a strategic differentiator, positioning operators as forward-thinking. This perception plays a significant role in shaping consumer attitudes and preferences and ultimately choice intention.

- This section completes the left side of the mediation chain: 5G deployment directly enhances brand recognition, reinforces brand associations, and elevates the perception of innovation all of which feed into a stronger, more positive brand image. The right side of the chain how brand image drives choice intention will be developed in the following chapter.

2.9 Measuring Brand Image

2.9.1. Main Measurement Approaches

Measuring brand image represents a fundamental step in marketing research. According to Keller (1993), brand image can be measured through brand associations evaluated on the basis of their strength, favorability, and uniqueness. Grubor, Đokić, and Milićević (2019) explain that brand image measurement is often integrated within broader brand equity models,

which rely on structured scales capturing consumer perceptions through indicators such as brand awareness, perceived quality, and brand associations.

- **Keller's Measurement Approach**

Keller's model focuses on customer-based brand equity and measures brand image through the analysis of associations in consumer memory, assessing their strength, favorability, and uniqueness.

- **Aaker's Perspective**

Aaker's model incorporates brand image indirectly through brand associations and perceived quality within the broader framework of brand equity, through elements such as perceived quality, brand associations, and brand loyalty. This perspective highlights that brand image interacts with other dimensions to create overall brand value.

- **Lassar et al.'s Approach**

Lassar et al. approach brand image through dimensions such as perceived quality, social image, and emotional value within a broader customer based brand equity framework, capturing both functional and symbolic aspects of brand perception.

- **Adaptation of Instruments to the Telecom Services Context**

The measurement of brand image requires the adaptation of existing scales to the specific characteristics of the telecommunications sector. According to Muhammed et al. (2023), brand image significantly influences customer purchase intention in telecommunications, highlighting the importance of instruments that capture consumer perceptions in a service-based environment.

Pandey and Jain (2021) emphasize that service quality and customer satisfaction are key determinants of corporate image, suggesting that measurement tools must integrate these dimensions. In the telecom sector, adapted instruments should incorporate:

- Service quality indicators: responsiveness, reliability, and customer support
- Customer satisfaction: assessed simultaneously with brand perception
- Sector-specific indicators: network performance and service accessibility

3.Choice Intention in Telecom Services

3.1Behavioral Intention

The concept of behavioral intention, coined by Martin Fishbein and Icek Ajzen (1975), is defined as the likelihood of performing a certain behavior. It is a function of two main elements: the person's attitude toward the behavior and subjective norms. This construct offers a basic bridge between individuals' beliefs or feelings about performing a certain action and the likelihood of those actions.

performing the behavior with a feeling of favor or dislike. A consumer who perceives that signing up with a particular telecommunication company will result in satisfactory service and value, for instance, is likely to have a more positive attitude towards this decision.

Meanwhile, subjective norms are the person's perception of the social pressure to perform or not to perform the (social) behavior. This can be influenced by family, friends, co-workers, or even society. For example, word-of-mouth or social group trends can have a significant effect on an individual's intention to select a certain telecommunications company.

Thus, behavioral intention is important to link psychological factors and consumer behavior. It provides insight into how consumers form preferences prior to making a choice, such as in the service sector where the decision-making process is multifaceted.

- **The Theory of Planned Behavior (TPB)**

Icek Ajzen (1991) extended this theory by including perceived behavioral control to develop the Theory of Planned Behavior (TPB). The TPB states that behavior is determined not only by beliefs and social influences but also by perceptions of the ease or difficulty associated with performing the behavior.

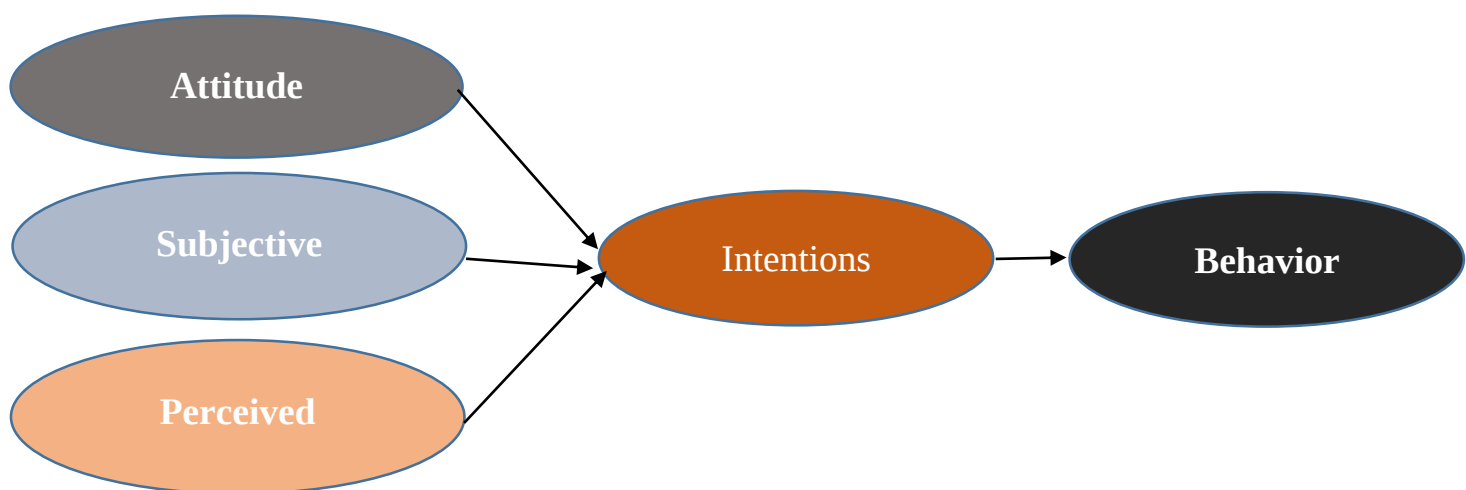
Perceived behavioral control is individuals' beliefs about their ability to perform the behavior. It involves considerations like financial means, service availability, technical knowledge, and barriers.

This is a critical factor in the telecommunication industry. For example, a customer may have a favourable attitude towards a telecommunication provider that provides cutting-edge 5G services as well as positive social pressures. But if the cost of the service is high, it is

not available in their area, or is inconvenient, then their likelihood of selecting that provider may diminish.

Therefore, TPB offers a holistic view of consumer behavior by considering both internal and external factors. This makes it very useful to understand complicated decision-making processes like telecom service selection, where numerous practical considerations may play a role

Figure 6: The Theory of Planned Behavior



Source :Adapted from Ajzen (1991)

3.2Choice Intention

Choice intention is a key concept in consumer behavior, widely used to predict an individual's

future decision-making. It refers to the likelihood that a consumer will select a particular product or service among several available alternatives. In the telecommunications sector, this concept is especially relevant due to rapid technological developments such as 5G and the increasing intensity of competition.

In the Algerian context, where telecom operators are progressively introducing advanced technologies, consumers are becoming more sensitive to innovation and brand-related factors. According to (Başgöze, 2012) and choice intention is strongly influenced by perceived innovation and brand awareness. Similarly, Özer (2012) highlights that brand credibility plays

a significant role in technology acceptance, which directly affects consumers' intention to choose a specific service.

Thus, choice intention can be understood as a consumer's predisposition to select a particular offering, shaped by perceptions, experiences, and trust in the brand.

3.3 How Consumers Choose: The Decision-Making Process in Telecommunications

The consumer decision-making process has received considerable attention in the marketing literature as a systematic yet flexible process leading to a purchase or choice. The most prominent framework is the EKB model (**Engel, Blackwell, & Miniard, 1995**), which describes consumer decision-making as a five-stage process: need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. This model is especially pertinent in high-involvement and complex markets like telecom, where choices are based on the consideration of functional and symbolic product attributes.

Likewise, Kotler and Keller (2016) note that this process is not strictly sequential, but rather an iterative and contextual process, shaped by both internal (such as motivation, perception, and learning) and external factors (such as marketing communications, technological developments, and social pressures). In telecom services, particularly with the arrival of 5G, this process is more complex, with consumers needing to understand technical specifications and evaluate future benefits.

- **Need Recognition**

The consumer decision-making process starts with need recognition, which is triggered when there is a perceived discrepancy between the person's current situation and an ideal situation. In the telecommunications sector, this is often triggered by technological innovations. For instance, the roll-out of 5G can raise expectations around speed, latency and connectivity, and in turn, drive the recognition of a need for a service upgrade.

This stage is influenced by both functional and symbolic concerns; for instance, a consumer may feel the need to upgrade their service to be in line with technological advancements or to adopt a new technology linked to a desirable lifestyle. Consequently, innovation can be a trigger for need recognition, even in the absence of dissatisfaction with current services.

- **Information Search**

Once the need is recognized, consumers engage in an information search process to reduce uncertainty and identify possible solutions. In the telecom sector, this stage is particularly significant due to the intangibility and technical complexity of services.

Consumers rely on multiple sources of information, including:

- Personal sources (friends, family, word-of-mouth),
- Commercial sources (advertising, operator websites),
- Public sources (reviews, comparisons),
- Experiential sources (previous usage).

The extent of the search depends on the perceived risk and the consumer's level of involvement. In emerging markets such as Algeria, where awareness of 5G is still developing, consumers may rely more heavily on brand reputation and communication strategies to interpret available information.

- **Evaluation of Alternatives**

This is the process where consumers evaluate various telecom operators and service packages with a series of criteria. These include price, network performance, coverage area, innovation, and brand image.

Crucially, this is not a strictly rational decision-making process. Consumers may rely on a variety of heuristics or rules of thumb, particularly when confronted with technical information. Here, brand image and brand reputation are important, as these serve as a summary quality indicator.

Perceived innovation is also key. For instance, Wu and Ho (2014) note that consumers prefer products and services that they perceive to be technologically innovative, as this is a signal of higher quality and performance. This implies that innovation can skew the evaluation process, leading to a preference for some alternatives even before a full evaluation is made.

- **Choice Decision**

The choice decision represents the stage where the consumer selects the most suitable option among the evaluated alternatives. However, this decision is not always the direct outcome of prior evaluation; it can still be influenced by situational factors such as promotional offers, availability, or social influence.

In the telecommunications context, the final decision is often shaped by a combination of:

- Cognitive evaluation (performance, price, innovation),
- Affective responses (trust, brand preference),
- Perceived risk reduction (credibility and reputation).

Wu and Ho (2014) highlight that perceived innovation simplifies this stage by guiding consumers toward options that are seen as more advanced, thereby reducing decision complexity. In this sense, innovation acts as a decision heuristic, allowing consumers to make quicker and more confident choices.

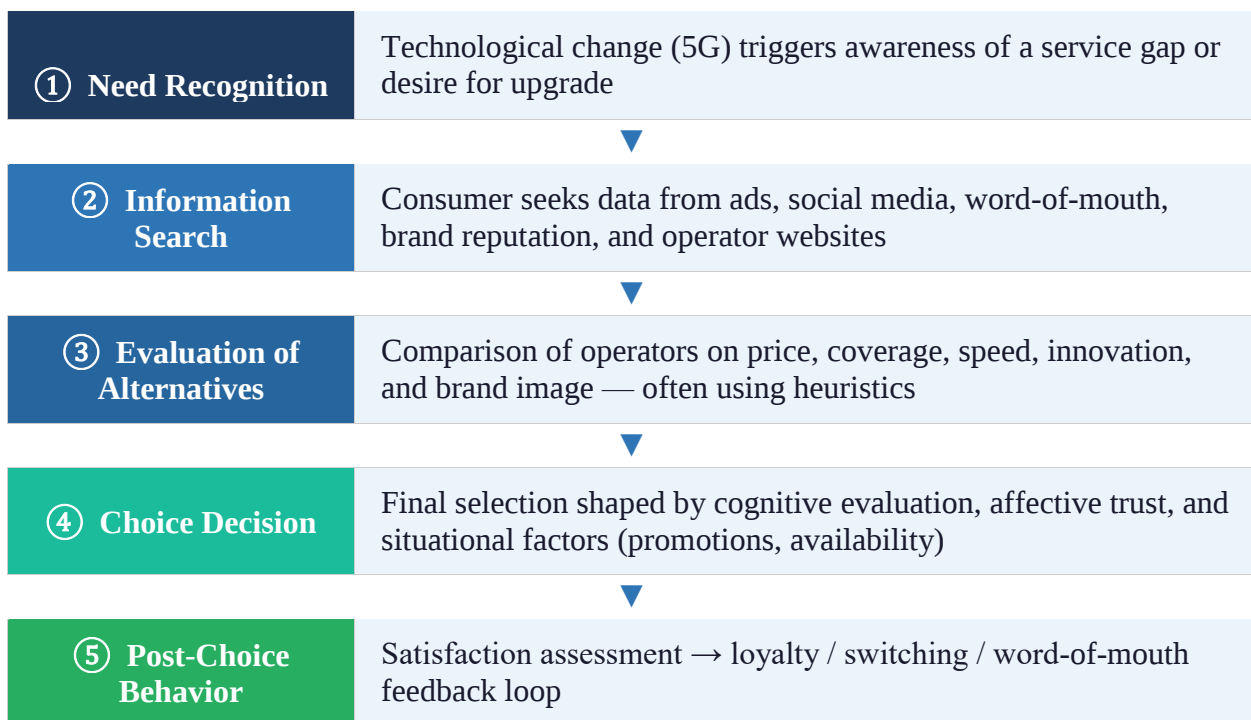
- **Post-Choice Behavior**

The final stage involves the consumer's evaluation of their decision after the purchase or subscription. This stage is critical, as it determines satisfaction, future intentions, and loyalty.

If the service meets or exceeds expectations particularly in terms of technological performance and reliability the consumer is likely to experience satisfaction, leading to repeat choice intention and long-term loyalty. Conversely, dissatisfaction may result in negative word-of-mouth or switching behavior.

This stage also feeds back into future decision-making processes, making the model inherently dynamic. In the telecom sector, where services are continuously evolving, post-choice evaluation is strongly influenced by the operator's ability to deliver consistent innovation and maintain a strong brand image.

Figure 7: Consumer Decision-Making Process in Telecommunications



Source: Engel, Blackwell & Miniard (1995); adapted to telecom context

3.4. Key Factors Influencing Choice Intention

Rather than generic categories, empirical telecom research identifies four main drivers:

3.4.1 Price and Perceived Value

Research indicates price and perceived value are the most significant factors influencing choice intentions (**Rahman et al., 2011; Ojiaku & Osarenkhoe, 2018**).

Customers assess subscription fees, data caps, and level of benefits received in comparison to the competitors' offers.

With intense competition in the telecommunication industry, consumers are generally price sensitive and make decisions based on a comparison of various offers. But beyond price, consumers value the benefits of service quality and features.

3.4.2 Service Quality

Network reliability, coverage, and customer service are critical factors influencing consumer choice. High-quality service enhances trust and satisfaction, which reduces the likelihood of switching to competitors.

Service quality is particularly important in high-churn markets, where consumers frequently compare providers in search of better performance and support. A consistent and reliable service experience can therefore significantly strengthen consumer preference and loyalty.

3.4.3 Brand Image and Equity

(Keller K. , 1993)demonstrates that brand knowledge, including awareness and perceived image, shapes consumer responses.

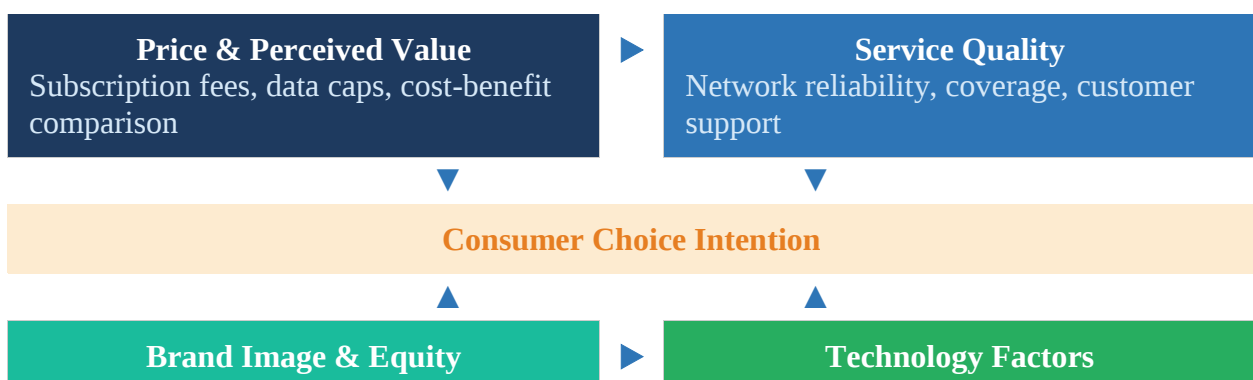
Empirical studies (Aryani, 2020; Bui et al., 2021) show that strong brand equity can influence choice intention by enhancing consumer confidence, reducing perceived risk, and creating positive associations with the brand. However, the strength of this influence may vary depending on the context and stage of the consumer journey.

3.4.4 Technology-Related Factors

With the adoption of 5G and other advanced technologies, technology-related perceptions such as perceived usefulness, ease of use, and innovation are becoming increasingly decisive.

Consumers are more likely to choose telecom providers that offer superior technological performance, including faster internet speeds, better connectivity, and innovative digital services. These factors play a crucial role in differentiating providers in a highly competitive market.

Figure 8:Key Factors Influencing Consumer Choice Intention in Telecom Services



Trust, reputation, perceived quality, brand associations

Perceived usefulness, ease of use, 5G innovation

Source: Adapted from Rahman et al. (2011); Keller (1993); Wu & Ho (2014); Ojiaku & Osarenkhoe (2018)

3.5. The Relationship Between Brand Image and Choice Intention

The relationship between brand image and choice intention is one of the most established links in consumer behavior research, yet it remains particularly significant in technology-driven industries. Brand image functions as a cognitive filter through which consumers interpret information, evaluate alternatives, and ultimately make decisions.

A strong and positive brand image reduces information asymmetry and uncertainty, especially in contexts where consumers may lack full technical knowledge such as telecommunications services. In such cases, consumers rely on brand-related cues to simplify their decision-making process. This aligns with signaling theory, where the brand acts as an indicator of expected quality and performance.

Huang (2024) provides empirical evidence that brand image has both a direct and indirect effect on purchase intention. It directly influences consumer preferences while also acting as a mediating variable between other factors (such as perceived quality or innovation) and behavioral outcomes. This highlights the central role of brand image in translating perceptions into actual intentions.

In addition, Wu and Ho (2014) emphasize that brand awareness and perceived innovation jointly strengthen purchase intention. Their findings suggest that even when a product is innovative, its impact on consumer choice is significantly amplified when supported by a strong and recognizable brand image. In other words, innovation alone is not sufficient; it must be embedded within a credible and attractive brand framework.

From a behavioral perspective, brand image also contributes to the formation of emotional and psychological attachment, which further reinforces choice intention. Consumers are not only choosing a service; they are also choosing what the brand represents in terms of identity, status, and trust.

In the telecommunications sector, particularly in Algeria, this relationship becomes even more critical due to increasing competition and the relative similarity of service offerings. As a result, brand image emerges as a decisive factor that can tip the balance in favor of one operator over another.

Thus, brand image can be seen as a central mechanism through which various determinants such as innovation, credibility, and awareness are translated into a concrete choice intention.

3.6. Choice Intention and Customer Loyalty

While choice intention is often considered a short-term predictor of consumer behavior, its implications extend beyond the initial decision, playing a crucial role in the development of long-term customer loyalty. In this sense, choice intention can be viewed as the first stage in the loyalty formation process.

When a consumer's choice is confirmed by a positive experience particularly in the case of adopting innovative services like 5G the initial intention evolves into satisfaction, which in turn fosters trust and commitment. This progression reflects a transition from intentional behavior to relational behavior, where the consumer develops a lasting connection with the brand.

The role of innovation in this process is particularly significant. As highlighted by Shams et al. (2020), perceived innovativeness enhances not only initial attraction but also long-term engagement by continuously reinforcing the brand's value proposition. Consumers who perceive a brand as innovative are more likely to remain loyal, as they expect ongoing improvements and future benefits.

Furthermore, brand image acts as a stabilizing factor in the loyalty relationship. A strong and positive brand image reinforces consumer confidence and reduces the likelihood of switching behavior, even in the presence of competing offers. This is especially relevant in the telecommunications sector, where switching costs may be low, but psychological attachment and trust can act as barriers to change.

Wu and Ho (2014) also suggest that positive perceptions formed during the pre-purchase stage can extend into post-purchase behavior, influencing repeat purchase intentions and long-

term loyalty. This indicates that choice intention is not an isolated construct but part of a broader behavioral continuum.

In the Algerian telecom market, where consumers are increasingly exposed to new technologies and competitive offers, maintaining loyalty requires more than just attracting customers. Operators must ensure that the initial choice intention is supported by consistent service quality, continuous innovation, and a strong brand image.

Therefore, choice intention should be understood not only as an immediate outcome but as a strategic entry point into customer loyalty, linking short-term decisions with long-term relational outcomes.

The theoretical and empirical foundations established throughout this chapter constitute the basis upon which the empirical investigation will be conducted. Chapter One has established the conceptual architecture of the present study by grounding the research in three complementary theoretical frameworks: the Diffusion of Innovation theory, the Technology Acceptance Model, and Brand Equity theory. Together, these frameworks explain how consumers evaluate and adopt new technologies, how their perceptions translate into brand assessments, and how brand image ultimately mediates behavioral outcomes such as choice intention. The review of prior empirical literature further confirmed that while 5G technological innovation, brand image, and consumer choice intention have each been studied in isolation, an integrated model linking these three constructs within a single coherent framework remains underexplored, particularly in the context of emerging markets such as Algeria. This research gap, identified systematically across the literature, justifies the development of the conceptual model presented in this chapter, which positions brand image as a full or partial mediator between the three dimensions of 5G innovation (network performance, connectivity capability, and technological integration) and consumer choice intention. The ten hypotheses formulated herein operationalize this model and define the empirical agenda of the study. The following chapter presents the methodological framework adopted to test these hypotheses, along with the organizational context of Djezzy, through a quantitative field study conducted among a sample of the operator's customers in Algeria.

**CHAPTER TWO: RESEARCH
METHODOLOGY AND
ORGANIZATIONAL FRAMEWORK**

Section 1: Methodological Framework (Quantitative Approach)

This section presents the epistemological and methodological approach adopted to analyze the impact of 5G technological innovation on brand image and consumer choice intention in the telecommunications sector, specifically in the case of Djezzy. It also explains the methods of data collection and analysis, as well as the operationalization of variables used to test the research hypotheses.

1. Epistemological Approach

Among the various scientific research paradigms, it is essential to position the present study within an appropriate epistemological framework. The main objective of this research is to test hypotheses related to the impact of 5G technological innovation on brand image and consumer choice intention, based on consumers' perceptions in the telecommunications sector.

Therefore, this study adopts a positivist approach, which focuses on analyzing relationships between measurable variables in an objective manner. This approach is particularly suitable as the research aims to examine causal relationships between 5G innovation, brand image, and consumer choice intention using quantitative data.

However, although positivism assumes objectivity and neutrality in data collection and analysis, this position requires some nuance. Consumer perceptions, by nature, are subjective and influenced by personal experiences and attitudes. Therefore, this study adopts a positivist perspective oriented toward identifying general patterns and trends through quantified perceptions rather than achieving absolute objectivity.

In this context, the objective is not to eliminate subjectivity entirely, but to analyze it through measurable indicators that allow for statistical interpretation and generalization of results.

2. Research Design

2.1. Research Approach

This study is based on a deductive approach, where hypotheses derived from existing theories and previous empirical studies are tested using collected data. The theoretical framework developed in Chapter One, including models such as the Diffusion of Innovation

(DOI) and the Technology Acceptance Model (TAM), serves as the foundation for formulating research hypotheses.

The deductive approach allows for a systematic verification of theoretical relationships between variables by confronting them with real-world data. In this case, it enables the researcher to test the influence of 5G technological innovation on brand image and consumer choice intention in the context of Djazzy.

2.2. Research Strategy

To achieve the objectives of the study, a survey method is adopted as the primary research strategy. This method is widely used in consumer behavior and marketing research as it allows for the collection of standardized data from a large number of respondents.

The survey is conducted using a structured questionnaire distributed to telecommunications users, particularly customers of Djazzy. This approach enables the collection of quantitative data related to perceptions, attitudes, and behavioral intentions toward 5G technology and brand image.

2.3 Research Type

The methodology adopted in this study is quantitative, as the research aims to measure the effect of 5G technological innovation on brand image and consumer choice intention in the telecommunications sector, specifically in the case of Djazzy. This approach is appropriate because the study focuses on analyzing relationships between clearly defined variables and testing hypotheses derived from an established theoretical framework developed in Chapter One .

According to Giordano and Jolibert (2016), quantitative research is particularly suitable when the objective is to test theories or hypotheses, especially in cases where a well-developed theoretical foundation already exists. In the context of this study, models such as the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) provide a strong theoretical basis for examining how consumers perceive and adopt 5G technology, and how these perceptions influence brand image and behavioral intention.

The use of a structured questionnaire, administered to a sample of telecommunications users particularly customers of Djazzy allows for the collection of standardized, comparable,

and measurable data. This facilitates the application of statistical analysis techniques to evaluate the relationships between variables and to test the proposed hypotheses.

Furthermore, the hypotheses formulated from the theoretical and empirical literature enable the identification of operational variables, which are presented in the following section. These variables are operationalized through specific indicators that ensure their accurate measurement and objective evaluation, thereby enhancing the reliability and validity of the research findings.

2.4 Research Questionnaire

To address the research question, the key dimensions of the study were identified and translated into measurable variables. These variables were operationalized through specific indicators, allowing for their objective assessment.

To ensure clarity and facilitate respondents' understanding, the questionnaire was administered in both English and Arabic, enabling participants to choose the language with which they are most comfortable.

The development of the questionnaire is based on both theoretical and empirical contributions from the literature, particularly Rogers (2003) regarding the Diffusion of Innovation theory, as well as the Technology Acceptance Model (Mugo et al., 2017; Harryanto et al., 2018). It also relies on recent studies related to 5G technological innovation (Nuriev et al., 2024; Zamzami, 2023), brand image in the telecommunications sector (Gazi et al., 2024; Ahmad et al., 2022), and consumer choice intention (Belmonte et al., 2024; Paraskevi et al., 2023; Ramli & Sylvia, 2023; Widjaja, 2024).

The questionnaire is entirely composed of closed-ended questions, which facilitates the statistical processing of the collected data. Most of the items are measured using a five-point Likert scale, allowing respondents to express their level of agreement with the proposed statements.

The questionnaire developed for this study is structured into several sections covering all identified dimensions. Its structure is presented as follows:

- **Introduction and informed consent:** Presentation of the research objective, along with a statement ensuring confidentiality and anonymity of responses.

- **Inclusion criteria:** Identification of respondents as telecommunications users, particularly customers of Djezzy, to ensure the relevance of the data collected.
- **Perception of 5G technological innovation:** Assessment of consumers' perceptions regarding 5G characteristics, including speed, performance, usefulness, and its innovative nature.
- **Brand image (Djezzy):** Measurement of consumers' perceptions of Djezzy's brand image, including trust, perceived quality, modernity, and reputation.
- **Consumer choice intention:** Evaluation of consumers' willingness to choose, adopt, or recommend Djezzy services, especially in the context of 5G technology.
- **Demographic profile (Fiche signalétique):** Collection of respondents' socio-demographic information (age, gender, education level, occupation, etc.) to better understand the sample characteristics.
- **3 Measurement Scale :** All items in the questionnaire were measured using a five-point Likert scale, which allows respondents to express their level of agreement with each statement.

The scale is defined as follows:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

Thus, each variable is measured through a set of specific indicators, ensuring consistency between the theoretical framework, the research hypotheses, and the data collection instrument. This structure contributes to enhancing the validity and reliability of the research findings.

3. Data Collection Method

3.1 Secondary Data

An extensive documentary review was conducted to establish the theoretical and conceptual framework of this study. This review was based on:

- Scientific articles retrieved from academic databases such as Google Scholar, ScienceDirect and ResearchGate .
- Books and academic references in marketing, telecommunications, technological innovation, and consumer behavior
- Reports and publications issued by telecommunications regulatory authorities and industry-related organizations

This secondary data enabled the identification and development of the key constructs of the research, namely 5G technological innovation, brand image, and consumer choice intention.

3.2 Primary Data

Primary data were collected through a structured questionnaire, developed based on previous studies related to technology adoption, brand image, and consumer behavior.

The questionnaire was administered using two complementary methods:

- Online, through Google Forms, and distributed via social media platforms such as Facebook and LinkedIn, as well as within online student communities and discussion groups
- Face-to-face, by directly approaching respondents in university environments, where individuals were invited to complete the questionnaire on-site

4. Sample Description and Survey Process

4.1 Target Population and Sampling Method

The target population of this study consists of: **Users of Djezzy 5G services in Algeria**

However, the exact number of individuals using Djezzy 5G is not publicly available. Therefore, the population is considered large and undefined.

Due to the absence of a comprehensive sampling frame and the difficulty of accessing this specific population, a convenience sampling method was adopted. This non-probability sampling technique is commonly used in exploratory research when:

- The population is difficult to identify
- Access to respondents is limited
- Time and resource constraints exist

According to Giordano and Jolibert (2016), convenience sampling allows for efficient data collection while ensuring a certain diversity of respondents. However, it is important to acknowledge that this method may introduce certain sampling biases. In particular, the distribution of the questionnaire through university environments and online student communities may result in an over-representation of young adults and students, who may have different technological awareness and usage patterns compared to the broader population of Djezzy 5G users. These potential biases will be explicitly discussed in the limitations section of this research, and their implications for the generalizability of the findings will be addressed accordingly.

4.2 Data Collection Process

The data collection process was carried out through multiple channels in order to reach a maximum number of relevant respondents:

- Distribution of the questionnaire via social media platforms (Facebook and Instagram)
- Sharing within student groups and online communities
- Direct administration in universities, where respondents were approached face-to-face and invited to participate

This approach allowed the researcher to specifically target individuals who are more likely to have access to and use 5G services, particularly within university environments.

4.3 Sample Size Determination

Since the exact size of the target population (Djezzy 5G users) is unknown and can be considered large and undefined, Cochran's formula was used to determine the minimum required sample size. This formula is commonly applied in survey-based research when the population size is not clearly established, as it provides a reliable estimate for large populations.

The sample size was calculated using **Cochran's formula**:

$$n = \frac{Z^2 \times P(1 - P)}{e^2}$$

Where:

- **n** = required sample size
- **Z** = confidence level (1.96 for 95%)
- **P** = estimated proportion (0.5, used when unknown)
- **e** = margin of error (0.07)

By applying these parameters:

- Confidence level: **95%**
- Margin of error: **7%**
- Estimated proportion: **0.5**

By applying these parameters (95% confidence level, 7% margin of error, and P = 0.5), the minimum required sample size was calculated to be approximately 196 respondents. This sample size is considered sufficient to ensure an acceptable level of statistical reliability for a large and undefined population.

However, in the actual data collection process, a total of 226 responses were initially collected. After applying the screening and filtering criteria (removal of incomplete responses and exclusion of non-eligible respondents based on the filtering questions), the final valid sample size was reduced to 165 respondents.

Several practical constraints influenced the final sample size, including:

- Difficulty in identifying and reaching specifically Djezzy 5G users
- Limited availability and willingness of respondents to participate
- Time constraints during the data collection process

Despite the reduction compared to the initially targeted sample size, the final valid sample of 165 respondents remains acceptable for exploratory quantitative analysis. To ensure the reliability of the results, internal consistency was assessed using Cronbach's Alpha, and

regression analysis was conducted to test the relationships between variables. These methods help strengthen the robustness of the findings despite the sample size limitation.

5. Data Processing and Analysis Method

The collected data were analyzed using a two-stage approach combining IBM SPSS Statistics for preliminary analysis and Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS 4 for hypothesis testing. This approach enables both an initial examination of the data and the analysis of complex structural relationships, including mediation effects.

Stage 1: Preliminary Analysis

IBM SPSS Statistics was used to perform initial data screening and preparation. Descriptive statistics were computed to summarize the socio-demographic profile of the sample, including frequencies, percentages, means, and standard deviations. Reliability analysis was conducted using Cronbach's Alpha (α) to assess the internal consistency of each measurement scale prior to structural modelling. A minimum threshold of $\alpha \geq 0.70$ was adopted (Nunnally, 1978), and reliability was evaluated separately for each construct: network performance, connectivity capability, technological integration, brand image, and consumer choice intention.

Stage 2: PLS-SEM Analysis

To test the research hypotheses, PLS-SEM was employed using SmartPLS 4. This method is particularly suitable for this study due to its predictive orientation, its ability to handle complex models with multiple constructs, and its robustness in situations where the assumption of multivariate normality is not required (Hair et al., 2019).

The analysis followed the two-step approach recommended by Hair et al. (2019), consisting of the evaluation of the measurement model followed by the assessment of the structural model.

1. Measurement Model Evaluation

The measurement model was assessed to ensure the reliability and validity of the constructs. While Cronbach's Alpha was computed in the preliminary stage, Composite

Reliability (CR) was used in the PLS-SEM analysis as a complementary measure, providing a more accurate estimation of internal consistency by taking into account the actual outer loadings of the indicators.

The following criteria were examined:

- **Indicator reliability:** outer loadings ≥ 0.70 per item
- **Internal consistency:** Composite Reliability (CR) ≥ 0.70 per construct
- **Convergent validity:** Average Variance Extracted (AVE) ≥ 0.50 (Fornell & Larcker, 1981)
- **Discriminant validity:** assessed using the Fornell–Larcker criterion and the Heterotrait-Monotrait ratio (HTMT < 0.85) (Henseler et al., 2015)

2. Structural Model Evaluation

The structural model was evaluated to test the hypothesized relationships between variables. The following indicators were used:

- **Path coefficients (β):** to assess the strength and direction of relationships between constructs
- **Coefficient of determination (R^2):** to evaluate the explanatory power of endogenous variables, where higher values indicate stronger explanatory capacity
- **Effect size (f^2):** to assess the contribution of each exogenous variable (0.02 small, 0.15 medium, 0.35 large)
- **Predictive relevance (Q^2):** assessed using blindfolding, with $Q^2 > 0$ indicating predictive relevance
- **Multicollinearity assessment:** evaluated using the Variance Inflation Factor (VIF), with values below 5 indicating no collinearity issues

To determine statistical significance, a bootstrapping procedure (5,000 subsamples) was applied, generating t-values and p-values. A relationship was considered significant when $t > 1.96$ ($p < 0.05$) and the corresponding 95% confidence interval excluded zero.

3. Mediation Analysis

The mediating role of brand image between the dimensions of 5G technological innovation and consumer choice intention was assessed using the bootstrapping approach within the PLS-SEM framework.

The analysis included:

- **Indirect effects ($a \times b$)**
- **Direct effects (c')**
- **Total effects**

Mediation was confirmed when the 95% bootstrap confidence interval of the indirect effect excluded zero. It was interpreted as:

- **Full mediation** when the direct effect (c') became non-significant after including the mediator
- **Partial mediation** when both direct and indirect effects remained significant
- **No mediation** when the indirect effect was not significant

This combined analytical approach ensures both data reliability and robust hypothesis testing by integrating preliminary statistical analysis with advanced structural modeling. It provides a comprehensive understanding of how 5G technological innovation influences consumer choice intention through the mediating role of brand image.

6. Variables of the Study

The variables of this research were operationalized based on the literature review presented in Chapter One. They were translated into measurable items included in the questionnaire. The study is structured around three main types of variables: independent variables, a mediating variable, and a dependent variable.

6.1. Independent Variables: 5G Technological Innovation

The independent variable of this study is 5G technological innovation, conceptualized as a multidimensional construct reflecting consumers' perceptions of the technological capabilities of Djezzy's 5G services.

This variable is measured through four key dimensions:

1. Network Performance

This dimension refers to the perceived technical performance of the 5G network, including speed, latency reduction, reliability, and overall service quality.

2. Connectivity Capability

This dimension reflects the ability of the 5G network to support multiple devices simultaneously, maintain stable connections under high demand, and ensure compatibility with various digital services and applications.

3. Technological Integration

This dimension captures the extent to which 5G technology integrates with advanced technologies such as artificial intelligence and data-driven systems, contributing to improved service performance. Given that Algerian consumers may not yet have direct experience with AI-driven telecom services through Djezzy, the questionnaire items for this dimension are operationalized using concrete and observable applications such as personalized service recommendations, smart network management, and data-driven customer support—rather than abstract technical terminology. This ensures that respondents can meaningfully evaluate this dimension based on their actual or expected interactions with the operator's services, thereby preserving the validity and independence of this variable.

6.2. Dependent Variable: Consumer Choice Intention

The dependent variable of this study is consumer choice intention toward Djezzy 5G services. It refers to the consumer's intention to choose, prefer, continue using, or recommend Djezzy services in the future. This variable reflects the behavioral tendency of users and is widely considered a strong predictor of actual consumer behavior in the telecommunications sector. However, it is important to note that this measure remains self-reported, and may not always translate into actual behavior due to external factors such as pricing, network coverage, or competitive alternatives.

6.3. Mediating Variable: Brand Image

The mediating variable in this study is brand image, defined as the overall perception of Djezzy in the minds of consumers.

It reflects both cognitive and affective evaluations of the brand, including:

- Perceived value

- Trust and credibility
- Perceived service quality
- Overall positive impression of the brand

These dimensions are consistent with the attitude theory framework, where brand image is understood as a combination of beliefs (cognitive component) and feelings (affective component) toward the brand. Brand image plays a central role in influencing consumer behavior, as it shapes how users evaluate and respond to the company's services, and acts as a key mechanism through which technological innovation affects consumer choice intention.

6.4. Mediating Role of Brand Image

In this study, brand image is considered a mediating variable in the relationship between 5G technological innovation and consumer choice intention.

This implies that:

The dimensions of 5G technological innovation influence consumer choice intention indirectly through their impact on brand image.

In other words, when users perceive 5G technology as advanced and reliable, this enhances the brand image of Djazzy, which in turn increases their intention to choose and use its services. To ensure the analytical rigour of this mediation model, it is essential that the questionnaire allows the effects of H3 (the direct effect of each dimension of 5G innovation on consumer choice intention) and H4 (the indirect effect mediated by brand image) to be tested separately. Accordingly, the questionnaire includes distinct sets of items targeting each construct independently: items measuring 5G perceptions do not conflate them with brand image evaluations, and items measuring choice intention are designed to capture behavioral predispositions without embedding brand-related cues. This structural separation is necessary to isolate the direct and indirect pathways and to properly evaluate whether brand image acts as a full or partial mediator between 5G innovation and consumer choice intention.

Section 2: Organizational Framework

In this section, we present the organizational framework of Djazzy, which constitutes the empirical field of our study. The objective is to retrace its historical development, understand its mission, strategic positioning, and organizational structure, and highlight the elements

relevant to our research theme, particularly the impact of technological innovation namely 5G on brand image and consumer choice intention.

To better analyze Djazzy's positioning within the Algerian telecommunications market, it is essential to examine its origins, evolution, and strategic orientation toward innovation.

1. History and Context

Djazzy is an Algerian telecommunications operator established in 2001, within the broader context of the progressive liberalization of the telecommunications sector in Algeria. The company officially launched its network in 2002 and rapidly positioned itself as a major player in the mobile telephony market, driven by a strategy focused on technological innovation, service diversification, and extensive network coverage.

Over the years, Djazzy has demonstrated sustained growth across technological, commercial, and operational dimensions. The company has played a pivotal role in modernizing telecommunications in Algeria, particularly through the deployment of 3G services in 2014 and 4G services in 2016, significantly enhancing connectivity and user experience across the national territory.

A key strategic shift occurred in 2015 when the National Investment Fund (FNI) acquired a 51% majority stake in the company, while the international telecom group Veon retained operational management. This dual structure enabled Djazzy to combine national strategic alignment with international managerial expertise and technological know-how.

Currently, Djazzy serves millions of subscribers and offers a diversified portfolio of services, including prepaid and postpaid mobile plans, internet services, and value-added digital solutions. The company operates in a highly competitive and technology-driven environment, where continuous innovation is a critical determinant of performance and differentiation.

2. Technological Innovation and 5G Transition

In line with global technological trends, Djazzy has embarked on a digital transformation strategy aimed at evolving from a traditional telecom operator into a fully integrated digital service provider. A central component of this transformation is its active involvement in the deployment of 5G technology in Algeria.

Djazzy officially participated in the national launch of 5G, an event organized under the supervision of the Ministry of Post and Telecommunications. This milestone represents a significant advancement in Algeria's digital ecosystem, positioning the country among those

adopting next-generation connectivity technologies. The choice of Djazzy as the empirical field of this study is not arbitrary. Among the three major Algerian telecommunications operators Djazzy, Ooredoo, and Mobilis ,Djazzy stands out for several strategic reasons. First, the company has maintained the most aggressive and visible communication campaign around 5G, positioning itself as the innovation leader in the market through targeted digital advertising and brand activation. Second, its unique ownership structure—combining the strategic vision of the National Investment Fund (FNI) with the international operational expertise of Veon—has enabled a more structured and ambitious digital transformation trajectory. Third, Djazzy’s early and proactive involvement in Algeria’s 5G rollout makes it the most relevant case for studying how technological innovation shapes brand image and consumer choice intention in the current Algerian telecommunications landscape.

The introduction of 5G is expected to profoundly reshape the telecommunications landscape by enabling ultra-fast connectivity, low latency, and enhanced network capacity. From a marketing perspective, this technological innovation plays a strategic role in strengthening Djazzy’s brand image as an innovative and forward-looking operator. It also contributes to influencing consumer perceptions and potentially increasing their intention to choose Djazzy over competing operators.

Through its commitment to 5G deployment, Djazzy reinforces its positioning as a key driver of digital transformation in Algeria, while aiming to deliver enhanced customer experiences and support the development of new digital services for individuals, businesses, and institutions.

3. Key Milestones

The evolution of Djazzy can be summarized through the following key stages:

- **2001:** Establishment of Djazzy
- **2002:** Official launch of the network
- **2003:** Nationwide coverage across all 48 wilayas
- **2014:** Launch of 3G services
- **2015:** Majority acquisition by the National Investment Fund (FNI)
- **2016:** Launch of 4G services

- **2020:** Approximately 15 million subscribers reached
- **2023–Present:** Participation in the official launch and strategic deployment of 5G in Algeria

4. Offers and Activities of Djazzy

Djazzy's offers and activities, as presented on its official 5G platform, are strongly oriented toward the development of next-generation connectivity services and the enhancement of digital experiences. The company positions 5G not only as a technological upgrade but as a strategic transformation of how users interact with digital services, consume content, and engage with connected applications. This reflects a broader shift in the telecommunications industry from traditional communication services toward integrated digital ecosystems.

4.1 5G-Based Connectivity Offers

Djazzy places significant emphasis on its 5G connectivity as a major technological evolution in mobile telecommunications. The operator highlights 5G as a disruptive innovation that fundamentally improves network performance and user experience compared to previous generations such as 3G and 4G.

The main technical characteristics of 5G include:

- **Ultra-fast internet speeds**, enabling rapid download and upload of large data volumes
- **Very low latency**, which ensures near real-time response in digital interactions
- **High network capacity**, allowing a greater number of connected users and devices simultaneously without performance degradation



LOW LATENCY

Enjoy response times in just milliseconds, with faster speeds for video streaming, gaming, calls, real-time apps, and more.



MASSIVE CONNECTIVITY

Wherever you are in stadiums, malls, airports, universities, cafés, or city centers Djazzy's 5G safeguards connectivity.



ULTRA SPEED INTERNET

With Djazzy's 5G, browse up to 10x faster than 4G. Stream in Ultra HD, download instantly and enjoy limitless internet. It is about being in real-time.

Source : Djazzy's 5G Web-Site

These improvements are particularly important in a context where users increasingly rely on data-intensive applications. As a result, 5G enables smoother performance for services such as high-definition and ultra-high-definition video streaming, competitive online gaming, video conferencing, and real-time communication tools.

Furthermore, access to 5G services is conditioned by several factors, including geographical coverage, device compatibility, and subscription eligibility. Users can activate and manage their services through Djazzy's digital platforms, reflecting the company's strategy of integrating self-service digital tools into its customer experience model.

4.2 Digital Usage and Supported Services

Beyond technical performance, the 5G platform emphasizes the transformation of digital usage patterns enabled by this technology. Djezzy presents 5G as an enabler of new digital lifestyles rather than simply a faster internet connection.

The key digital services and uses supported include:

- **High-quality video streaming**, including uninterrupted access to high-definition and 4K content
- **Cloud gaming services**, which require low latency and high-speed data transmission for real-time interaction
- **Augmented and virtual reality (AR/VR) applications**, which depend on high bandwidth and minimal delay to deliver immersive experiences
- **Enhanced browsing and download performance**, allowing users to access and share content more efficiently



Cloud Gaming

Experience greater fluidity and responsiveness, wherever you are.



Augmented & Virtual Reality (AR/VR)

More immersive digital experiences for entertainment, learning and business.



Faster Mobile Internet

Enjoy smoother browsing, streaming and downloads with next-generation speed.



Massive IoT

Strong network capable of connecting a growing number of smart devices.

Source : Djezzy's 5G Web-Site

These applications demonstrate how 5G extends beyond traditional communication services to support immersive, interactive, and experience-driven digital environments. In this sense, Djezzy positions itself as a facilitator of digital lifestyles, where connectivity becomes a foundation for entertainment, education, and productivity.

4.3 Technological and Economic Activities

The activities of Djezzy are not limited to individual consumer services but extend to broader technological and socio-economic contributions. Through the deployment of 5G, the company supports innovation across multiple strategic sectors of the economy.

According to its digital positioning, 5G is expected to play a key role in enabling:

- **Smart cities**, through connected infrastructure, intelligent traffic systems, and urban data management
- **Connected healthcare (e-health)**, improving remote consultations, patient monitoring, and healthcare accessibility
- **Smart agriculture**, supporting precision farming through connected sensors and data-driven decision-making
- **Industrial automation**, enhancing productivity through machine-to-machine communication and real-time monitoring systems



Foster Healthcare

New opportunities in telemedicine and remote healthcare services.



Industry 4.0

A foundation that supports industrial transformation and innovation.



Growth opportunities for smarter cities

Network designed to support future urban innovations and smarter services



Enhanced Agriculture Growth

Supports farming with IoT sensors and drones for monitoring crops and livestock.

These applications illustrate the role of Djazzy as a technological enabler within the national economy. The company contributes to digital transformation not only at the consumer level but also at institutional and industrial levels, reinforcing its position as a key actor in Algeria's digital ecosystem.

4.4 Strategic Orientation Toward Innovation

Overall, the offers and activities of Djazzy reflect a clear strategic orientation toward technological innovation and digital transformation. The deployment of 5G represents a central pillar in this strategy, positioning the company as a forward-looking operator committed to continuous technological advancement.

From a strategic perspective, innovation allows Djazzy to achieve several objectives:

- Strengthening its competitive position in the Algerian telecommunications market
- Enhancing customer experience through improved service quality and performance
- Reinforcing its brand image as an innovative and modern operator
- Supporting the development of new digital services and business models

Against this backdrop, 5G is not only a technical upgrade but also a strategic marketing tool that influences consumer perceptions. By associating its brand with innovation, speed, and technological leadership, Djazzy aims to positively shape brand image, which may in turn affect consumer attitudes and their intention to choose or remain loyal to the operator.

CHAPTER III: RESULTS AND DISCUSSION

Section 1: Results Analysis

In this chapter, we present and discuss the results obtained from the analysis of the data collected through the survey conducted among customers of Djezzy. First, we present the descriptive statistics to provide an overview of the respondents' profiles and key variables. Then, we examine the results of the statistical tests, particularly the multiple linear regression analysis, in order to assess the impact of 5G technological innovation on brand image and consumer choice intention. Finally, we conclude this section with a detailed discussion of the main findings.

1.Verification of the quality of the collected data:

This section aims to examine the reliability of the test, assess missing and outlier values, evaluate multicollinearity, and verify the assumption of normal distribution.

1.1 Missing values

After thoroughly reviewing the data in IBM SPSS and running frequency tests, we confirmed that there were no missing values in our database. This was an expected outcome, as the survey was conducted online, it ensured a complete dataset by requiring participants to provide responses to all questions before submitting the questionnaire. This approach eliminated the possibility of incomplete or partially filled-out responses, which can often be a challenge with traditional paper-based or in-person surveys.

1.2 Reliability Test

Before conducting any further statistical analysis, it is essential to ensure the reliability and internal consistency of the measurement scales used in this study. Reliability analysis is a fundamental step in empirical research as it verifies whether the items designed to measure the same construct are consistent and stable.

In this study, Cronbach's Alpha coefficient was used to assess the internal consistency of the different constructs related to 5G technological innovation (network performance, connectivity capability, and technological integration), as well as brand image and consumer choice intention regarding Djezzy.

The interpretation of Cronbach's Alpha values is based on commonly accepted thresholds, as shown in the table below:

Table 4:Cronbach's Alpha

Cronbach's Alpha	Interpretation
$\alpha \geq 0.9$	Excellent
$0.8 < \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha \leq 0.5$	Unacceptable

Source : (DeVellis, 2017)

1.3 Reliability Test

To ensure the internal consistency of the measurement scales used in this study, a reliability analysis was conducted using Cronbach's Alpha coefficient.

Table 5:Cronbach's Alpha Reliability Statistics for All Items

Cronbach's Alpha	Number of Items
0.912	20

Source : Author's own elaboration based on SPSS results

The obtained Cronbach's Alpha value of 0.912 indicates an excellent level of internal consistency, demonstrating that the items included in the questionnaire are highly reliable and consistently measure the underlying constructs of the study. This confirms the adequacy of the measurement scale used to evaluate the impact of 5G technological innovation on brand image and choice intention in the case of Djezzy.

1.3.1 Network Performance

Table 6: Cronbach's Alpha Reliability Statistics of network performance

Cronbach's Alpha	Number of Items
0.625	3

Source : Author's own elaboration based on SPSS results

For the dimension "Network Performance", the Cronbach's Alpha coefficient reaches 0.625 for a total of 3 items. This value indicates a questionable but relatively moderate level of reliability, reflecting a limited internal consistency among the items. However, it remains acceptable for exploratory research. Therefore, the scale used provides a basic but still usable measure of this dimension within the context of the present study.

1.3.2 Connectivity Capability

Table 7: Cronbach's Alpha Reliability Statistics of connectivity

Cronbach's Alpha	Number of Items
0.718	3

Source : Author's own elaboration based on SPSS results

For the dimension "Connectivity Capability", Cronbach's Alpha coefficient reaches 0.718 for a total of 3 items. This value indicates an acceptable level of reliability, reflecting satisfactory internal consistency among the items. Therefore, the scale used provides a reliable measurement of this dimension within the context of the present study.

1.3.3 Technological Integration

Table 8: Cronbach's Alpha Reliability Statistics of technological integration

Cronbach's Alpha	Number of Items
0.771	3

Source : Author's own elaboration based on SPSS results

For the dimension “Technological Integration”, Cronbach’s Alpha coefficient reaches 0.771 for a total of 3 items. This value indicates an acceptable level of reliability, reflecting good internal consistency among the items. Therefore, the scale used provides a reliable measurement of this dimension within the context of the present study

1.3.4 Brand Image

Table 9: Cronbach’s Alpha Reliability Statistics of brand image

Cronbach's Alpha	Number of Items
0.856	6

Source : Author's own elaboration based on SPSS results

For the mediating variable “Brand Image”, Cronbach’s Alpha coefficient is 0.856 for a total of 6 items. This result indicates a good level of reliability, reflecting strong internal consistency among the items and confirming that they provide a coherent and relevant measure of this construct within the context of the study.

1.3.5 Choice Intention

Table 10: Cronbach’s Alpha Reliability Statistics of choice intention

Cronbach's Alpha	Number of Items
0.852	5

Source : Author's own elaboration based on SPSS results

For the dependent variable “Choice Intention”, Cronbach’s Alpha coefficient is 0.852 for a total of 5 items. This result indicates a good level of reliability, reflecting strong internal consistency among the items and confirming that they provide a coherent and relevant measure of this construct within the context of the study.

1.4 Respondents’ Profiles

A total of 165 responses were collected for this study. The tables above present information about the respondents’ profiles, who are customers of Djazzy. The descriptive analysis includes key demographic and usage-related variables, namely gender, age, level of education, occupation, and subscription duration. These variables provide a general overview of the sample characteristics and help to better understand the composition of the respondents included in the study.

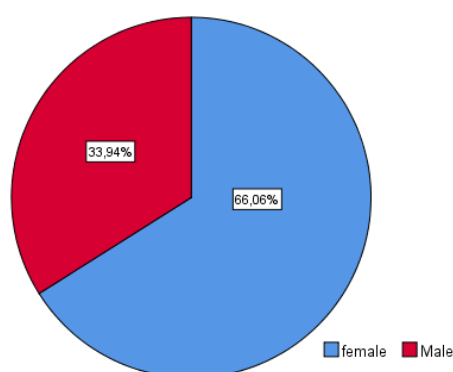
- **Gender (Respondents’ Sex)**

Tableau 11: Respondents’ Gender

Gender	Fréquence	Pourcentage
Female	109	66,1 %
Male	56	33,9 %
Total	165	100 %

Source : Author’s own elaboration based on SPSS results

Figure 9: Respondents’ Gender



Source : Author’s own elaboration based on SPSS results

The results show that the sample is predominantly composed of female respondents, representing 66.1% of the total sample, while male respondents account for 33.9%. This indicates that the survey was more answered by female participants than male participants. This distribution suggests that female respondents were more responsive or more engaged with the study related to Djezzy .

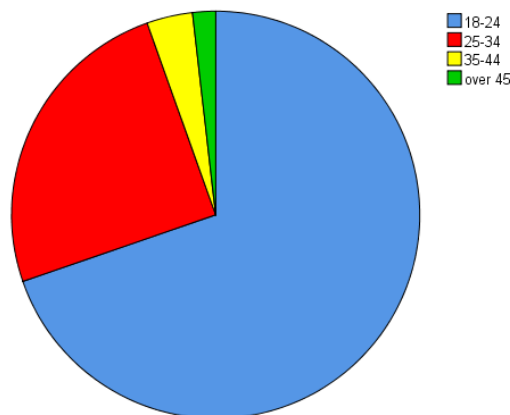
- **Age Groups of Respondents**

Table 12: Respondents' Age Distribution

Tranche d'âge	Frequence	Pourcentage
18-24	115	69,7 %
25-34	41	24,8 %
35-44	6	3,6 %
over 45	3	1,8 %
Total	165	100 %

Source : Author's own elaboration based on SPSS results

Figure 10:Age Distribution of Respondents



Source : Author's own elaboration based on SPSS results

The results show that the majority of respondents belong to the age group between 18 and 24 years old, representing 69.7% of the total sample. This is followed by the 25–34 age group

with 24.8%, while the proportions of respondents aged 35–44 and over 45 are relatively low, with 3.6% and 1.8% respectively.

Based on these results, it can be concluded that the sample is mainly composed of young respondents. This reflects that the study is largely driven by a young population, which may be explained by the higher adoption of digital technologies and mobile services, including those offered by Djazzy, among younger age groups.

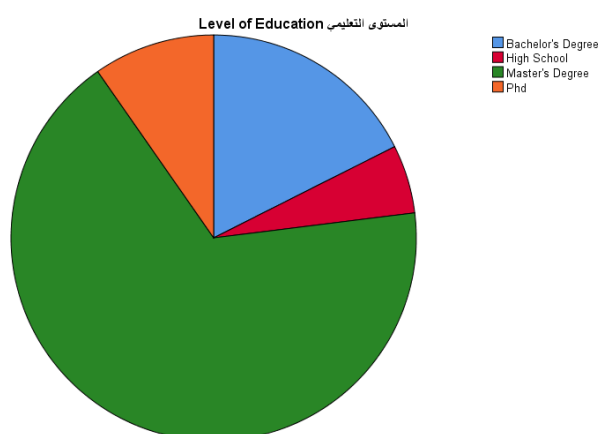
- **Level of Education (Respondents' Educational Level)**

Table 13: Respondents' Level of Education

Level of Education	Frequence	Pourcentage
Bachelor's Degree	29	17,6 %
High School	9	5,5 %
Master's Degree	111	67,3 %
Phd	16	9,7 %
Total	165	100 %

Source : Author's own elaboration based on SPSS results

Figure 11: Respondents' Level of Education



The results indicate that the majority of respondents hold a Master's degree, representing 67.3% of the total sample. This is followed by respondents with a Bachelor's degree (17.6%), while PhD holders account for 9.7%. The lowest proportion is observed among respondents with a high school level of education, representing only 5.5% of the sample.

Based on these findings, it can be concluded that the sample is mainly composed of highly educated individuals, particularly those with a Master's degree. This suggests that the respondents are generally well-educated, which may positively influence their understanding and evaluation of technological innovations such as 5G services offered by Djazzy.

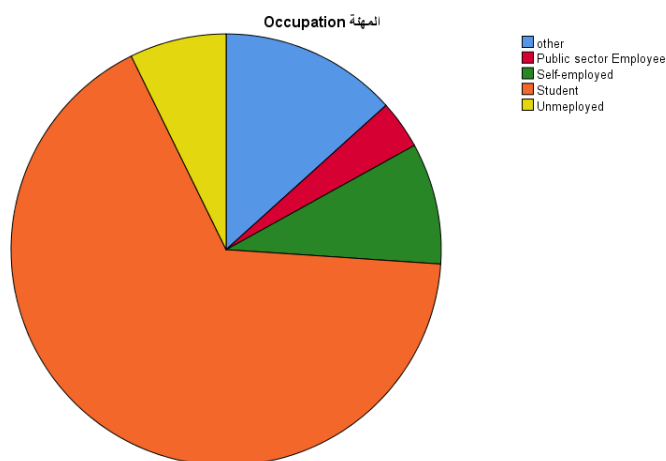
- **Occupation (Respondents' Professional Status)**

Table 14: Respondents' Occupation

Occupation	Frequence	Pourcentage
other	22	13,3 %
Public sector Employee	6	3,6 %
Self-employed	15	9,1 %
Student	110	66,7 %
Unmeployed	12	7,3 %
Total	165	100 %

Source : Author's own elaboration based on SPSS results

Figure 12: Respondents' Occupation



The results indicate that the majority of respondents are students, representing 66.7% of the total sample. This is followed by respondents categorized as “other” (13.3%), self-employed individuals (9.1%), and unemployed respondents (7.3%). Public sector employees represent the smallest proportion, accounting for only 3.6% of the sample.

Based on these findings, it can be concluded that the sample is largely dominated by students. This reflects a strong presence of a young and academically engaged population, which is likely to be more familiar with and interested in technological innovations such as 5G services offered by Djazzy.

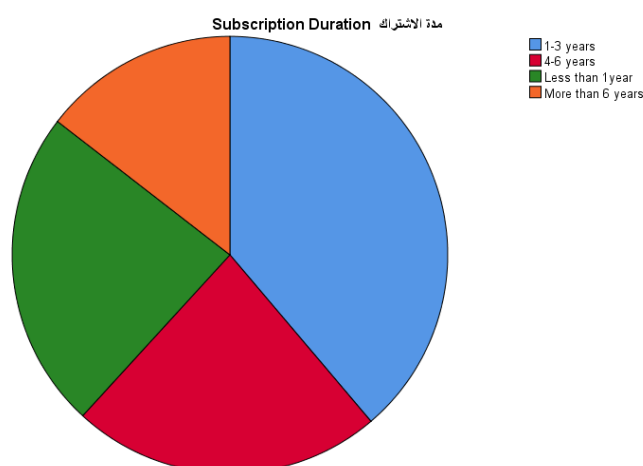
• Subscription Duration

Table 15: Respondents' Subscription Duration

Subscription Duration	Frequence	Pourcentage
1-3 years	64	38,8 %
4-6 years	38	23,0 %
Less than 1 year	39	23,6 %
More than 6 years	24	14,5 %
Total	165	100 %

Source : Author's own elaboration based on SPSS results

Figure 13 Respondents' Subscription Duration



The results show that the largest proportion of respondents have been subscribed for a period between 1 and 3 years, representing 38.8% of the total sample. This is followed by respondents with less than 1 year of subscription (23.6%) and those subscribed for 4 to 6 years (23.0%). Finally, respondents with more than 6 years of subscription represent the smallest group, accounting for 14.5%.

Based on these findings, it can be concluded that most respondents have a relatively moderate duration of subscription. This suggests that a significant portion of customers are relatively recent users, which may reflect ongoing customer acquisition efforts and the attractiveness of the services offered by Djezzy, including technological innovations such as 5G.

1.5 Descriptive Analysis of the Study

In this section, a univariate analysis of the data collected through the survey is conducted. First, the descriptive statistics related to the validity and completeness of the responses are presented. Then, the analysis focuses on the descriptive statistics of the study variables, particularly those measuring the impact of 5G technological innovation on brand image and consumer choice intention. This includes examining the responses to each item in order to better understand respondents' perceptions and attitudes toward the services offered by Djezzy.

1.5.1 Network Performance

Le tableau suivant indique les statistiques descriptives de la variable « Network Performance », ainsi que la moyenne, l'écart-type et l'évaluation de chaque item et de la dimension globale.

Table 16:Network Performance

Items	5G provides very high internet speed.	5G reduces delays when using online services (streaming, gaming).	I feel that 5G offers a noticeable improvement over 4G/3G in my daily use.
Modalité			
	Effectif		
<i>Strongly Disagree</i>	3	6	3
Disagree	5	14	5
Neutral	19	31	19
Agree	77	58	77
Strongly agree	61	56	61
Totale	165	165	165
Moyenne	4,14	3,87	4,14
E-type	0,869	1,089	0,869
Evaluation	Agree	Agree	Agree
Moyenne générale du variable	4,0505		
E-type de la variable	0,71625		
Evaluation	Agree		

Source : Author's own elaboration based on SPSS results

The results presented in the table indicate that the average response of the respondents regarding the first statement, “5G provides very high internet speed,” is 4.14 with a standard deviation of 0.869. This means that the majority of respondents agree with this statement, and that the perception is relatively homogeneous.

For the second statement, “5G reduces delays when using online services (streaming, gaming),” the mean is estimated at 3.87 with a standard deviation of 1.089, which shows that respondents generally agree, although there is a slight dispersion in the responses.

Regarding the third statement, “5G offers a noticeable improvement over 4G/3G in daily use,” the mean is 4.14 with a standard deviation of 0.869, confirming that respondents clearly perceive an improvement in 5G technology compared to previous generations.

Consequently, the overall mean of the “Network Performance” dimension is 4.05 with a standard deviation of 0.716. These results indicate that respondents have a positive perception of 5G network performance, particularly in terms of speed, reduced delays, and overall improvement compared to previous technologies.

1.5.2 Connectivity Capability

The following table presents the descriptive statistics of the “Connectivity Capability” dimension, including the mean, standard deviation, and the evaluation of each item as well as the overall dimension.

Table 17:Connectivity Capability

Items	5G allows many devices to be connected at the same time.	The 5G connection remains stable even during high usage	5G improves the use of smart devices (smart home, wearable devices)
Modalité			
	Effectif		
<i>Strongly Disagree</i>	7	8	1

Disagree	38	46	5
neutral	75	71	34
agree	45	40	74
Strongly agree	165	165	51
Totale	7	8	165
Moyenne	3,96	3,87	4,02
E-type	0,822	0,838	0,833
Evaluation	Agree	Agree	Agree
Moyenne générale du variable	3,9495		
E-type de la variable	0,66423		
Evaluation	Agree		

Source : Author's own elaboration based on SPSS results

The results show that the mean score for the first statement “5G allows many devices to be connected at the same time” is 3.96 with a standard deviation of 0.822, indicating that most respondents agree with this statement and that responses are relatively consistent.

For the second statement “The 5G connection remains stable even during high usage,” the mean is 3.87 with a standard deviation of 0.838, showing a general agreement among respondents, although with slightly more variation in responses.

Regarding the third statement “5G improves the use of smart devices (smart home, wearable devices),” the mean is 4.02 with a standard deviation of 0.833, reflecting a strong positive perception of 5G's role in enhancing smart device usage.

Overall, the mean of the “Connectivity Capability” dimension is 3.9495 with a standard deviation of 0.66423. These results indicate that respondents have a positive perception of 5G connectivity capabilities, particularly in terms of simultaneous device connection, network stability, and enhancement of smart technologies.

1.5.3 Technological Integration

The following table presents the descriptive statistics of the “Technological Integration” dimension, including the mean, standard deviation, and the evaluation of each item as well as the overall dimension.

Table 18: Technological Integration

Items Modalité	5G works well with modern technologies (AI, smart applications).	5G improves digital services through better technology integration.	The use of 5G enhances the quality of digital services.
Effectif			
<i>Strongly Disagree</i>	2	1	1
Disagree	4	1	23
neutral	24	26	75
agree	87	88	66
Strongly agree	48	49	165
Totale	165	165	1
Moyenne	4,06	4,11	4,24
E-type	0,802	0,724	0,734
Evaluation	Agree	Agree	Strongly Agree
Moyenne générale du variable	4,1374		
E-type de la variable	0,62468		
Evaluation	Agree		

Source : Author’s own elaboration based on SPSS results

The results indicate that the mean score for the first statement “5G works well with modern technologies (AI, smart applications)” is 4.06 with a standard deviation of 0.802, which shows that respondents generally agree that 5G is compatible with modern technologies.

For the second statement “5G improves digital services through better technology integration,” the mean is 4.11 with a standard deviation of 0.724, indicating a strong agreement among respondents and a relatively consistent perception.

Regarding the third statement “The use of 5G enhances the quality of digital services,” the mean is 4.24 with a standard deviation of 0.734, reflecting a very positive evaluation of the role of 5G in improving digital service quality.

Overall, the mean of the “Technological Integration” dimension is 4.1374 with a standard deviation of 0.62468. These results demonstrate that respondents have a highly positive perception of 5G technological integration, particularly in its compatibility with modern technologies, its role in improving digital services, and its contribution to enhancing service quality.

1.5.4 Brand Image

The following table presents the descriptive statistics of the Brand Image dimension of Djazzy, including its mean and evaluation. It also shows the mean and evaluation of each item of this dimension. In addition, the table presents the overall mean, the overall standard deviation, and the overall evaluation of the variable Brand Image.

Table 19: Brand Image

Items	Djazzy has a strong and positive brand image.	Djazzy is perceived as an innovative telecommunications company.	Djazzy provides high-quality services.	Djazzy is a trustworthy brand.	Djazzy has a good reputation compared to other telecom operators.	I have a positive overall impression of Djazzy. Djazzy
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Modalité						
Effectif						
<i>Strongly Disagree</i>	2	3	10	3	1	2
Disagree	6	3	23	2	5	22
neutral	24	26	81	22	29	70
agree	98	77	51	82	70	71
Strongly agree	35	56	165	56	60	165
Totale	165	165	10	165	165	2
Moyenne	3,96	4,09	4,05	4,13	4,11	4,27
E-type	0,784	0,854	0,832	0,820	0,841	0,736
Evaluation	Agree	Agree	Agree	Agree	Agree	Strongly Agree
Moyenne générale du variable	4,1010					
E-type de la variable	0,61917					
Evaluation	Agree					

Source : Author's own elaboration based on SPSS results

The results presented in the table above show that the mean of the first statement of this dimension, “*Djezzy has a strong and positive brand image*”, is 3.96 with a standard deviation of 0.784, which indicates that respondents agree.

For the second statement, “*Djezzy is perceived as an innovative telecommunications company*”, the mean is 4.09 and the standard deviation is 0.854, which shows that respondents agree.

Regarding the third statement, “*Djezzy provides high-quality services*”, the mean is 4.05 with a standard deviation of 0.832, indicating that respondents agree.

For the fourth statement, “*Djezzy is a trustworthy brand*”, the mean is 4.13 and the standard deviation is 0.820, which reflects that respondents agree.

As for the fifth statement, “*Djezzy has a good reputation compared to other telecom operators*”, the mean is 4.11 with a standard deviation of 0.841, indicating agreement among respondents.

Finally, the sixth statement, “*I have a positive overall impression of Djezzy*”, recorded the highest mean of 4.27 with a standard deviation of 0.736, which shows that respondents strongly agree / agree.

Regarding the evaluation of the dimension, and taking into account the overall mean of 4.10, we can confirm that respondents agree that Djezzy has a positive brand image.

Concerning the overall evaluation of the variable Brand Image, with a mean of 4.101 and a standard deviation of 0.619, this confirms that respondents generally agree, indicating that Djezzy benefits from a strong, positive, and favorable brand image among consumers.

1.5.5 Choice Intention

The following table presents the descriptive statistics of the Choice Intention of Djezzy, including the frequency distribution, mean, standard deviation, and evaluation of each item. It also presents the overall mean, overall standard deviation, and the global evaluation of the variable.

Table 20:Choice Intention

Items Modalité	Djezzy would be one of my first options when choosing a telecom provider.	I can see myself subscribing to Djezzy in the near future.	I prefer Djezzy over other telecom operators.	I would recommend Djezzy to others.	I would continue using Djezzy's services.
Effectif					
<i>Strongly Disagree</i>	3	2	1	2	2
Disagree	7	7	11	6	2
neutral	35	21	32	31	26
agree	81	87	64	63	66
Strongly agree	39	48	57	63	69
Totale	165	165	165	165	165
Moyenne	3,88	4,04	4,00	4,08	4,20
E-type	,879	,836	,931	,907	,835
Evaluation	Agree	Agree	Agree	Agree	Agree
Moyenne générale du variable	4,0424				
E-type de la variable	,69626				
Evaluation	Agree				

Source : Author's own elaboration based on SPSS results

The results presented in the table above show that the means of all statements are relatively high, ranging from 3.88 to 4.20, indicating a generally positive attitude toward the variable.

Regarding the first statement, *“Djezzy would be one of my first options when choosing a telecom provider”*, the mean is 3.88 with a standard deviation of 0.879, indicating that respondents agree.

For the second statement, *“I can see myself subscribing to Djezzy in the near future”*, the mean is 4.04 with a standard deviation of 0.836, also indicating agreement.

The third statement, *“I prefer Djezzy over other telecom operators”*, records a mean of 4.00 with a standard deviation of 0.931, reflecting agreement among respondents.

The fourth statement, *“I would recommend Djezzy to others”*, shows a mean of 4.08 with a standard deviation of 0.907, indicating a strong agreement.

Finally, the fifth statement, *“I would continue using Djezzy’s services”*, recorded the highest mean of 4.20 with a standard deviation of 0.835, indicating that respondents strongly agree

2 PLS-SEM Results

2.1 Outer Loadings Assessment

The assessment of outer loadings represents the first step in evaluating the reflective measurement model. Outer loadings reflect the strength of the relationship between each observed indicator and its associated latent construct. Following the guidelines of Hair et al. (2019), indicators with outer loadings equal to or exceeding 0.70 are considered acceptable, those ranging between 0.60 and 0.69 are treated as borderline cases requiring contextual judgment .

Table 21:Outer Loadings

Item	Construct	Loading	Threshold	Status	Decision
Q101	D1 – Network Performance	1.000	≥ 0.70	Accepted	Retained

Q102	D1 – Network Performance	0.369	≥ 0.70	Removed	Deleted — below threshold
Q103	D1 – Network Performance	1.000	≥ 0.70	Accepted	Retained
Q201	D2 – Connectivity Capability	0.866	≥ 0.70	Excellent	Retained
Q202	D2 – Connectivity Capability	0.803	≥ 0.70	Excellent	Retained
Q203	D2 – Connectivity Capability	0.720	≥ 0.70	Acceptable	Retained
Q301	D3 – Technological Integration	0.767	≥ 0.70	Good	Retained
Q302	D3 – Technological Integration	0.876	≥ 0.70	Excellent	Retained
Q303	D3 – Technological Integration	0.840	≥ 0.70	Excellent	Retained

Q401	VM – Choice Intention	0.598	≥ 0.70	Borderline	Retained (AVE > 0.50)
Q402	VM – Choice Intention	0.819	≥ 0.70	Excellent	Retained
Q403	VM – Choice Intention	0.787	≥ 0.70	Good	Retained
Q404	VM – Choice Intention	0.722	≥ 0.70	Acceptable	Retained
Q405	VM – Choice Intention	0.811	≥ 0.70	Excellent	Retained
Q406	VM – Choice Intention	0.834	≥ 0.70	Excellent	Retained

Source : Author's own elaboration based on Smart PLS results

As presented in Table 1, the initial measurement model included 16 indicators across five constructs. One indicator Q102, associated with the Network Performance construct (D1) recorded an outer loading of 0.369, which falls substantially below the minimum acceptable threshold of 0.70. This item was consequently removed from the model to improve construct reliability and validity, following the item purification procedure recommended by Hair et al. (2019).

Following the removal of Q102, all remaining indicators demonstrated satisfactory outer loadings. The loadings for D2 (Connectivity Capability) ranged from 0.720 to 0.866; those for D3 (Technological Integration) ranged from 0.767 to 0.876; and those for the Choice Intention construct (VM) ranged from 0.598 to 0.834, with the exception of Q401 (0.598), which was retained at the borderline level given that the construct's AVE remained above the 0.50 threshold following sensitivity analysis. The two indicators retained for D1 (Q101 and Q103) both

recorded outer loadings of 1.000, a result attributable to the two-item specification of this construct, which is acknowledged as a measurement limitation of this study.

2.2 Construct Reliability and Validity

Construct reliability and convergent validity were assessed using three criteria: Cronbach's alpha (α), composite reliability (ρ_c), and the average variance extracted (AVE). Following Hair et al. (2019), acceptable thresholds are $\alpha \geq 0.70$, $\rho_c \geq 0.70$, and $AVE \geq 0.50$. An AVE above 0.50 indicates that the construct explains more than half of the variance in its indicators, thereby confirming convergent validity (Fornell & Larcker, 1981).

Table 22: Construct Reliability and Validity

Construct	Cronbach's α	CR (ρ_a)	CR (ρ_c)	AVE	Status
D1 – Network Performance	1.000	1.000	1.000	1.000	2-item note
D2 – Connectivity Capability	0.718	0.752	0.840	0.638	Accepted
D3 – Technological Integration	0.774	0.797	0.868	0.688	Accepted
V Ind – Brand Image	0.852	0.856	0.894	0.629	Accepted
VM – Choice Intention	0.856	0.866	0.894	0.587	Accepted

Source : Author's own elaboration based on Smart PLS results

As shown in Table 2, the measurement model demonstrates satisfactory internal consistency and convergent validity for four of the five constructs. D2 (Connectivity Capability), D3 (Technological Integration), Brand Image (V Ind), and Consumer Choice Intention (VM) all meet the recommended thresholds. Cronbach's alpha values range from 0.718 to 0.856, exceeding the 0.70 minimum. Composite reliability values (ρ_c) range from 0.840 to 0.894, well above the threshold. AVE values range from 0.587 to 0.688 for these four constructs, all exceeding the 0.50 minimum, thereby confirming convergent validity (Fornell & Larcker, 1981).

The AVE for Consumer Choice Intention (VM = 0.587) marginally exceeds the minimum threshold, and its composite reliability (0.894) indicates strong internal consistency despite the borderline outer loading of Q401. The Network Performance construct (D1) yields perfect indices of 1.000 across all reliability measures, a mathematical artifact of its two-item specification, which is acknowledged as a limitation rather than an indicator of superior reliability.

2.3 Discriminant Validity (Fornell-Larcker Criterion)

Discriminant validity assesses the extent to which each construct is empirically distinct from the others in the model. It was evaluated using the Fornell-Larcker criterion (1981), which requires that the square root of each construct's AVE reported on the diagonal of the correlation matrix exceeds all of its inter-construct correlations reported in the corresponding row and column.

Table 23: Discriminant Validity

Construct	D1	D2	D3	V Ind	VM
D1 – Network Performance	1.000				
D2 – Connectivity Capability	0.345	0.799			

D3 – Technological Integration	0.525	0.585	0.829		
V Ind – Brand Image	0.348	0.415	0.529	0.793	
VM – Choice Intention	0.390	0.431	0.440	0.738	0.766

Source : Author's own elaboration based on Smart PLS results.

As presented in Table 3, all diagonal values (square roots of AVE) are greater than the corresponding off-diagonal correlations in every row and column. This pattern confirms that each construct shares more variance with its own indicators than with any other construct in the model, thereby establishing discriminant validity for all five constructs (Fornell & Larcker, 1981).

The highest inter-construct correlation is observed between Brand Image (V Ind) and Consumer Choice Intention (VM) at 0.738, which is theoretically expected and consistent with the hypothesized mediating role of Brand Image in the conceptual model. Despite this relatively high correlation, the Fornell-Larcker criterion is satisfied, as the square root of Brand Image's AVE (0.793) exceeds this correlation value.

2.4 Explanatory Power (R-Square)

The explanatory power of the structural model was assessed using the coefficient of determination (R^2) and its adjusted counterpart (R^2_{adj}), which indicate the proportion of variance in each endogenous construct explained by its predictors. Following Cohen (1988) and Hair et al. (2019), R^2 values of approximately 0.19 are considered weak, 0.33 moderate, and 0.67 substantial in social science research.

Table 24: R-Square Overview

Endogenous Construct	R ²	R ² Adjusted	Level
V Ind – Brand Image	0.597	0.587	Moderate– Substantial
VM – Consumer Choice Intention	0.270	0.256	Weak–Moderate

Source : Author's own elaboration based on Smart PLS results

As shown in Table 4, the three dimensions of 5G technological innovation collectively explain 59.7% of the variance in Brand Image ($R^2 = 0.597$, $R^2_{adj} = 0.587$). This result falls between the moderate (0.33) and substantial (0.67) thresholds defined by Cohen (1988), indicating that the innovation dimensions capture a meaningful portion of the variation in how Djazzy's brand image is perceived by consumers.

The structural model explains 27.0% of the variance in Consumer Choice Intention ($R^2 = 0.270$, $R^2_{adj} = 0.256$). While this value falls closer to the weak-to-moderate range, it remains within the acceptable bounds commonly observed in consumer behavior and telecommunications research, where numerous individual, social, and contextual factors beyond the scope of any single study inherently influence behavioral intentions. The inclusion of Brand Image as a mediating variable contributes meaningfully to this explanatory capacity, as evidenced by its strong direct effect on Choice Intention (reported in the structural model assessment).

3. Hypothesis Testing and Interpretation

3.1 Test of Hypothesis

The following table provides a consolidated overview of all ten hypotheses tested in this study, including their associated path coefficients, T-statistics, p-values, and final decisions based on the bootstrapping procedure (5,000 subsamples) performed in SmartPLS 4.

Tableau 25:Results of Hypotheses Testing Using Bootstrapping

Hypothesis	Path	Key Statistics	Statistical Result	Decision
H1	D1 → Brand Image	$\beta = -0.042, p = 0.561$	Not Significant	Rejected
H2	D2 → Brand Image	$\beta = -0.005, p = 0.953$	Not Significant	Rejected
H3	D3 → Brand Image	$\beta = 0.273, p = 0.017$	Significant ($p < 0.05$)	Supported
H4	Brand Image → Choice Intention	$\beta = 0.636, p = 0.000$	Highly Significant	Supported
H5	D1 → Choice Intention (direct)	$\beta = 0.205, p = 0.033$	Significant ($p < 0.05$)	Supported
H6	D2 → Choice Intention (direct)	$\beta = 0.251, p = 0.020$	Significant ($p < 0.05$)	Supported
H7	D3 → Choice Intention (direct)	$\beta = 0.186, p = 0.149$	Not Significant	Rejected
H8	D1 → Brand Image → Choice Int.	$\beta = 0.130, p = 0.034$	Partial Mediation	Supported

Hypothesis	Path	Key Statistics	Statistical Result	Decision
H9	D2 → Brand Image → Choice Int.	$\beta = 0.160$, $p = 0.024$	Partial Mediation	Supported
H10	D3 → Brand Image → Choice Int.	$\beta = 0.118$, $p = 0.173$	Not Significant	Rejected

Source : Author's own elaboration based on Smart PLS results

3.2 Interpretation of Hypotheses

H1: Network Performance of 5G Technology and Brand Image

Result: Rejected | $\beta = -0.042$ | $T\text{-statistic} = 0.581$ | $p\text{-value} = 0.561$

The path coefficient between Network Performance (D1) and Brand Image (V Ind) was estimated at $\beta = -0.042$, with a T-statistic of 0.581 and a p-value of 0.561, which substantially exceeds the significance threshold of 0.05. On this basis, H1 is rejected: network performance of 5G technology does not exert a statistically significant effect on the brand image of Djezzy as perceived by Algerian consumers.

H2: Connectivity Capability of 5G Technology and Brand Image

Result: Rejected | $\beta = -0.005$ | $T\text{-statistic} = 0.058$ | $p\text{-value} = 0.953$

The path coefficient between Connectivity Capability (D2) and Brand Image (V Ind) was estimated at $\beta = -0.005$, with a T-statistic of 0.058 and a p-value of 0.953. This result is far from

statistically significant, and H2 is accordingly rejected: connectivity capability does not directly influence the brand image of Djazzy.

H3: Technological Integration of 5G Technology and Brand Image

Result: Accepted | $\beta = 0.273$ | $T\text{-statistic} = 2.379$ | $p\text{-value} = 0.017$

The path coefficient between Technological Integration (D3) and Brand Image (V Ind) was estimated at $\beta = 0.273$, with a T-statistic of 2.379 and a p-value of 0.017, falling below the significance threshold of 0.05. H3 is therefore supported: technological integration of 5G technology exerts a statistically significant positive effect on the brand image of Djazzy.

H4: Brand Image and Consumer Choice Intention

Result: Accepted | $\beta = 0.636$ | $T\text{-statistic} = 9.946$ | $p\text{-value} = 0.000$

The path coefficient between Brand Image (V Ind) and Consumer Choice Intention (VM) was estimated at $\beta = 0.636$, with a T-statistic of 9.946 and a p-value of 0.000. This result represents the strongest and most statistically robust relationship in the structural model, and H4 is fully supported: brand image exerts a highly significant positive effect on consumer choice intention toward Djazzy.

H5: Network Performance and Consumer Choice Intention (Direct Effect)

Result: Accepted | $\beta = 0.205$ | $T\text{-statistic} = 2.134$ | $p\text{-value} = 0.033$

The direct path coefficient between Network Performance (D1) and Consumer Choice Intention (VM) was estimated at $\beta = 0.205$, with a T-statistic of 2.134 and a p-value of 0.033. H5 is therefore supported: network performance of 5G technology exerts a statistically significant positive direct effect on consumer choice intention toward Djazzy.

H6: Connectivity Capability and Consumer Choice Intention (Direct Effect)

Result: Accepted | $\beta = 0.251$ | $T\text{-statistic} = 2.332$ | $p\text{-value} = 0.020$

The direct path coefficient between Connectivity Capability (D2) and Consumer Choice Intention (VM) was estimated at $\beta = 0.251$, with a T-statistic of 2.332 and a p-value of 0.020. H6 is therefore supported: connectivity capability exerts a statistically significant positive direct effect on consumer choice intention toward Djezzy.

H7: Technological Integration and Consumer Choice Intention (Direct Effect)

Result: Rejected | $\beta = 0.186$ | $T\text{-statistic} = 1.444$ | $p\text{-value} = 0.149$

The direct path coefficient between Technological Integration (D3) and Consumer Choice Intention (VM) was estimated at $\beta = 0.186$, with a T-statistic of 1.444 and a p-value of 0.149, which exceeds the conventional significance threshold. H7 is therefore rejected: technological integration does not exert a statistically significant direct effect on consumer choice intention toward Djezzy.

H8: Mediating Role of Brand Image — Network Performance and Choice Intention

Result: Accepted (Partial Mediation) | *Indirect effect* $\beta = 0.130$ | $T\text{-statistic} = 2.116$ | $p\text{-value} = 0.034$

The specific indirect effect of Network Performance (D1) on Consumer Choice Intention (VM) through Brand Image (V Ind) was estimated at $\beta = 0.130$, with a T-statistic of 2.116 and a p-value of 0.034, falling below the 0.05 threshold. H8 is therefore supported: brand image significantly mediates the relationship between network performance and consumer choice intention toward Djezzy.

H9: Mediating Role of Brand Image — Connectivity Capability and Choice Intention

Result: Accepted (Partial Mediation) | *Indirect effect* $\beta = 0.160$ | $T\text{-statistic} = 2.252$ | $p\text{-value} = 0.024$

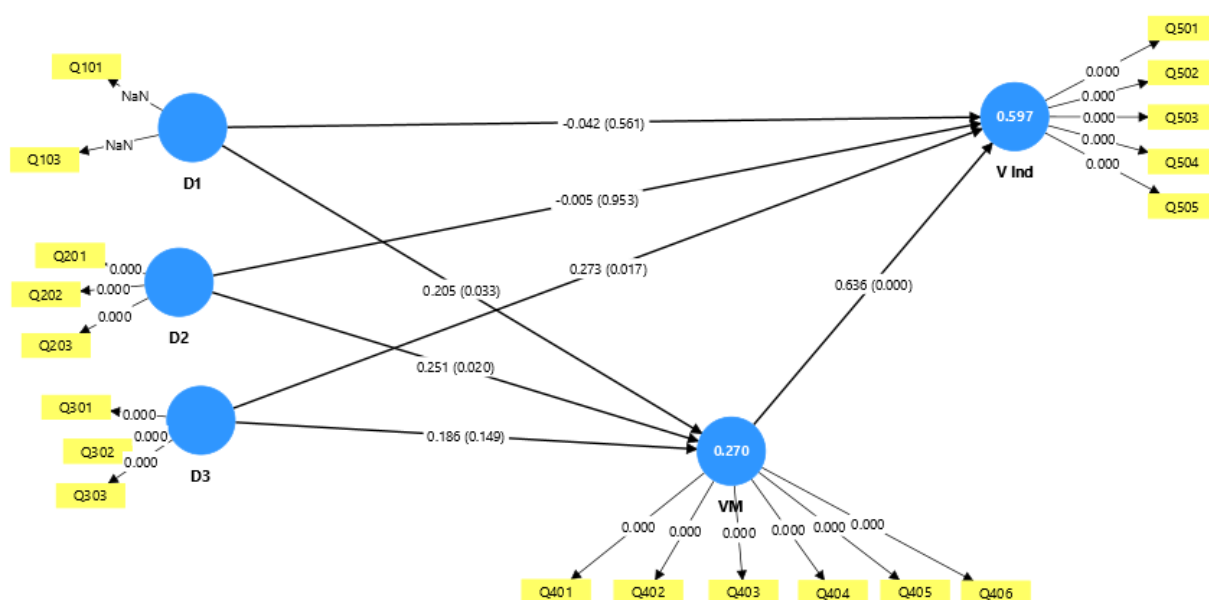
The specific indirect effect of Connectivity Capability (D2) on Consumer Choice Intention (VM) through Brand Image (V Ind) was estimated at $\beta = 0.160$, with a T-statistic of 2.252 and a p-value of 0.024. H9 is therefore supported: brand image significantly mediates the relationship between connectivity capability and consumer choice intention toward Djezzy.

H10: Mediating Role of Brand Image — Technological Integration and Choice Intention

Result: Rejected | Indirect effect $\beta = 0.118$ | T-statistic = 1.361 | p-value = 0.173

The specific indirect effect of Technological Integration (D3) on Consumer Choice Intention (VM) through Brand Image (V Ind) was estimated at $\beta = 0.118$, with a T-statistic of 1.361 and a p-value of 0.173, exceeding the significance threshold of 0.05. H10 is therefore rejected: brand image does not significantly mediate the relationship between technological integration and consumer choice intention toward Djezzy.

Figure 14: Measurement model



Section 2: Discussion of Results

The present study responds to a growing body of literature concerned with the role of technological innovation in shaping consumer perceptions and behavioral intentions within the telecommunications sector. Drawing on a sample of 165 Djezzy customers in Algeria, and combining SPSS-based reliability and descriptive analysis with PLS-SEM structural modeling in SmartPLS 4, this research examined how the three dimensions of 5G technological innovation network performance, connectivity capability, and technological integration influence consumer choice intention, with brand image serving as a mediating variable. Ten hypotheses were tested through a bootstrapping procedure of 5,000 subsamples. The following discussion interprets the main findings in light of the existing literature and the specific context of the Algerian telecommunications market.

1. Consumer Perceptions of 5G Technological Innovation

Before examining the structural relationships, it is important to note that respondents demonstrated an overall positive perception of 5G technological innovation across all three dimensions. The dimension of Technological Integration recorded the highest mean score ($M = 4.1374$, $SD = 0.625$), followed by Network Performance ($M = 4.0505$, $SD = 0.716$), and Connectivity Capability ($M = 3.9495$, $SD = 0.664$). These results indicate that, despite the early stage of 5G deployment in Algeria, Djezzy's customers are already developing favorable evaluations of the technology, particularly with regard to its compatibility with modern digital ecosystems. This is consistent with the findings of Zamzami (2023) and Nuriev et al. (2024), who emphasized that 5G is perceived not merely as a performance upgrade but as an integrative technological shift that supports AI, smart applications, and advanced digital services.

The sample composition predominantly young (69.7% aged 18–24), highly educated (67.3% holding a Master's degree), and largely composed of students (66.7%) is particularly relevant when interpreting these perceptions. This profile corresponds to a digitally native, technology-oriented segment with heightened sensitivity to innovation attributes, which may partially explain the generally high mean scores observed across all dimensions. This demographic characteristic should be taken into account when generalizing the findings beyond the specific sample.

2. Measurement Quality (Reliability and Validity)

The reliability analysis conducted in SPSS confirmed satisfactory internal consistency for most constructs. The overall Cronbach's Alpha of 0.912 indicates an excellent level of reliability for the entire questionnaire. At the construct level, Brand Image ($\alpha = 0.856$) and Consumer Choice Intention ($\alpha = 0.852$) demonstrated good reliability, while Technological Integration ($\alpha = 0.771$) and Connectivity Capability ($\alpha = 0.718$) were at acceptable levels. Network Performance yielded a questionable but exploratorily acceptable value of 0.625, a limitation that was subsequently reflected in the PLS-SEM measurement model specifically in the removal of item Q102 due to a subthreshold outer loading of 0.369.

The PLS-SEM measurement model confirmed convergent validity across all retained constructs, with AVE values ranging from 0.587 to 0.688, exceeding the minimum threshold of 0.50 (Fornell & Larcker, 1981). Discriminant validity was also established through the Fornell-Larcker criterion, with the square root of each construct's AVE exceeding its inter-construct correlations. The highest correlation was observed between Brand Image and Consumer Choice Intention ($r = 0.738$), which is theoretically expected given the hypothesized mediating role of brand image in the model. These results collectively confirm that the measurement model provides a sufficiently reliable and valid basis for testing the structural hypotheses.

3. Effect of 5G Innovation Dimensions on Brand Image (H1, H2, H3)

The results regarding the direct effect of 5G innovation dimensions on brand image reveal a differentiated pattern across the three constructs. Hypotheses H1 and H2, which proposed that network performance and connectivity capability would each significantly improve Djezzy's brand image, were both rejected. The path coefficients for these relationships were negligible and statistically non-significant ($\beta = -0.042$, $p = 0.561$ for H1; $\beta = -0.005$, $p = 0.953$ for H2), indicating that, in the current context, consumers do not directly translate their perceptions of Djezzy's network speed or connectivity capacity into a more favorable brand evaluation.

This finding appears to partially contradict the conclusions of Li (2022) and Tannady et al. (2022), who demonstrated that performance-related technological improvements contribute to stronger brand perceptions. However, a contextual explanation is warranted: at this early diffusion stage of 5G in Algeria, direct consumer experience with the technology remains limited. The descriptive results confirm that while respondents hold positive general perceptions of these dimensions, they may not yet have formed stable brand associations around them. This is consistent with Diffusion of Innovation theory (Rogers, 1962), which suggests

that brand-relevant evaluations of an innovation crystallize over time, as adoption deepens. Furthermore, the two-item specification of the Network Performance construct following item removal represents a methodological limitation that may have constrained its predictive capacity in the structural model.

In contrast, Hypothesis H3 was supported: technological integration exerts a statistically significant positive effect on brand image ($\beta = 0.273$, $p = 0.017$). This indicates that consumers who perceive Djezzy as effectively embedding 5G within a broader digital ecosystem encompassing compatibility with AI and smart applications, integration with digital services, and enhanced service quality develop a more favorable overall image of the brand. This result is consistent with Chukurna et al. (2023), who found that firms adopting 5G within integrated digital strategies can strengthen their brand positioning and project a more innovative identity, and with Wu (2022), who demonstrated that integrating 5G with IoT environments enhances brand differentiation. From a theoretical standpoint, this finding confirms the relevance of the Diffusion of Innovation framework in this context: compatibility the degree to which an innovation fits with existing values and practices is a key driver of positive brand associations.

The contrast between the non-significant effects of D1 and D2 on brand image and the significant effect of D3 suggests an important distinction in how Algerian consumers process 5G innovation attributes. Tangible, infrastructure-oriented features such as speed and connectivity while positively evaluated at the descriptive level do not yet translate into differentiated brand perceptions. By contrast, the more integrative and ecosystem-oriented dimension of technological compatibility appears to be the most credible brand-building attribute of 5G for Djezzy in this market.

4. Effect of Brand Image on Consumer Choice Intention (H4)

Hypothesis H4, which proposed that brand image exerts a significant positive effect on consumer choice intention, was strongly supported and yielded the highest path coefficient in the entire structural model ($\beta = 0.636$, $p = 0.000$). This result constitutes the most robust finding of the study: Djezzy customers who hold a more favorable perception of the brand are considerably more likely to intend to choose or remain with it, independently of any technology-specific factor.

This finding is consistent with a broad stream of literature on brand equity and consumer behavior. Ramli and Sylvia (2023) demonstrated in a quantitative study that brand image significantly increases purchase intention by reducing perceived risk and fostering trust. Widjaja (2024), in a systematic review of 53 studies within e-commerce settings, confirmed that a positive brand image enhances consumer confidence and willingness to choose, particularly in contexts where direct product evaluation is limited a condition that applies fully to telecommunications services, which are intangible and experienced only post-adoption. Shammout et al. (2025), writing specifically in a telecommunications context, similarly confirmed that brand image builds trust and engagement, which in turn amplifies purchase intention.

In the Algerian telecommunications market, where service offerings across operators such as Djezzy, Ooredoo, and Mobilis are increasingly similar in terms of technical performance, this finding underscores the critical strategic importance of brand image as a competitive differentiator. The dominance of this relationship in the structural model suggests that consumers' choice between operators is driven more by perceptual and reputational factors than by objective technical comparisons a pattern that Lyu et al. (2024) confirm in their systematic review, showing that brand image serves as the pivotal mediator between cognitive appraisals and behavioral intentions.

5. Direct Effects of 5G Innovation Dimensions on Consumer Choice Intention (H5, H6, H7)

The analysis of direct effects reveals that network performance (H5: $\beta = 0.205$, $p = 0.033$) and connectivity capability (H6: $\beta = 0.251$, $p = 0.020$) both exert statistically significant positive direct effects on consumer choice intention, while technological integration (H7: $\beta = 0.186$, $p = 0.149$) does not.

The significance of H5 and H6 is consistent with the Technology Acceptance Model (Davis, 1989), which identifies perceived usefulness as a direct antecedent of behavioral intention. In a telecommunications context, network performance and connectivity capability are the most immediately functional dimensions of 5G they directly affect the daily digital experience of the consumer, and as such they translate most naturally into behavioral intentions. Belmonte et al. (2024), applying an extended TAM model to e-wallet adoption, confirmed that performance

expectancy is among the strongest predictors of usage intention. Paraskevi et al. (2023) reached similar conclusions in a mobile services context, demonstrating that performance expectancy and facilitating conditions are significant direct drivers of intention.

Connectivity capability emerges as the strongest direct predictor of choice intention among the three dimensions ($\beta = 0.251$), surpassing network performance ($\beta = 0.205$). This suggests that consumers' ability to envision 5G as a platform for simultaneous multi-device connectivity and smart ecosystem integration even without the mediation of brand image constitutes a particularly salient behavioral cue in the current digital environment. This finding is consistent with Skosana et al. (2024), whose systematic review highlighted massive device connectivity as one of the most distinctive and practically compelling features of 5G from a user perspective.

The non-significance of H7 introduces an important theoretical distinction: technological integration does not directly drive choice behavior, but rather operates through the perceptual route of brand image formation (as confirmed by H3). This pattern indicates that integration-related innovation attributes are cognitively processed at the brand-evaluation level rather than the behavioral decision level. Consumers appear to recognize Djezzy's technological integration as a brand-enhancing quality, but this recognition does not immediately or independently translate into a stated intention to choose the brand. This is consistent with the broader brand equity literature, which suggests that some innovation attributes contribute to brand equity accumulation without generating immediate behavioral effects particularly in early-adoption contexts where consumers are still forming their evaluation frameworks.

6. Mediating Role of Brand Image (H8, H9, H10)

The mediation analysis provides important additional nuance to the direct effect findings. Hypotheses H8 and H9, testing the mediation of brand image between network performance and choice intention and between connectivity capability and choice intention respectively, were both supported (H8: $\beta = 0.130$, $p = 0.034$; H9: $\beta = 0.160$, $p = 0.024$). Given that the corresponding direct effects are also significant, both mediations are classified as partial. This means that network performance and connectivity capability influence consumer choice through two concurrent pathways: a direct, utility-driven route and an indirect route operating through brand image formation.

The indirect effect of connectivity capability ($\beta = 0.160$) represents the largest of the three mediation paths, suggesting that this dimension generates the strongest brand-image-mediated influence on choice intention. This dual influence pattern both direct and brand-mediated is consistent with Shammout et al. (2025), who demonstrated that the relationship between brand-related constructs and purchase intention is reinforced through relational and perceptual intermediary mechanisms, and with Lyu et al. (2024), who confirmed brand image as a pivotal mediator between consumer perception and behavioral intention. These partial mediation findings collectively confirm that brand image does not fully absorb the influence of innovation on choice, but enriches and amplifies it.

Hypothesis H10, which tested the mediation of brand image between technological integration and choice intention, was not supported ($\beta = 0.118$, $p = 0.173$). This result is noteworthy in light of the full pattern of findings for D3: while technological integration significantly improves brand image (H3, $p = 0.017$), and brand image strongly predicts choice intention (H4, $p < 0.001$), the full mediation chain $D3 \rightarrow \text{Brand Image} \rightarrow \text{Choice Intention}$ — does not reach statistical significance. This suggests that the sequential indirect pathway loses sufficient statistical strength across the two stages, possibly due to the attenuated downstream effect of D3 on VM. Conceptually, this finding indicates that while 5G technological integration contributes to brand equity formation, this contribution does not yet crystallize into a statistically detectable behavioral outcome in the Algerian context. This interpretation is consistent with the early-adoption stage of 5G in Algeria, where consumers are beginning to associate Djazzy with technological modernity, but these associations have not yet matured into robust choice intentions. As suggested by Rogers (1962), the translation of innovation perceptions into behavioral decisions is a gradual, experience-dependent process.

7. Overall Synthesis and Theoretical Implications

Taken together, the results of this study reveal a differentiated and context-dependent pattern of influence through which 5G technological innovation shapes consumer behavior toward Djazzy. Rather than a uniform and comprehensive effect, the data indicate three distinct mechanisms at work.

First, network performance and connectivity capability primarily operate through direct behavioral routes, with brand image providing an additional partial mediation channel. This

dual-pathway mechanism suggests that these dimensions function simultaneously as functional service quality signals and as brand equity contributors. Second, technological integration operates exclusively through the brand perception route, enhancing brand image without directly triggering choice intention a finding that positions this dimension as a long-term brand-building attribute rather than an immediate behavioral driver. Third, brand image itself emerges as the single most powerful predictor of choice intention in the entire model ($\beta = 0.636$), confirming its central strategic role as the dominant mechanism through which all innovation attributes ultimately influence consumer behavior.

These findings make several theoretical contributions. They confirm the applicability of the Technology Acceptance Model (Davis, 1989) in a 5G telecommunications context, extend brand equity theory (Aaker, 1991; Keller, 1993) by demonstrating how specific innovation dimensions differentially contribute to brand-mediated versus direct behavioral outcomes, and provide empirical support for Diffusion of Innovation theory (Rogers, 1962) by showing that innovation compatibility captured by technological integration is particularly influential in shaping brand-level evaluations at this stage of adoption. Moreover, by addressing the research gap identified in Chapter One, this study provides an integrated empirical account of the 5G innovation–brand image–choice intention nexus in an emerging market context, thereby contributing to the limited body of evidence on consumer technology perceptions in the Algerian telecommunications sector.

Conclusion

The present study aimed to assess the impact of 5G technological innovation on consumer choice intention, by examining the mediating role of brand image, through an analysis centered on the operator Djezzy in the Algerian telecommunications market. In a context marked by accelerating digital transformation and growing competition among operators, this research provided a clearer understanding of how consumers perceive 5G and how these perceptions shape their relationship with the brand and their choice decisions.

The results showed that technological integration constitutes the most decisive dimension of 5G innovation in the formation of brand image, while network performance and connectivity capability exert a direct effect on choice intention. The study also revealed that brand image represents the most powerful factor in the structural model, confirming its central role as the transmission mechanism between technological innovation and consumer behavior. Most importantly, the research demonstrated that in a market where technical offerings are increasingly similar across operators, it is the overall perception of the brand reliability, modernity, and credibility that constitutes the primary lever of influence on choice intention.

1. Research Interest

On the academic level, this study contributes to the understanding of the relationship between 5G technological innovation, brand image, and choice intention in the Algerian telecommunications sector, a domain that remains insufficiently documented in the emerging market literature. It proposes an integrated model combining Diffusion of Innovation theory, the Technology Acceptance Model, and Brand Equity theory, offering a coherent and replicable theoretical framework.

On the managerial level, it provides telecommunications operators with concrete guidance on which innovation dimensions to prioritize in order to strengthen brand image and stimulate consumer choice intention, while accounting for the specific characteristics of the Algerian market context.

2. Main Results Obtained

Brand image exerts the strongest effect on choice intention ($\beta = 0.636$), confirming its role as the central mediating variable in the model.

Among the three dimensions of 5G innovation, only technological integration directly and significantly influences brand image, while network performance and connectivity capability act directly on choice intention without necessarily passing through the brand.

Brand image mediation is confirmed as partial for network performance and connectivity capability, indicating that these dimensions operate through both a direct and an indirect pathway to influence consumer behavior.

Technological integration, however, operates exclusively via brand image with no significant direct effect on choice intention, positioning it as a long-term brand-building lever rather than an immediate behavioral trigger.

3. Managerial Implications

This research invites telecommunications operators, and Djezzy in particular, to:

Strengthen brand image as a strategic priority, by investing in communication anchored in trust, modernity, and technological leadership, rather than focusing solely on the technical performance of the network.

Position 5G as an integrated digital ecosystem, by highlighting its compatibility with artificial intelligence, smart applications, and advanced digital services, in order to maximize its impact on brand perception.

Leverage connectivity as a direct behavioral driver, notably through experiential demonstrations that allow consumers to concretely perceive the benefits of 5G in their daily lives.

Adapt communication strategies to young consumers, the segment most strongly represented in this study, by favoring digital channels and offers oriented toward intensive usage such as streaming, gaming, and cloud services.

4. Study Limitations

Like any research, this study carries certain limitations that deserve mention. The first concerns the size and representativeness of the sample, limited to 165 respondents who are predominantly young, students, and from educated urban backgrounds, which may restrict the generalization of findings to the broader population of Djezzy users in Algeria.

Added to this is the declarative nature of the data collected, which reflect intentions and perceptions rather than actual adoption or subscription behaviors, thereby limiting the operational scope of the conclusions.

Finally, the research focuses exclusively on Djezzy, preventing direct comparison with other operators in the Algerian market such as Ooredoo and Mobilis, which restricts the comparative reach of the results.

5. Research Perspectives

Future studies could:

Extend the sample to a national scale and to more socio-demographically diverse profiles in order to validate and generalize the observed trends.

Replicate the model across other Algerian operators to compare the dynamics of 5G's influence on brand image according to different competitive positions.

Integrate a longitudinal approach to track the evolution of perceptions and intentions as 5G deployment progresses in Algeria.

Explore the moderating role of contextual variables such as income level, geographic region, or prior technological experience in the relationships examined

Bibliography

Aaker, D. A. (1991). *Managing brand equity: Capitalizing on the value of a brand name*. New York: Free Press.

Abdulaal, H., & Al Mubarak, M. (2019). The effect of technology-based applications on brand image in the telecommunications industry.

Adewale, A. A., Adesola, M. A., & Oyewale, I. O. (2013). Impact of marketing strategy on business performance: A study of selected small and medium enterprises in Nigeria. *11*(4), pp. 59–66.

Afsar, B. (2014). Effect of perceived price, brand image, perceived quality and trust on consumer's buying preferences.

Ahmad, A. M., Abu Shattal, M. H., Rawashdeh, L. A., Ghasawneh, J., & Nusairat, N. (2022). Corporate social responsibility and brand equity of operating telecoms: Brand reputation as a mediating effect. *14*(1), pp. 78–97.

Ajzen, I. (1991). The theory of planned behavior. *50*(2), pp. 179–211.

al, M. e. (2023). Brand Image and Customer Purchase Intention in Nigeria's Telecommunications Sector. *Lapai Journal of Economics*.

Al-Hujri, A., Al-Hakimi, M. A., Alshageri, S., Keshavrao, B. V., & Al Koliby, I. S. (2025). The impact of social media marketing activities on brand loyalty and awareness: The mediating role of customer satisfaction in Yemen's telecom industry. *12*(1), p. 2509793.

Ardyansyah, F. (2022). Dampak perceived quality terhadap brand loyalty: Peran mediasi brand trust dan brand image. *16*(2).

Aryani, Y. (2020). The effect of brand image, product quality, and price on purchase intention. Récupéré sur <https://ssrn.com>

Baral, S. (2016). Antecedents of brand trust. *5*(1).

- Başgöze, P. &. (2012). Effects of brand credibility on technology acceptance model: Adaption of the model to the purchase intention. *International Journal of Humanities and Social Science*, 292–298.
- Bauer, J. M., & Bohlin, E. (2022). Regulation and innovation in 5G markets. 46(2), p. 102260.
- Bello, L. M., & Babale, S. A. (2026). A review on telecommunications: Evolution, current trends, and future prospects – Opportunities and challenges. 21(1), pp. 1–26.
- Belmonte, Z. J. (2024). Factors influencing the intention to use e-wallet among generation Z and millennials in the Philippines: An extended TAM approach.
- Brondoni, S. (2001). Brand policy and brand equity.
- Bui, T., Nguyen, H., & Khuc, L. D. (2021). Factors affecting consumer's choice of retail store chain. 8(4), pp. 571–580.
- Chaves, E. (2017). Identity, positioning, brand image and brand equity comparison. 8(4).
- Chen, X., Wongyos, N., & Sakkatat, P. (2025). A comprehensive review of brand equity: Theoretical foundations, measurement approaches, and empirical advances. 8(3), pp. 201–214.
- Chukurna, O. P., Stanislavyk, O. V., Zamlynsky, V. A., Korchevska, L. A., & Pankovets, L. V. (2023). 5G digital marketing strategy of global company in the field of telecommunication.
- Cristescu, M. P., & Nerişanu, R. A. (2021). Sustainable development with Schumpeter extended endogenous type of innovation and statistics in European countries. 13(7), pp. 1–22.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. 13(3), pp. 319–340.
- Djezzy. (s.d.). 5G. Récupéré sur <https://www.djezzy5g.dz/>
- Djezzy. (s.d.). Djezzy participe au lancement officiel de la 5G. Récupéré sur <https://www.djezzy.dz>
- Dogan, M. (2025). Building brand trust through brand image: Brand loyalty matters.

- Dubey, M., Singh, A. K., & Mishra, R. (2025). AI based resource management for 5G network slicing: History, use cases, and research directions. *37*(2).
- Ebner, A. (2025). Innovation in economic evolution: Reintroducing Schumpeterian thought to current advances in economic sociology. *73*(2), pp. 262–280.
- Engel, J. F., Blackwell, R. D., & Miniard, P. W. (1995). *Consumer behavior* (éd. 8th). Dryden Press.
- Faircloth, J. B., Capella, L. M., & Alford, B. (2001). The effect of brand attitude and brand image on brand equity. *9*(3), pp. 61–75.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior*. Addison-Wesley.
- Gazi, M. A., Mamun, A. A., Masud, A. A., Senathirajah, A. R., & Rahman, T. (2024). The relationship between CRM, knowledge management, organizational commitment, customer profitability and customer loyalty in telecommunication industry: The mediating role of customer satisfaction and the moderating role of brand image. *10*, p. 100227.
- Grubor, A., Đokić, N., & Milićević, N. (2019). Measuring brand equity and brand image in marketing research. *Proceedings of the 24th International Scientific Conference Strategic Management*.
- Guceri-Ucar, G. (2014). Adding value to service brands through innovation: The relationship between innovation attributes and service brand equity dimension.
- Harryanto, H., Muchran, M., & Ahmar, A. S. (2018). Application of TAM model to the use of information technology. *7*(2.9), pp. 37–40.
- Harryanto.H. (2018). Application of TAM model to the use of information technology. *International Journal of Engineering & Technology*, *7*((2.9)), 37–40.
- Hassan, O. M., & Ket, F. (2025). A review on the challenges and opportunities of software defined networks toward 5G and 6G. *3*(2), pp. 1–6.
- Jain, R. (2017). Basic branding concepts: Brand identity, brand image and brand equity.
- Javiya, V., & Bhayani, S. J. (2013). Service quality factors characterizing consumers' perception towards mobile service providers' brand image.

- Kajtazi, S., Reshidi, N., & Baca, G. (2025). The impact of brand image and customer satisfaction on brand loyalty in Kosovo's telecommunication sector. 76(5).
- Keller, K. (1993). Conceptualizing, Measuring, and Managing Customer-Based Brand Equity. *Journal of Marketing*, 1–22.
- Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. 57(1), pp. 1–22.
- Koçak, A., & Ruzgar, N. (2017). Antecedents of brand preference: Symbolic or functional. 5(10).
- Korchia, M. (2004). The effects of brand associations on three constructs. *Proceedings of the 33rd EMAC Conference*.
- Kotler, P., & Keller, K. L. (2016). *Marketing management* (éd. 15th). Pearson.
- Lee, J. L., James, J., & Kim, Y. (2014). A reconceptualization of brand image. 5(4), pp. 1–11.
- Li, X. (2022). Brand design in the era of 5G new media and its impact on consumers' emotional experience.
- Liang, F., & Campbell, S. W. (2024). Explaining the technological acceptance of 5G: Quantitative and qualitative insights from China and the United States. 86(1), pp. 3–25.
- Lyu, L., Abidin, S. B., Shaari, N. B., Yahaya, M. F., & Jing, L. (2024). Logo impact on consumer's perception, attitude, brand image and purchase intention: A 5 years systematic review.
- Mao, Y., You, C., Zhang, J., Huang, K., & Letaief, K. B. (2017). A survey on mobile edge computing: The communication perspective. 19(4), pp. 2322–2358.
- Molem, C. S., Akume, D. A., & Bihkongnyuy, B. P. (2018). Technological innovations, service quality and customer satisfaction in Cameroon's mobile telecommunication industry. 6(1).
- Mugo, D. G. (2017). *The Technology Acceptance Model (TAM) and its application to the utilization of mobile learning technologies* (Vol. 20).

- Mugo, D. G., Njagi, K., Chemwei, B., & Motanya, J. O. (2017). The technology acceptance model (TAM) and its application to the utilization of mobile learning technologies. *20(4)*, pp. 1–8.
- Musa, H. G., Fatmawati, I., Nuryakin, N., & Suyanto, M. (2024). Marketing research trends using technology acceptance model (TAM): A comprehensive review.
- Nuriev, M., Kalyashina, A., Smirnov, Y., Gumerova, G., & Gadzhieva, G. (2024). The 5G revolution transforming connectivity and powering innovations. *515*, p. 04008.
- Oikonomia. (2023). Digital marketing innovation and its impact on brand differentiation and consumer engagement. *5(2)*, pp. 45–60.
- Ojiaku, O. C., & Osarenkhoe, A. (2018). Determinants of customers' brand choice and continuance intentions. *19(6)*.
- Pandey & Jain. (s.d.). Measuring The Relationship Between Customer Satisfaction, Service Quality and Corporate Image: A Case Study of Airtel and BSNL. *Management Insight - The Journal of Incisive Analysers*.
- Paraskevi, G., Saprikis, V., & Avlogiaris, G. (2023). Modeling nonusers' behavioral intention towards mobile chatbot adoption.
- Parris, D., & Guzmán, F. (2022). Evolving brand boundaries and expectations: looking back on brand equity, brand loyalty, and brand image research to move forward.
- Rahman, S., Haque, A., & Ahmad, M. (2011). Choice criteria for mobile telecom operator. *7(1)*.
- Rajagopal, A. (2020). Analysing brand awareness as a driver for determining brand value: A study in telecommunications service marketing. *37(2)*.
- Ramli, A. H., & Sylvia. (2023). The influence of e-WOM on purchase intention with brand image as a mediator variable.
- Rogers, E. M. (1995). *Diffusion of innovations* (éd. 4th). Free Press.
- Rogers, E. M. (1995). *Diffusion of Innovations*. New York, USA.
- Rogers, E. M. (2003). *Diffusion of innovations* (éd. 5th). Free Press.
- Rogers, E. M. (2003). *Diffusion of Innovations*. New York , USA: Free Press.

- Romaniuk, J., & Gaillard, E. (2007). The relationship between unique brand associations, brand usage and brand performance: Analysis across eight categories. 23(3–4), pp. 267–284.
- Sakshi, Bansal, H., & Balhara, S. (2018). Impact of brand recognition on consumer attraction: A study of telecom sector. 9(1).
- Šalčiuvienė, L., Ghauri, P., Mockaitis, A. I., & De Mattos, C. (2009). Brand image perceptions across cultures: A study of symbolic and functional associations.
- Setyadi, B. (2025). Aligning brand association, awareness, and image with sustainable consumer perceptions in the telecommunications sector. 5(3).
- Shammout, E., Megdadi, O., Shammout, A. B., & Alshaketheep, K. (2025). Sustainable marketing's impact on purchase intentions: The roles of brand image, trust, and customer engagement.
- Shams, R. B. (2020). A model and empirical test of evolving consumer perceived brand innovativeness and its two-way relationship with consumer perceived product innovativeness. *Australasian Marketing Journal*, 171–180.
- Singh, A. K. (2020). Study on the effect of service quality dimensions on brand image and buying intention of customers in telecom industry.
- Skosana, S. G., Mlambo, S. B., Madiope, T., & Thango, B. (2024). Evaluating wireless network technologies (3G, 4G, 5G) and their infrastructure: A systematic review.
- Suradi, A., Purwati, S., Zakaria, M., Nurbakti, R., & Mustafa, F. (2024). Analysis of determinant factors customer loyalty towards brand in the telecommunication industry with the digitalization paradigm. 6(2), pp. 36–41.
- Tannady, H. (2022). Role of product innovation and brand image toward customer interest and purchase decision.
- Widjaja, A. F. (2024). Factors influencing purchase intention in e-commerce: An analysis of brand image, product quality, and price.
- Wronka-Pośpiech, M., Pacut, A., Laurisz, N., Mikołajczak, P., Steinerowska-Streb, I., & Żur, A. (2025). Types of innovation in social entrepreneurship: Categorization based on a systematic literature review employing the TCCM framework.

- Wu, D. (2022). Brand image innovation design based on the era of 5G internet of things.
- Wu, W. &. (s.d.). The influence of perceived innovation and brand awareness on purchase intention of innovation product: An example of iPhone. *International Journal of Innovation and Technology Management*, 2014.
- Yu, H., Lee, H., & Jeon, H. (2017). What is 5G? Emerging 5G mobile services and network requirements. 9(10), pp. 1–5.
- Zamzami, I. F. (2023). Deep learning models applied to prediction of 5G technology adoption. 13(1), p. 119.
- Ziemnowicz, C. (2013). Joseph A. Schumpeter and innovation. Dans *Encyclopedia of creativity, invention, innovation, and entrepreneurship* (pp. 1172–1175). Springer.

Appendix A :

Questionnaire

Dear Participant, as part of the preparation of our Master's thesis in Marketing Management at the National Higher School of Management (ENSM Koléa), we are conducting a study about the impact of 5G technological innovation on brand image and consumers' choice intention toward Djezzy.

This survey is mainly intended for telecommunications users in Algeria in order to better understand their perceptions regarding 5G technology, Djezzy's brand image, and their future intentions to use and recommend the brand.

Your participation would be greatly appreciated. All responses will remain strictly confidential and will only be used for academic purposes.

Thank you for your valuable collaboration.

1. Screening Questions

a. Do you use Djezzy?

هل تستخدم شريحة Djezzy

- Yes
- No

b. Are you aware of 5G technology?

هل انت على دراية بتقنية الجيل الخامس (5G)

• Yes

• No

2. Research Questions

A. Network Performance

Scale: 1 = Strongly Disagree | 5 = Strongly Agree

	1 = Strongly Disagree 5 = Strongly Agree				
	1	2	3	4	5
5G provides very high internet speed. سرعة عالية جداً في توفر شبكة الجيل الخامس الإنترنت					
5G reduces delays when using online services (streaming, gaming). تقلل شبكة الجيل الخامس من التأخير أثناء استخدام الخدمات (مثل الفيديو أو الألعاب)					
I feel that 5G offers a noticeable improvement over 4G/3G in my daily use. تقدم تحسناً ملحوظاً مقارنة بشبكة (4G/3G) أشعر أن شبكة (5G) في استخدامي اليومي					

B. Connectivity Capability

		1 = Strongly Disagree 5 = Strongly Agree				
		1	2	3	4	5
5G allows many devices to be connected at the same time. ربط عدد كبير من الأجهزة تتيح شبكة الجيل الخامس في نفس الوقت						
The 5G connection remains stable even during high usage يظل اتصال شبكة الجيل الخامس مستقرًا حتى عند الاستخدام المكثف						
5G improves the use of smart devices (smart home, wearable devices). تحسن شبكة الجيل الخامس استخدام الأجهزة الذكية (مثل المنازل الذكية والأجهزة القابلة للارتداء)						

C. Technological Integration

		1 = Strongly Disagree 5 = Strongly Agree				
		1	2	3	4	5
5G works well with modern technologies (AI, smart applications). تعمل شبكة الجيل الخامس بشكل جيد مع التقنيات الحديثة (مثل الذكاء الاصطناعي والتطبيقات الذكية).						

5G improves digital services through better technology integration. تحسن شبكة الجيل الخامس الخدمات الرقمية من خلال التكامل التكنولوجي					
The use of 5G enhances the quality of digital services. في تحسين جودة الخدمات تساهم شبكة الجيل الخامس الرقمية					

D. Brand Image (Djezzy)

	1 = Strongly Disagree 5 = Strongly Agree				
	1	2	3	4	5
Djezzy has a strong and positive brand image. Djezzy تتمتع بصورة ذهنية قوية وإيجابية					
Djezzy is perceived as an innovative telecommunications company. Djezzy تُعتبر شركة مبتكرة في مجال الاتصالات					
Djezzy provides high-quality services. Djezzy تقدم خدمات ذات جودة عالية					
Djezzy is a trustworthy brand.					

Djezzy تُعد علامة تجارية جديرة بالثقة					
Djezzy has a good reputation compared to other telecom operators. Djezzy تتمتع بسمعة جيدة مقارنة بالمنافسين					
I have a positive overall impression of Djezzy. لدي انطباع عام إيجابي عن Djezzy					

E. Choice Intention (Djezzy)

	1 = Strongly Disagree 5 = Strongly Agree				
	1	2	3	4	5
Djezzy would be one of my first options when choosing a telecom provider. من بين أولى خياراتي عند اختيار مزود خدمات ستكون Djezzy الاتصالات					
I can see myself subscribing to Djezzy in the near future. أستطيع أن أرى نفسي مشتركاً في Djezzy في المستقبل خدمات					
I prefer Djezzy over other telecom operators. أفضل Djezzy مقارنة بباقي شركات الاتصالات					
I would recommend Djezzy to others. أوصي الآخرين باستخدام Djezzy					
I would continue using Djezzy's services. أنوي الاستمرار في استخدام خدمات Djezzy					

3. Respondent Profile

3.1 Gender

- Male
- Female

3.2. Age

- 18 – 24 years old
- 25 – 34 years old
- 35 – 44 years old
- Over 45 years old

3.3 Level of Education

- High School
- Bachelor's Degree
- Master's Degree
- PhD

3.4 Occupation

- Student
- Public Sector Employee
- Self-employed
- Unemployed
- Other

3.5 Duration of Subscription with Djezzy

- Less than 1 year
- 1 to 3 years
- 4 to 6 years

- More than 6 years

Appendix B :

CLICK HERE TO VISUALIZE THE QUESTIONNAIRE

https://docs.google.com/forms/d/e/1FAIpQLSdpba-uY9yO91HCl_Xbt-yUd5GwDI4tKZ1lIWamN8y3GHd3Fw/viewform?usp=dialog

Statistiques de fiabilité		Statistiques de fiabilité		Statistiques de fiabilité	
Alpha de Cronbach	Nombre d'éléments	Alpha de Cronbach	Nombre d'éléments	Alpha de Cronbach	Nombre d'éléments
,912	20	,625	3	,718	3
Statistiques de fiabilité		Statistiques de fiabilité		Statistiques de fiabilité	
Alpha de Cronbach	Nombre d'éléments	Alpha de Cronbach	Nombre d'éléments	Alpha de Cronbach	Nombre d'éléments
,771	3	,856	6	,852	5

Gender الجنس

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	female	109	66,1	66,1	66,1
	Male	56	33,9	33,9	100,0
	Total	165	100,0	100,0	

Age العمر

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	18-24	115	69,7	69,7	69,7
	25-34	41	24,8	24,8	94,5
	35-44	6	3,6	3,6	98,2
	over 45	3	1,8	1,8	100,0
	Total	165	100,0	100,0	

Level of Education المستوى التعليمي

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	Bachelor's Degree	29	17,6	17,6	17,6
	High School	9	5,5	5,5	23,0
	Master's Degree	111	67,3	67,3	90,3
	Phd	16	9,7	9,7	100,0
	Total	165	100,0	100,0	

Occupation المهنة

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	other	22	13,3	13,3	13,3
	Public sector Employee	6	3,6	3,6	17,0
	Self-employed	15	9,1	9,1	26,1
	Student	110	66,7	66,7	92,7
	Unmeployed	12	7,3	7,3	100,0
	Total	165	100,0	100,0	

Subscription Duration مدة الاشتراك

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	1-3 years	64	38,8	38,8	38,8
	4-6 years	38	23,0	23,0	61,8
	Less than 1year	39	23,6	23,6	85,5
	More than 6 years	24	14,5	14,5	100,0
	Total	165	100,0	100,0	

Statistiques			Statistiques			Statistiques		
D1			D2			D3		
N	Valide	165	N	Valide	165	N	Valide	165
	Manquant	0		Manquant	0		Manquant	0
Moyenne		4,0505	Moyenne		3,9495	Moyenne		4,1374
Ecart type		,71625	Ecart type		,66423	Ecart type		,62468

Statistiques			Statistiques			Statistiques		
vind			Vm			Vdpnd		
N	Valide	165	N	Valide	165	N	Valide	165
	Manquant	0		Manquant	0		Manquant	0
Moyenne		4,0458	Moyenne		4,1010	Moyenne		4,0424
Ecart type		,55515	Ecart type		,61917	Ecart type		,69626

Outer loadings - Matrix

	D1	D2	D3	V Ind	VM	
Q101	1.000					
Q103	1.000					
Q201		0.866				
Q202		0.803				
Q203		0.720				
Q301			0.767			
Q302			0.876			
Q303			0.840			
Q401					0.598	
Q402					0.819	
Q403					0.787	
Q404					0.722	
Q405					0.811	
Q406					0.834	

Construct reliability and validity - Overview

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	Cronbach's alpha	Composite reliability (rho...	Composite reliability (rho_c)	Average variance extracte...
D1	1.000	1.000	1.000	1.000
D2	0.718	0.752	0.840	0.638
D3	0.774	0.797	0.868	0.688
V Ind	0.852	0.856	0.894	0.629
VM	0.856	0.866	0.894	0.587

Discriminant validity - Fornell-Larcker criterion

	D1	D2	D3	V Ind	VM	
D1	1.000					
D2	0.345	0.799				
D3	0.525	0.585	0.829			
V Ind	0.348	0.415	0.529	0.793		
VM	0.390	0.431	0.440	0.738	0.766	

R-square - Overview

	R-square	R-square adjusted	
V Ind	0.597	0.587	
VM	0.270	0.256	

Path coefficients - Mean, STDEV, T values, p values

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	ple (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
D1 -> V Ind	-0.042	-0.039	0.072	0.581	0.561
D1 -> VM	0.205	0.197	0.096	2.134	0.033
D2 -> V Ind	-0.005	-0.004	0.078	0.058	0.953
D2 -> VM	0.251	0.258	0.108	2.332	0.020
D3 -> V Ind	0.273	0.264	0.115	2.379	0.017
D3 -> VM	0.186	0.192	0.129	1.444	0.149
VM -> V Ind	0.636	0.644	0.064	9.946	0.000

Specific indirect effects - Mean, STDEV, T values, p values

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		Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
D3 -> VM -> V Ind	8	0.125	0.087	1.361	0.173
D1 -> VM -> V Ind	0	0.126	0.062	2.116	0.034
D2 -> VM -> V Ind	0	0.166	0.071	2.252	0.024

