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The Influence of Cultural and Behavioral Factors on Clients' Adoption of Digital Tools in SMEs: Evidence from a Driving School Digitalization Initiative

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Abstract

This dissertation examines the influence of behavioral and cultural factors on candidates' adoption of digital tools within Algerian SMEs, using driving schools as a case study. A convergent parallel mixed-methods design was employed, combining quantitative data collected from 109 candidates with qualitative interviews conducted with six stakeholders, based on the UTAUT2 theoretical framework.

The results confirm that H1 (digital lifestyle) positively influences digital adoption ($\beta = 0.552$, $p < 0.001$, $R^2 = 30.5\%$), while H2 (hedonic motivation and trust) demonstrates a stronger impact ($\beta = 0.746$, $p < 0.001$, $R^2 = 55.6\%$). H3 (socio-demographic profile) was partially supported, as no statistically significant differences were observed among the examined variables, except for gender ($p = 0.016$).

The qualitative findings reveal a stakeholder structure composed of candidates, managers, and institutions. They also highlight a systemic gap between the strong user demand for digitalization and the hesitation of managers due to trust-related concerns and the absence of certified digital platforms. Three major structural gaps were identified: the listening and action gap, the trust and enablement gap, and the voice and visibility gap.

Keywords: Digitalization, SMEs, driving schools, technology acceptance, behavioral factors, mixed-methods approach, Algeria, UTAUT2.

Résumé

Cette dissertation examine l'influence des facteurs comportementaux et culturels sur l'adoption des outils numériques par les candidats au sein des PME algériennes, en prenant les auto-écoles comme étude de cas. Une méthodologie mixte convergente parallèle a été employée, combinant des données quantitatives recueillies auprès de 109 candidats et des entretiens qualitatifs menés auprès de six parties prenantes, selon le cadre théorique de l'UTAUT2.

Les résultats confirment que l'hypothèse H1 (le style de vie numérique) influence positivement l'adoption des outils numériques ($\beta = 0{,}552$, $p < 0{,}001$, $R^2 = 30{,}5\ \%$), tandis que l'hypothèse H2 (la motivation hédonique et la confiance) présente un impact plus important ($\beta = 0{,}746$, $p < 0{,}001$, $R^2 = 55{,}6\ \%$). En revanche, l'hypothèse H3 (le profil sociodémographique) n'est que partiellement confirmée, aucune différence statistiquement significative n'ayant été observée parmi les variables examinées, à l'exception du genre ($p = 0{,}016$).

Les résultats qualitatifs révèlent une structure composée de candidats, de gestionnaires et d'institutions. Ils mettent également en évidence un écart systémique entre la forte demande des utilisateurs pour la numérisation et l'hésitation des gestionnaires, liée aux préoccupations de confiance et à l'absence de plateformes numériques certifiées. Trois principales lacunes structurelles ont été identifiées : l'écart entre l'écoute et l'action, l'écart entre la confiance et la facilitation, ainsi que l'écart entre la voix et la visibilité.

Mots-clés : Numérisation, PME, auto-écoles, acceptation des technologies, facteurs comportementaux, approche mixte, Algérie, UTAUT2.

الملخص

تهدف هذه الدراسة إلى فهم تأثير العوامل السلوكية والثقافية على تبني المترشحين للأدوات الرقمية في سياق المؤسسات الصغيرة والمتوسطة الجزائرية، مع اتخاذ مدارس تعليم السياقة كدراسة حالة. وقد تم اعتماد تصميم بحثي مختلط متقارب ومتوازٍ، يجمع بين البيانات الكمية المستمدة من 109 مترشحًا والمقابلات النوعية التي أُجريت مع ستة من أصحاب المصلحة، بالاستناد إلى الإطار النظري UTAUT2.

تؤكد النتائج صحة الفرضية الأولى، حيث يؤثر نمط الحياة الرقمي إيجابيًا على تبني الأدوات الرقمية ($\beta = 0.552$ ،$p < 0.001$ ،$R^2 = 30.5\%$) أقوى بينما تُظهر الفرضية الثانية المتعلقة بالدافع الترفيهي والثقة تأثيرًا ($\beta = 0.746$ ،$p < 0.001$ ،$R^2 = 55.6\%$). أما الفرضية الثالثة المتعلقة بالخصائص الاجتماعية والديموغرافية، فقد تم تأكيدها جزئيًا، إذ لم تُسجل فروق ذات دلالة إحصائية بين المتغيرات المدروسة باستثناء متغير الجنس.

تكشف النتائج النوعية عن وجود هيكل يضم المترشحين والمديرين والمؤسسات، كما تبرز فجوة واضحة بين الطلب المتزايد على الرقمنة من طرف المستخدمين والتردد الإداري الناتج عن مخاوف مرتبطة بالثقة وغياب المنصات الرقمية المعتمدة. وقد تم تحديد ثلاث فجوات رئيسية تتمثل في فجوة الاستماع والتنفيذ، وفجوة الثقة والتمكين، وفجوة الصوت والظهور.

الكلمات المفتاحية: الرقمنة، المؤسسات الصغيرة والمتوسطة، مدارس تعليم السياقة، تقبل التكنولوجيا، العوامل السلوكية، UTAUT2، المنهج المختلط، الجزائر.

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List of Abbreviations

AMA	American Marketing Association
ANOVA	Analysis of Variance
ANSR	Agence Nationale de la Sécurité Routière (National Road Safety Agency)
CQ	Cultural Intelligence
CRM	Customer Relationship Management
EE	Effort Expectancy
EO	Entrepreneurial Orientation
FC	Facilitating Conditions
IBM	International Business Machines
IDT	Innovation Diffusion Theory
IT	Information Technology
MIS	Management Information Systems
NVivo	Qualitative Data Analysis Software (QSR International)
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
PE	Performance Expectancy
SI	Social Influence
SME	Small and Medium-sized Enterprise
SMEs	Small and Medium-sized Enterprises
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
TPB	Theory of Planned Behavior
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Unified Theory of Acceptance and Use of Technology (Extended Consumer Version)

INTRODUCTION

In recent years, digitalization has become a central transformation across multiple sectors. Particularly in business, where the rhythm is faster, and the demand is higher. Digitalization goes beyond being a technological shift, it presents a structural change on how organizations interact with clients, find solutions, and adapt to behavioral expectations.

Small and medium-sized enterprises (SMEs) are at the core of this transition, as they face both opportunities and constraints in implementing digital tools. While digitalization can enhance accessibility, effectiveness, and competitiveness; it also introduces financial, technical, and organizational challenges.

This transformation is particularly relevant in high-interaction service sector such as driving schools, where service delivery highly relies on direct contact between multiple stakeholders, including institutions, managers, and candidates (client). In this context digitalization is broader than a technical decision, but it also a behavioral and perceptual process influenced by users' expectations and attitudes.

In developing countries such as Algeria, digitalization is increasingly encouraged by a rising demand for faster, easier and more accessible substitutes of the available traditional solutions. However, its adoption remains challenging due to the limited infrastructure, cultural resistance, and the varying levels of the digital readiness among stakeholders.

1 Research Context and Problem Statement

1.1Sectoral and Geographical Context

This study was conducted within the context of driving schools in Khenchela, while also covering a broader sample of participants across different regions of Algeria. The allows the research to capture both local insights and a wider national perspective of the phenomenon under investigations.

The combination of local field observation and nationwide survey responses enable a deep comprehensive understanding of the studied phenomenon.

1.2Research Problem

In service-oriented SMEs, the barriers to digital transformation extend beyond the financial and technical limitations. Behavioral, cultural, and perceptual factors play a crucial role in shaping the digital adoption.

In this context, digitalization is not merely the adoption of digital tools, but rather the way of accepting, perceiving and using these tools by individuals; how to make them a part of their daily practices.

In driving schools, decision-making is influenced by multiple stakeholders: managers, instructors, institutional regulators, and candidates. Although the decision-making process is

centered around the mangers/owners, the candidates are also involved in this process since thy are the core end-users of the service.

The study focuses on understanding candidates' acceptance of digitalization in such non-traditional sector, driving schools. It investigates whether digital tools are perceived as facilitators or obstacles by the clients in the Algerian context.

To deepen this analysis, a qualitative exploratory phase was conducted with six experts in the driving school sector in Khenchela, Algeria; five driving schools' managers and the Deputy Director of the Road Safety Agency in khenchela. This phase examines the digitalization from an institutional and managerial standpoint to complete the quantitative findings from candidates.

The central research problem that guides this study is:

How do cultural and behavioral factors influence clients' adoption of digital tools in SMEs, particularly in context of driving schools in Algeria?

This question leads to other relevant sub-questions:

- Do the candidates 'digital lifestyle influence the digitalization of driving schools?
- How do hedonic motivation and trust shape the clients' willingness to adopt digital solutions?
- Does the digitalization of driving schools attract more candidates or the opposite?
- How do the contextual and cultural factors affect the perception and use of digital tools within the driving school context?

Despite the growing importance of the managerial characteristics, the candidates 'lifestyles and the external pressures of competition and laws; the interplay between these elements in the SMEs digitalization is still not fully studied in the Algerian context.

1.3 Hypotheses:

This scientific work aims to examine three determents in the digitalization of driving schools in Algeria:

(H1) The candidates' digital habits and lifestyle positively influence the digitalization of driving school training

(H2) The candidates' hedonic motivation and trust toward digital content positively influence the digitalization of driving school training

(H3) The adoption of digital tools in driving school training varies significantly according to candidates' socio-demographic profile.

The significance of this study lies in its dual contribution to both theoretical and practical aspects. Academically, it contributes to covering an important knowledge gap by examining

the digitalization of driving schools in Algeria, particularly in relation to cultural and behavioral factors.

From a practical standpoint, the study provides scientific recommendations for managers that could support the digitalization of their SMEs and deepen their understanding of the surrounding cultural and behavioral characteristics of all the influencing stakeholders.

Ultimately, this study bridges the gap between the theory and practice by offering realistic recommendations in service-oriented businesses based on scientific research.

1.4 Research Objectives:

The primary objective of the study is to examines the reaction of the Algerian candidates to the first contact with the idea of the digitalization of a new field. In a private sector, where people have more freedom to pick the appropriate choice according to their preference, this provides the study with more flexibility and openness. The secondary objectives include :

- To study the same process of digitalization from the perspectives of all the involved stakeholders.
- To understand some of the reasons that stand behind accepting or refusing the digitalization.
- Looking for practical solutions that may enhance a field in the Algerian market.

1.5 Research choice and Motivations:

The choice of this research topic is driven by both academic and practical motivation, Although Algeria is currently working on the digitalization of many sectors; Numerous fields are still far away from adopting the simplest digitalization tools; Which is surprising especially since those modern solutions can save time, energy and potentially money.

As far as can be observed, the digitalization of this particular field, driving schools, is still relatively a new topic in the whole world, and has been rarely studied in the Algerian context. Furthermore, the impact of human factor in digitalization process is a less addressed aspect comparing to others; Even though it is considered as direct contributor in the success or failure of the digitalization.

A field observation conducted in the driving schools in khenchela, revealed that candidates are facing difficulties in holding their printed manuals wherever, and sometimes they even lose them. This highlights the potential value of the digital alternatives.

In addition, the growing number of studies focus on the manager ‘involvement in the digitalization of the SMEs, they tend to overlook a key fact: the clients are the core interest of any business.

2 Research Relevance

2.1 Theoretical Contribution

Although a growing number of studies investigates in the SME's digitalization using technology adoption models, such as UTAUT and UATUT2, a limited attention has been given to the behavioral and cultural dimensions in small, service-oriented businesses, particularly in developing countries.

The technical and financial factors are the main focus in many studies; While the behavioral and cultural ones got less attention.

This study contributes by extending UTAUt2 to a non-traditional sector, driving schools, integrating behavioral and cultural variables, with providing and empirical case from the Algerian context. It therefore offers a more human-centered and contextualized understand of the phenomenon of SMEs' digitalization.

2.2 Managerial Contribution

From a practical perspective, this scientific work provides insights for both managers and policymakers that involve in the SME digitalization, particularly in the driving school sector.

For managers, it highlights the importance of finding flexible solutions, aligning with candidates' preferences and enhancing the school 's image through the implementation of digitalization.

For the responsible institutions, it emphasizes the need for a clear regulatory framework and a structured support to facilitate digital adoption and overcome the exiting gaps between the three stakeholders in the driving schools' digitalization.

Overall, the study shed the light on the significant impact of the behavioral and cultural aspect in process of SMEs' digitalization.

3 Research Methodology:

The study adopted a mixed-methods approach based on a pragmatist perspective. The qualitative phase relies on six interviews with six experts in the driving school sector, five driving school managers/owners/instructors, and the deputy director of the road safety in Khenchela, analyzed using Nvivo 15. For the quantitative phase, an electronic questionnaire was distributed using Google Form. The responses of 109 candidates across Algeria were analzed using IBM SPSS 27 through descriptive statistics and hypothesis testing. This methodological triangulation contributes in achieving a deep understanding of the phenomenon.

4 The Structure of the Thesis

This thesis is structured into three main chapters:

- Chapter one: a literature review and a Conceptual Framework: presents the theoretical foundation, the conceptual model and the research hypotheses.
- Chapter two: the methodological framework and research context: explains the research design, data collection, and the analytical strategies for both the qualitative and quantitative techniques.
- Chapter three: results and discussion: presents the empirical finding of the study, test hypotheses and the interpretation of the results.

CHAPTER I:

LITERATURE REVIEWAND CONCEPTUAL FRAMEWORK

I Literature Review

While the traditional management is exclusively focusing on the technical and financial aspect of the digital transition, a growing number of scientific works shed the lights on the behavioral and cultural factors, due to their implicit and explicit impact on the whole procedures. This study aims to tackles the necessity of implementing digitalization, as a technical and socio-cultural phenomenon, in SMEs; the feedback and contribution of the clients; and the owner-client relationship. This literature review provides a deep understanding of the links between the digitalization of the SMEs and the impact of the cultural factors; then to compare and contrast the different scientific works, which enable us to choose the most relevant methodology, tackling the problematic How do cultural and behavioral factors shape the adoption of digital tools in small traditional businesses? A case study of a driving school digitalization initiative

1 Drivers and Outcomes of SMEs 'Digitalization:

According to the article "*Adoption and performance outcome of digitalization in small and medium-sized enterprises*", which studies the implementation of digitalization, its enablers and barriers; while it analyses its impact on the performance in the SMEs, through a qualitative research methodology, 45 min semi-structured interviews, cross countries, from January to April 2022; the participants are managers with three to 22 years of experience in multi-businesses.

In business, the intelligent adoption of technologies facilitates the process of gaining a competitive advantage. Digitalization helps companies grow and improve, but it also requires money, skills, and a new way of thinking. The digitalization way differs from an enterprise to another. Although many studies clearly show that digitalization is efficient for SMEs, however according to the findings of this study few firms still refuse or refrain to digitalize.

The factors may influence the process of digitalization whether through accelerating like the right technologies and skills, or refraining like the change resistance and the avoiding risk culture. the study findings show that when multiple elements come into play, the effective digitalization occurs.

Authors shed the lights on the managerial skills as well; like the awareness of the existing and relevant technologies; and the diversity of digital tools and applications, through simplifying the internal processes; managing external stakeholders, and focusing on the relationships with the clients. Managers should develop a strategic view of digitalization that should be implemented in the organization; it is necessary to develop the digital skills among employees. The digitalization still be a challenging decision for SMEs managers due to its inherent uncertainty. During this fast-changing technologies; managers should continuously stay updated with new digital developments to enable a radical digital transformation, rather than making random decisions based on their past experiences.

The limitation of this study there is no deep individual analysis (personal skills, individual nuances …), the focus was on the managers ‘view.

They suggested for the next research to focus on the connection on the consumer, the dynamics of barriers of digitalization, and the digitalization links .and also, to work on the national and industry-specific factors and to rely on larger samples that cover a broader geographic and industrial scope.

The studies agree that digitalization enhance SME’ s performance by boosting efficiency, competitiveness, and service delivery. Managerial capability and technological readiness are frequently identified as key drivers of a successful adoption. However, most studies focus on organizational outcomes and tend to overlook individual-level differences and contextual constraints; which create a gap in understanding how digital transformation actually unfolds in small and heterogeneous business environment.

2 Facilitators and Barriers of Digitalization in SMEs

The adoption of digital technologies in SMEs does not depend only on the availability of technological tools, but also on several organizational and behavioral conditions that can either facilitate or hinder the transition. While many studies emphasize the benefits of digitalization, researchers increasingly highlight that the success of the process depends on a combination of enabling factors and potential barriers.

According to (Resende et al., 2026), research on digital transition has often focused on drivers that accelerate adoption, particularly through models such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). These models explain how perceived usefulness, ease of use, and social influence can encourage individuals to adopt digital technologies. However, the authors argue that focusing only on technological drivers is insufficient, since digital transition also involves organizational culture, human behavior, and institutional context.

Several studies highlight that managerial capabilities and organizational readiness are among the most important facilitators of digitalization in SMEs. Managers who possess digital awareness and strategic vision are more likely to introduce technological innovations and encourage employees to adopt new tools (Kraus et al., 2021). Similarly, firms that actively acquire digital knowledge and develop internal competencies are more likely to experience smoother digital adoption processes (Chi et al., 2025; Liang & Zhang, 2024).

The role of leadership is also emphasized in the research of (Tian et al., 2026), which examines how CEOs’ cognitive styles influence the speed of digital transformation. Using an Ordinary Least Squares (OLS) regression, the study finds that analytical cognitive styles may slow down the pace of transformation but contribute to more stable and consistent digital progress, while intuitive cognitive styles accelerate digital adoption but may reduce its regularity. These findings suggest that leadership behavior and decision-making patterns can significantly shape the trajectory of digital transformation.

Despite these facilitating factors, SMEs often face multiple barriers when attempting to implement digital technologies. Previous research identifies different types of obstacles, including organizational, financial, technical, and behavioral challenges (Brodny & Tutak, 2021; Kamaljeet, 2021; Kraus et al., 2021). Organizational barriers may include limited financial resources, lack of strategic planning, or rigid organizational structures that slow innovation processes (Rachinger et al., 2018).

Behavioral barriers are also particularly significant. Employees and managers may resist technological change due to fear of uncertainty, disruption of established routines, or lack of digital skills (Trittin-Ulbrich et al., 2020). In many SMEs, where traditional practices dominate and digital competencies remain limited, these behavioral factors can strongly influence the success or failure of digitalization initiatives.

Overall, the literature suggests that digital transformation in SMEs should not be considered solely as a technological process. Instead, it represents a socio-organizational transformation that requires managerial commitment, employee readiness, and supportive organizational culture. These challenges are even more visible in small service-oriented businesses, where interpersonal relationships and trust with clients remain central to daily operations.

Research confirms that the digital adoption is influenced by technological acceptance factors such as perceive usefulness and ease of use, as well as organizational conditions like leadership and internal capabilities. However, these theoretical models do not often reflect real-world complexity in SMEs.

3 Digitalization in Driving Schools: a sector-specific perspective

Driving schools represent a particular type of small service-oriented SMEs. In most cases, the organizational structure is very simple, where the owner often assumes multiple roles simultaneously, including manager, instructor, and administrative coordinator. This structure makes decision-making highly centralized and strongly influenced by the owner's personal attitudes toward innovation and technological change.

Despite the growing attention to digital transformation in SMEs, the literature focusing specifically on driving schools remains very limited. Most existing studies examining educational institutions tend to concentrate on the adoption of digital technologies rather than on the broader process of digital transformation in small training businesses.

One of the few studies addressing this sector is the article "Digital Transformation Strategy in Post-COVID Era: Innovation Performance Determinants and Digital Capabilities in Driving Schools" (2022). Using a quantitative approach based on a survey of 300 driving instructors in Greece and regression analysis, the authors examine how digital capabilities influence innovation performance in driving schools.

The results highlight the importance of IT flexibility, defined as the ability of organizations to rapidly deploy and reconfigure digital resources to support operational needs (Fossen & Sorgner, 2021), as well as IT agility, which refers to the capacity to respond quickly to

environmental changes and integrate innovative technological solutions (Panda & Rath, 2017). According to the study, these capabilities positively influence process-innovation performance, suggesting that driving schools show a certain openness toward digital transformation when the necessary technological resources are available.

However, the study remains primarily focused on technological capabilities and performance indicators. The use of a cross-sectional survey and regression analysis also limits the ability to capture deeper organizational dynamics and contextual factors influencing digital adoption. Furthermore, the performance measures used are largely subjective, and other potential determinants of innovation, such as collaboration networks or human and cultural factors, are not fully considered.

Therefore, while this research provides initial insights into the technological determinants of digital transformation in driving schools, it leaves aside the behavioral and cultural dimensions that may significantly shape the adoption of digital tools in small traditional businesses. This gap is particularly relevant in contexts where client relationships, trust, and informal interactions remain central to the service delivery process.

Studies on driving schools mainly emphasize technological capabilities such as IT flexibility, which are associated with improved operational performance. In addition, they mainly focus on the driving schools' mangers, and pay less attention on the candidates' impact on the implementation of digital tools in such a high face-to-face sector.

4 The Behavioral and Cultural Dimension 's influence on the Digitalization Process

While digital transformation is often examined through financial and technological dimensions within firms, an implicit aspect plays a crucial role in the depth of the transformation process: the behavioral and cultural dimension, particularly in SMEs where organizational structures are usually less formalized and decision-making is often more flexible. The interaction between human factors, including top management, employees, and clients, can significantly influence the success or failure of digital transformation initiatives.

Lopes Resende et al. (2026) conducted a literature review of 165 peer-reviewed papers published between 1999 and 2022 to study resistance to digital transition. According to the authors, resistance to change can be considered a personal trait that leads individuals to ignore the advantages of new practices (Nel & Boshoff, 2021). In some cases, individuals may even act as negative change agents, influencing others to reject new systems, which negatively affects the adoption of technological tools (Prakash & Das, 2022).

Furthermore, several studies indicate that individuals who are more likely to resist change are often older employees and those with lower levels of education (Balaskas et al., 2025; Talwar et al., 2020; Valtonen & Holopainen, 2025). Gender has also been identified as a significant factor influencing digital resistance, which is supported by empirical research and reflected in models such as the Unified Theory of Acceptance and Use of Technology (UTAUT)**.** In

addition to personal traits and behaviors, social interactions and organizational environments are also considered potential barriers to digital transformation.

In the context of SMEs, resistance to digital transformation may also be linked to the persistence of traditional business practices, which are often perceived as more practical and familiar than new digital solutions that require additional time and effort to learn. Darma et al. (2021) examined this phenomenon through a quantitative study using the snowball sampling method and electronic questionnaires. Their results confirm that SMEs may experience knowledge stickiness due to several challenges, including difficulties in learning new knowledge and developing new business models.

The literature identifies resistance to change as a major barrier to digital transformation in SMEs. This resistance is often linked to individual characteristics such as age, educational level and digital skills. However, many studies treat these factors independently, neglecting the role of organizational culture and informal routine in reinforcing resistance within SMEs. As a result, the behavioral dimension is still not fully integrated in many digitalization frameworks.

5 The Human and Cultural factors in The SMEs 'Digitalization:

Cultural factors also play an important role in shaping business practices and the adoption of digital transformation. These factors influence how individuals interact, communicate, and take decisions inside organizations. In the study of (Yuesti et al., 2025), which is quantitative research based on secondary data across multiple countries, the authors focus on two main behavioral elements that influence business practices: communication styles and cultural values.

The literature review of the study begins with the Geert Hofstede cultural dimensions theory, which explains how national culture influences values, behaviors, and workplace interactions. Cultural dimensions such as power distance and uncertainty avoidance may affect managerial structures, leadership styles, and risk-related decision making within organizations. In this perspective, countries characterized by transparency, lower hierarchy, and performance orientation tend to be more open to innovation and digital transformation.

Furthermore, (Vinney et al., 2024) discuss how cultural differences between countries can influence decision-making processes, leadership hierarchies, and openness to innovation in business contexts. These differences demonstrate that the adoption of digital transformation does not depend only on technological readiness, but also on the cultural environment in which organizations operate.

Another important cultural aspect highlighted in the literature is communication style. According to Perelygina et al. (2024), communication patterns vary between cultures and can influence the adoption of digital tools and platforms. In low-context cultures, where communication tends to be direct and explicit, digital communication tools can be more easily integrated into business practices. However, in high-context cultures, where communication relies more on interpersonal relationships and implicit understanding, organizations may show a stronger preference for face-to-face interactions, which can slow the adoption of digital communication systems.

In addition to these aspects, the concept of Cultural Intelligence (CQ) is also considered as an important behavioral factor influencing business practices. Cultural intelligence refers to the ability of leaders and managers to understand and adapt to different cultural environments. According to (Nosratabadi et al., 2020), leaders with high cultural intelligence can improve business performance by adapting communication systems, decision-making processes, and management styles. In the context of digital transformation, such abilities may help managers guide employees through technological changes and encourage a culture of learning and innovation.

Overall, the interaction between traditional cultural practices and modern digital transformation can create both opportunities and challenges for organizations. Cultural values influence managerial behavior, communication patterns, and attitudes toward innovation, which can ultimately affect the success of digital transformation initiatives.

Finally, the main limitation of the study by (Yuesti et al., 2025) is that it relies exclusively on secondary data sources, which may limit the depth of analysis regarding individual organizational contexts and cultural nuances.

Although the whole world is going through digitalization and innovative solutions in business, it still exists a category that misses a profit do its rejection or inability of falling into an unwanted position in the market Becker & Schmid (2020). The majority of SMEs cannot keep up with this fast movement of digitalization because of their inherent characteristics (Eller et al. 2020).

Although a growing number of scientific works shed the lights on the fact that SMEs ‘digitalization creates innovative solutions, competitive advantage and unique performance; the influence of the behavioral and socio-cultural barriers are highly ignored. The high tension between the rational economic logic and the socio-cultural is a significant debate that should be taken into consideration. Fresh studies assume that limited resources, risk-averse culture and resistance from employees usually slow or derail the efforts (Restrepo-Morales et al., 2024).

Resistance to change, on the other hand, is a common tackled barrier in the literature of SMEs ‘digitalization. Familiar methods are easier than learning new systems from scratch; and sticking to the comfort zone of the same routine is often preferred by employees and managers; leading to internal conflicts that impede the performance-oriented goals of digitalization (Restrepo-Morales et al., 2024). The cultural factor has a significant impact on the digitalization of the SMEs, whether through boosting or obstructing the whole process.

Another important point is the tension between the interpersonal relationships and the adoption of digital tools. In many SMEs, especially in face-to-face businesses (services), that requires a high level of human interactions; the interpersonal relationships play an important role in the success of the company. Those relationships could be supported by digital tools like CRM, online scheduling and digital channels. Reaching a trust-based relationships and effective communication deeply enhance the organizational practices. Studies suggested that addressing those human dynamics is as important as technological adoption outcomes.

Finally, another tension that should be addressed is the balance between the economic rationality and the cultural habits. Since the rational economics tackles measurable indicators, like the market reach, costs, financial outcomes; On the other hand, cultural habits focus on the

general preferences and patterns group of people, such as communication styles, informal interactions and the local business norms; which deeply contributes in the process of digitalization. The interaction between these two aspects could either boost or refrain the digitalization of the SME. Furthermore, this tension highlights the significant importance of including the human behavior as a crucial variable in studying the SMEs 'digitalization, in order to create a solid bridge between the theoretical approach and real-life practices.

Cultural studies highlight the values, communication styles, and national cultural dimensions significantly influence digital adoption. Although Hofstede's framework is widely used, numerous studies remain descriptive and do not sufficiently connect cultural variables to actual adoption behavior in SMEs.

In order to synthesize the main insights of the reviewed literature and highlight both convergence and limitations across studies, the following table presents a thematic summary of the key findings:

Tableau 1: Summarize the Literature Review

Section	Focus of the Literature	Key Insights	Main Limitations
Drivers and Outcomes of Digitalization	Impact of digital transformation on SMEs performance	Improves efficiency, competitiveness, and service quality; driven by managerial capability and technological readiness	Overemphasis on outcomes, limited attention to individual and contextual differences
Facilitators and Barriers	Factors influencing adoption of digital technologies	Adoption depends on leadership, organizational readiness, and perceived usefulness; barriers include limited resources and resistance to change	Models often theoretical and do not fully reflect SME complexity
Digitalization in Driving Schools	Sector-specific digital transformation	IT flexibility and agility enhance performance in driving schools	Strong focus on technology, neglect of behavioral and cultural aspects
Behavioral Dimension	Role of human factors in digital adoption	Resistance to change, fear, and lack of skills slow adoption; influenced by demographic factors	Behavioral factors often studied in isolation, lacking integration with organizational context
Cultural Dimension	Influence of cultural context on digital transformation	Cultural values, communication styles, and norms shape adoption processes	Mostly descriptive limited empirical testing in SMEs

Elaborated by The Athor

II Conceptual Framework

In this section, the most important concept of the research would be tackled, the profound comprehension of the basic variables and elements provides us with the needed context to correctly understand the circumstances which surround this scientific work.

1 Digitalization of service businesses:

1.1 Distinguishing between the core concepts (Digitization, Digitalization, and Digital Transformation)

The distinction between digitization, digitalization, and digital transformation often remains blurred from a practical perspective (Kallmuenzer et al., 2025). Since these terms refer to distinct but interrelated concepts. According to Gradillas and Thomas (2025), digitization refers to "the creation of digital artifacts through technical processes of conversion, representation, and enhancement," including the transformation of non-digitized materials into digital formats. This process involves conversion, which is the translation of the analog data into binary code, representation, that is creating digital models of real phenomena, and the enhancement, which means embedding digital components, like sensors or software, into physical objects to boost their functionality.

Building upon digitization, digitalization is a broader socioeconomic process that reflects the adoption and application of digital artifacts to transform business and social environments (Gradillas & Thomas, 2025). It encompasses organizational application (the integration of digital tools into daily operations), adoption and utilization (the acceptance of digital technologies by employees and clients), and new business opportunities such as platform-based services.

Beyond its conceptual definition, digitalization also has practical implications at the firm level.In recent years, the implementation of digital technologies has been shown to improve key firm-level outcomes, for example productivity, financial performance, innovation, value creation, and governance efficiency (Bergemann & Bonatti, 2024; Chi et al., 2025; Du & Wang, 2024; Liang & Zhang, 2024; Kellogg et al., 2020). However, the definition of digitalization varies depending on sector and context. As Ask and Søraa (2024) explain, "digitalization describes social and technological changes related to the development, implementation, and/or use of digital technology." This contextual variability reinforces the need to examine digitalization not as a universal phenomenon but as a socially embedded process shaped by organizational culture and human interactions.

Finally, digital transformation represents the overall outcome of these processes, in other words, it is a strategic and cultural reconfiguration that reshapes value creation, management practices, and stakeholder relationships. It is described as "an evolutionary process that leverages digital capabilities and technologies to enable business models, operational processes and customer experiences to create value" (Morakanyane et al., 2017, p. 9). This transformation implies not only technological integration but also a socio-cultural evolution, influencing how individuals communicate, collaborate, and interact within organizations (Chirumalla, 2021; Cortellazzo et al., 2019; Zhang et al., 2024).

Overall, distinguishing between digitization, digitalization, and digital transformation clarifies the scope of technological change. While digitization is technical, digitalization and digital transformation involve organizational and strategic shifts. In SMEs, this distinction is crucial to avoid reducing digitalization to a pure technical process.

1.2 Digitalization as a socio-cultural process:

In this research, digitalization is analyzed as a socio-cultural process particularly relevant to traditional SMEs such as driving schools, where services depend on trust and interpersonal relationships. Digital adoption in such contexts does not simply involve new tools, but it redefines behavioral norms, communication practices, and client interactions.

A growing number of studies pays an increasing attention to the impact of the digital transformation on the enterprise s 'performance, arguing that the transformation could play a dual role. It can be either positive, with enhancing performance and providing creative solutions, or negative by creating additional problems instead of solving them. This study sheds the lights on the importance of taking all the relevant aspects, which can be involved either directly or indirectly, into consideration before taking the decision of the digital transformation; Such a comprehensive analysis can either ensure the success of the digital transformation or prevent from a potential complication associated with it (Du & Wang, 2024).

In sum, digitalization should be understood as a socio-cultural process that reshapes behaviors and interactions. In service-based SMEs, it affects communication and client relationships. Therefore, digitalization has a multidimensional impact, including the technical and behavioral aspects.

1.3 Definition of services:

The concept of 'service 'is a highly used terminology in the literature of economics, which makes it defined in different sectors with a multidimensional meaning. Achieving a specific and suitable definition for all of these majors is a complicated task.

According to the American Marketing Association service is defined as "activities, benefits or satisfactions which are offered for sale or provided in connection with the sale of goods" (American Marketing Association, 1960).

On the other hand, Regan provides more details through dividing the service into to types, first a tangible service, that afford a direct satisfaction to the customers 'needs, such us housing and transport; the second type is the intangible services, where the satisfaction is linked with a good or other services like delivery (Regan, 1963).

In the same way Stanton defined the service as "separately identifiable, intangible activities which provide want satisfaction when marketed to consumers and/or industrial users and which are not necessarily tied to the sale of a product or another service" (Stanton, 1974).

By contrast, Shostack argued that the service is mainly intangibles, and it does not necessarily require interactions, so he defined the service as "one or more activities of an intangible nature that normally, but not necessarily, take place in interaction between the customer and service employees and/or physical resources or goods" (Shostack, 1984).

Quinn et al. (1987) define services as “economic activities whose output is not a physical product or construction, generally consumed at the time they are produced, and provide added value in forms such as convenience, amusement, timeliness, comfort, or health.”

In general, services are characterized by intangibility and strong interaction with customers. In SMEs such as driving schools, trust and communication are central. This makes the study of digitalization particularly relevant in understanding how these interactions evolve.

1.4 Definition of SMEs:

The SME is a worldwide acronym stands for (small and medium enterprises). In economics, the SME is defined from different perspectives by various pioneers and international organizations. For the European Commission “The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million.” (European Commission, 2003, p. 14)

Furthermore, the international forum of 38 country, the Organization for Economic Co-operation and Development, defined the SMES as “Small and medium-sized enterprises (SMEs) are non-subsidiary, independent firms which employ fewer than a given number of employees.” (OECD, 2008, p. 17). Arguing, on their website, that SMEs make up 99% of all firms, which covers 50% to 60% of value added on average; Considering SMEs as a crucial source of employment.

For Bressy & Konkuyt, the SME is seen from the perspective of employees ‘number. “SMEs are enterprises whose workforce is fewer than 500 employees.” (Bressy & Konkuyt, 2000, p. 78). On the other hand, SMEs are seen from a different angle, which is the management, in these definitions “An SME is a production or distribution unit managed by an owner who is fully responsible for the enterprise and directly involved in its operations.” (GREPME, 1997); “The SME is characterized by the centralization of management around the owner-manager.” (Torres, 1999, p. 7)

According to the Algerian law “A small and medium-sized enterprise (SME) is defined, regardless of its legal form, as an enterprise producing goods and/or services, employing between one (1) and two hundred and fifty (250) persons.” **(**People’s Democratic Republic of Algeria, 2017, Article 5**).**

In summary, SMEs are defined by their size as well their organizational structure, particularly the central role of the owner-manager. Their limited resources and flexibility make them a suitable context for studying the digital adoption.

1.5 Digitalization of service-based SMEs

In recent years, the whole world has witnessed digitalization as a trendy transformation, or even as a necessity; especially in business, where the rhythm is faster and the pressure to keep up is higher. SMEs are also concerned with this deep transition, which plays a dual role: both an opportunity and a risk at the same time. This is particularly the case for high face-to-face

businesses such as driving schools, which are surrounded by many stakeholders, from the government, with its laws and regulations, to managers and coaches, who have different attitudes, various experiences, and are influenced by competition, as well as candidates (clients), who directly impact the decision-making process through their preferences and expectations

Satar et al. (2024) studied how the digital transformation in SMEs is influenced by the firm-level of entrepreneurial organization, which are innovativeness, risk-taking, and proactiveness; and test the strategic agility as a moderator, in the Saudi context (122 Saudi SMEs surveyed and analyzed with SmartPLS 3.0). According to the study, each EO dimension has a positive impact on the digital transformation in SMEs, and the moderating role of the strategic ability has a positive impact. this study is limited in a specific geographical context, Saudi Arabia, which may not be fully matched with the psychological traits of the north African manager.

These studies reveal a central tension in the driving school sector, the manager's entrepreneurial orientation (especially risk-taking) and the inherited risk averse culture of the driving school industry. While M. S. Satar et al. (2024) and C. E. Ocloo et al. (2024) found that proactiveness and managerial initiative are essential for SMEs digitalization, the reality of digitalizing driving school is quite challenging, since the traditional methods are already efficient and used by everybody. Consequently, the digitalization feels like distribution rather than a strategic opportunity.

Digitalization in service-based SMEs presents both opportunities and threats. While managerial initiative can support adoption, traditional practices may slow it down. This highlights the importance of context in understanding the digital transformation within SMEs.

2 The Adoption of the Technology: UTAUT framework

In the digitalization's studies, understanding the reason that stands behind accepting or rejecting a new digital tool is important. Indeed, the digitalization of driving school in Algeria context, this problematic gets a higher significance, since the decision-taking process is high dependent the owner, who plays the role of the manager and the driving coach at the same time. At the same time the decision of digitalization is not institutionally imposed, but it arises from a voluntary behavioral choice. The theoretical foundation that guides this research is the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) done by Venkatesh et al. in 2012. This section is more than demonstrating arguments, it is a step-by-step process of building strong arguments for choosing this particular model (UTAUT2) for our research.

2.1 Adopting New Technologies:

To consider a digital project successful, it should be adopted and used by its intended users. Adoption is defined as the decision of making a full use of an innovative as the best available course of action, while rejection is the decision not adopt an innovation (Rogers, 2003).

Kotler and Armstrong (2004) sum up the technology adoption process in five sequential stages, starting with awareness of the new technology existence, to finally adopting it. The table below briefly represents the five stages.

Tableau 2 : The Five Stages of Technology Adoption (Kotler & Armstrong, 2004)

Stage	Description
1. Awareness	The individual learns about a new product or service but lacks sufficient information about it.
2. Interest	The person seeks out information about the new product or service.
3. Evaluation	The person weighs the advantages and disadvantages of trying the new product or service.
4. Trial	The individual experiments with the new product or service on a small scale to assess its value.
5. Adoption	The person decides to make full and regular use of the new product or service.

Source: Adapted from Kotler & Armstrong (2004)

2.2 Why UTAUT2, Not UTAUT: The Consumer Adoption Problem

Although earlier theories, like the Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behavior (TPB) (Ajzen, 1991), and Innovation Diffusion Theory (IDT) (Rogers, 1995), addressed the technology adoption, but they examined from a distinct perspective. UTAUT expanded all of them to integrate key constructs from different models to provide a comprehensive framework.

UTAUT is a model presented by Venkatesh et al. in 2003 in order to introduce the four key factors influencing the acceptance and use of the technology: Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), and Facilitating Conditions (FC). These factors are influenced by these moderating variables age, gender, experience, and voluntariness of use (Venkatesh et al., 2003).

Despite the fact that (UTAUT) is widely recognized for explaining technology adoption (Venkatesh et al., 2003), it faces limitation in voluntary and consumer contexts, which is the core of this scientific work. The model highlights the practical aspects such as performance expectancy and effort expectancy, while giving less attention to the emotional and experiential dimensions of technology use.

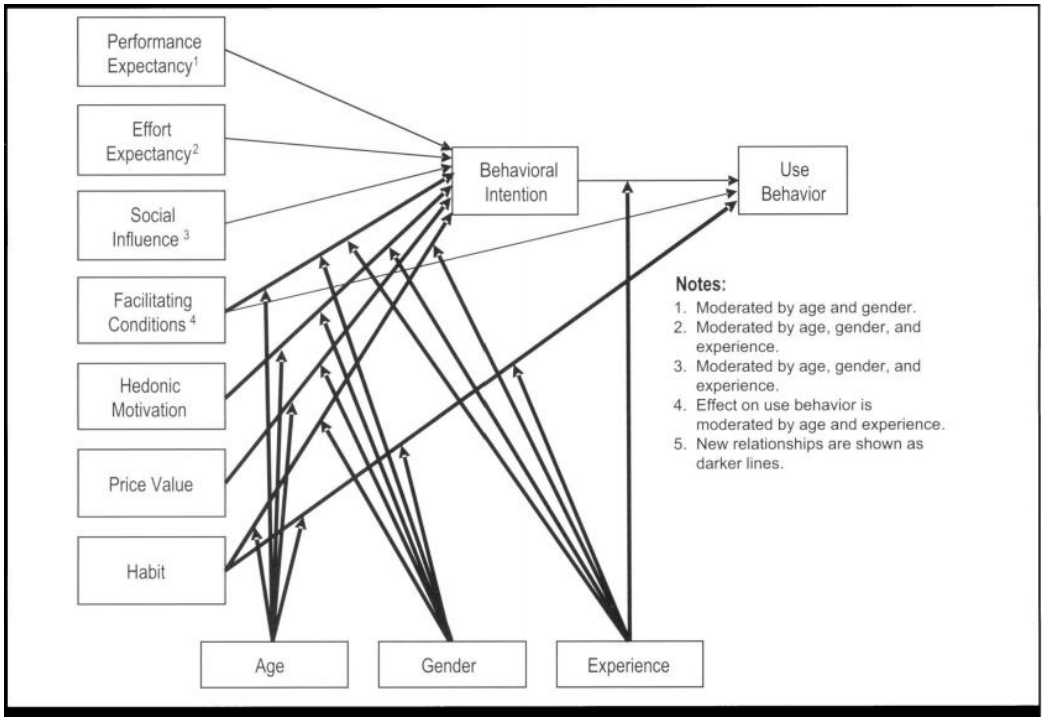
Moreover, (UTAUT) was initially designed for organizational environment, where the technology use is often mandatory; In contrast, this study focuses on voluntary adoption of technology, where the many behavioral elements should be taken into consideration like the motivation and habit.

To address this limitations, Venkatesh et al. (2012) proposed (UTAUT2) by shedding the lights on three additional constructs: hedonic motivation, price value, and habit, to combine utilitarian and hedonic factors.

Recently, (UTAUT2) become more used in recent technology acceptance research, since it is more suitable for voluntary use context (Dwivedi et al., 2019; Tamilmani et al., 2021).

In summary, UTAUT2 offers a comprehensive framework for examining the technology adoption in voluntary context. It integrates both practical and behavioral factors. Hence , it is suitable to study the digital adoption in this case.

Figure 1 : UTAUT2 model (Venkatesh et al., 2012)



Adapted from Venkatesh, Thong, and Xu (2012)

II. Conceptual Framework

This scientific work adopted the mixed-methods as framework to analyses the digitalization of driving schools in Algeria. The conceptual model is designed around three main hypotheses,

each one is grounded in a particular (UTAUT2) construct, and examined by both techniques, qualitative and quantitative, following the triangle that is presented by Creswell and Plano Clark (2018).

At a theoretical level, (UTAUT2) is the framework model, that explains technology acceptance through behavioral, social, and contextual determinants (Venkatesh et al., 2012). Each one of the three hypotheses is designed according to the (UTAUT2), and tested by the qualitative and quantitative instruments.

Starting with first hypothesis, **H1** The candidates' digital habits and lifestyle positively influence the digitalization of driving school training, is referring to the (UTAUT2) ‘s constructs of habit and effort expectancy, and at the same time it is inspired by a real-life field observation. According to this hypothesis, candidates who highly use digital tools in their daily lives are expected to require less efforts to adopt a digital driving school platform, and to have a higher behavioral intention to use it. Quantitatively, the hypothesis is tested in the first section of the questionnaire using five Likert items to measure smartphone convenience, printed manual inconvenience, and mobile-first preference. Qualitatively, the semi-structured interviews with the mangers/instructors provides a contextual validation through asking them about the candidates’ digital habits and lifestyle (interview questions Q4.1 and Q4.3), allowing triangulation of candidates’ self-reported behavior with managerial observation.

Moving to the second hypothesis (**H2**), which argues that the candidates' hedonic motivation and trust toward digital content positively influence the digitalization of driving school training. It is related to the (UTAUT2) ‘s constructs of the hedonic motivation and performance expectancy. Which means candidates who enjoys using digital tools and trust them are more likely to prefer modern driving schools over traditional ones. In quantitative technique , this hypothesis is tested in the second section of questionnaire (items 1, 2, and 4 that measure trust in digital school content, willingness to pay for a digital service, and preference for digital over traditional format).On the other hand, in the qualitative approach, mangers were asked about their own observation on how candidates respond to digital content (interview questions Q4.4 and Q4.5) , in order to compare the managers ‘ perspectives and the candidates’ self-report trust and motivation.

The last hypothesis (**H3)** posits the digitalization of driving schools is positively influenced by the candidates’ socio-demographic profile; which are the moderating variables of the (UTAUT2). Quantitatively, this hypothesis is tested by cross-tabulating the demographic data collected in Section 3 of the questionnaire (age, gender, status, daily smartphone usage) against the scores from Sections 1 and 2. Qualitatively, the mangers, who already have a considerable experience in the driving school sector, provides evidence in generation variation in attitudes towards digitalization; which is further corroborated by the ANSR Deputy Director.

These moderating variables, age gender, experience and the socio-cultural context, are not peripheral to the (UTAUT2) model; the present the core of the H3, which argues that the adoption of digitalization in driving school sector varies significantly depending on the candidates’ socio-demographical profiles. The Algerian context, they also reflect the influence of uncertainty avoidance and collectivism norms , which contributes in shaping both the pace and the form of digitalization in traditional service-sector SMES

The table below sum up the use the mixed-methods to examine the three hypotheses , and their relevance with the (UTAUT2) :

Tableau 3 :A summary of the contextual model

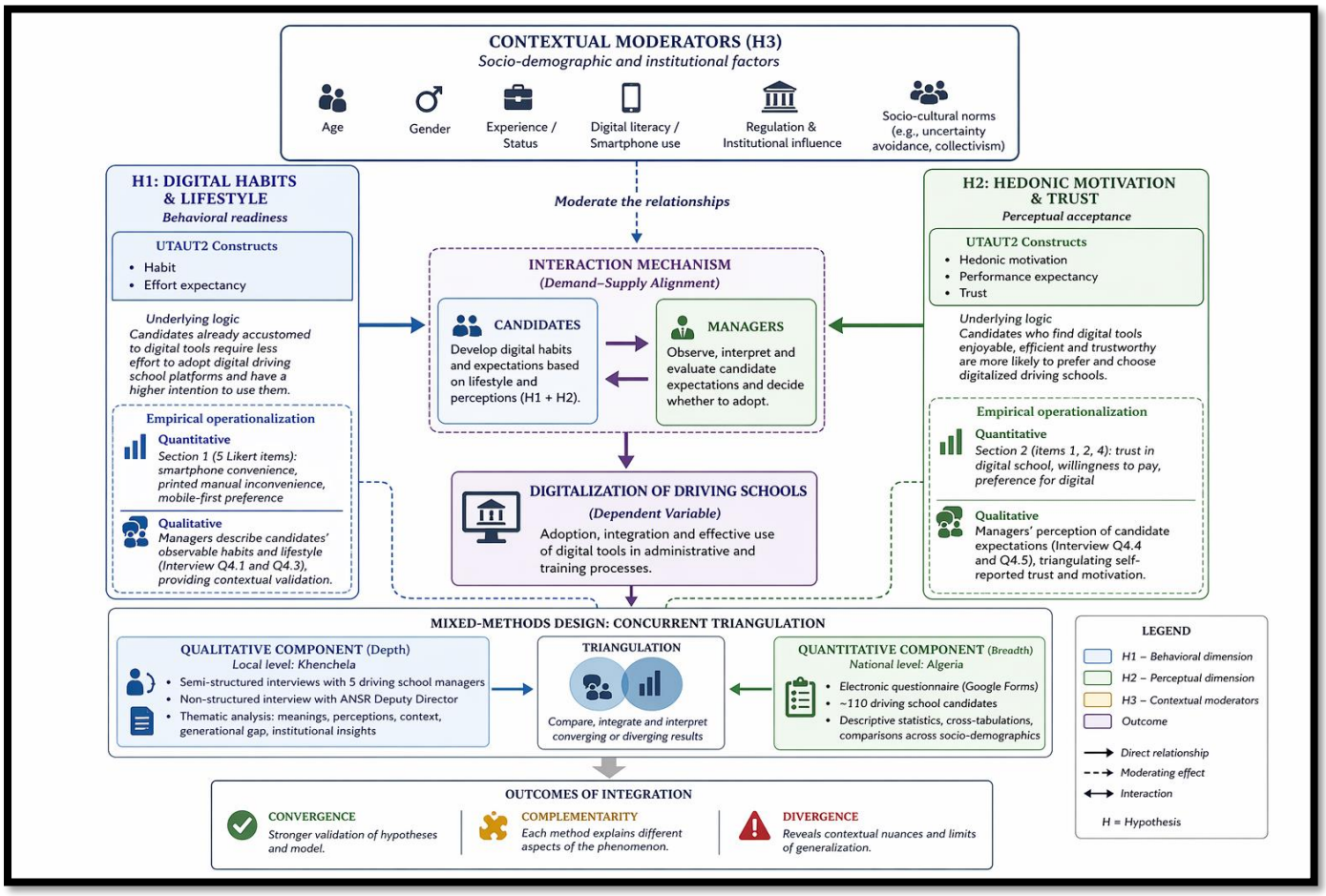
Construct	Definition	Method	How It Was Examined	Hypothesis
Habit	The degree to which a behavior has become automatic due to repeated use of technology in daily life.	Quantitative	**Section 1:** S1.Q2 (printed manuals are inconvenient) and S1.Q3 (preference for bag-free tools) measure how candidates' digital lifestyle predisposes them to adopt digital learning tools.	H1
Effort Expectancy (EE)	The degree of ease associated with using a technology.	Quantitative	**Section 1:** S1.Q1 (smartphone access is more convenient) and S1.Q5 (digital tools increase efficiency) assess perceived ease of digital tools over printed materials.	H1
Hedonic Motivation (HM)	The fun or pleasure derived from using a technology.	Quantitative	**Sections 1 & 2:** S1.Q4 (preference for app over printed book) and S2.Q2 (preference for a digitally active school) capture the emotional appeal of digital tools.	H2
Performance Expectancy (PE)	The degree to which using a technology will provide benefits and improve outcomes.	Quantitative	**Section 2:** S2.Q1 (a digital school is more trustworthy) and S1.Q5 (digital tools improve efficiency) reflect candidates' belief that digitalization enhances their learning experience.	H2
Price Value (PV)	The cognitive trade-off between the perceived benefits and the monetary cost of using a technology.	Quantitative	**Section 2:** S2.Q4 (willingness to pay more for a mobile app) captures the cost-benefit trade-off. The neutral mean (M=3.32) reflects price sensitivity among Algerian candidates.	H2
Social Influence (SI)	The degree to which others' opinions influence an individual's decision to use a technology.	Qualitative	**Interviews:** Managers reported that candidates are influenced by peer norms and expectations around digital services (Q4.4, Q4.5). The ANSR Deputy Director confirmed growing social expectations toward digitalization at the institutional level.	H2 (qualitative triangulation)
Facilitating Conditions (FC)	The extent to which organizational and technical infrastructure exists to support technology use.	Qualitative	**Interviews:** All five managers identified the absence of an official digital platform, lack of regulatory support, and infrastructure limitations as key barriers. The ANSR Deputy Director confirmed no national framework currently mandates digital tools in driving schools.	H3 (qualitative triangulation)

Construct	Definition	Method	How It Was Examined	Hypothesis
Moderating Variables (Age, Gender, Experience)	Individual characteristics that moderate the relationship between UTAUT2 constructs and behavioral intention.	Mixed	**Section 3 + interviews:** Demographic items cross-tabulated against H1 and H2 scores. Managers and the ANSR Deputy Director provided qualitative evidence of generational and gender-based variation in adoption attitudes.	H3

Source: Elaborated by the Author

The scheme below sums up the whole conceptual model:

Figure 2: The conceptual Model Scheme



Source: Generated with AI tool based on reviewed studies

CHAPTER II:

METHODOLOGICAL FRAMEWORK AND CONTEXT OF THE RESEARCH

This chapter would tackle the research ‘s methodology of this study, through justifying the choice of the epistemological positioning, the research design, the data collection instruments, the sampling strategy, the data analysis methods, and the ethical considerations observed throughout the research process. the chapter is divided into two sections, the first addresses the methodological framework, and the research context would be explained in the second section.

Section 1: Methodological Framework

1 Epistemological Positioning

Each research process is based on the epistemological assumptions, which is the reflection of the researcher ‘s knowledge, conception of reality and the way of producing a valid knowledge (Thietart et al., 2014). Those assumptions shape the whole research methodology starting from research design, the type of data collection to the results ‘interpretation.

According to (Thietart et al., 2014), In management research, the major epistemological paradigms are: positivism, interpretivism and constructivism. Positivism is commonly used in the quantitative methods, where the reality is objective, measurable and exists independently from the researcher. On the other hand, interpretivism deals with social reality, that is constructed subjectively through the individual experiences and perspectives, it highly aligns with the qualitative research. The last paradigm, constructivism argus that the reality is co-constructed by the researcher and participants.

This scientific work adopts a pragmatist epistemological stance, which, according to Creswell and Creswell (2018), rejects the idea of being limited to choosing one philosophical framework. Instead, it focuses on what it works: the research question and its practical implications guide the choice of methods. Pragmatism is mostly used as an epistemological foundation for the mixed-methods research; due to its flexibility in combining the qualitative and quantitative approaches without ontological contradiction (Creswell & Plano Clark, 2018; Johnson & Onwuegbuzie, 2004).

This pragmatist positioning is particularly appropriate for this study due to three reasons. First, it perfectly suits the research problem, how cultural and behavioral factors shape the adoption of digital tools in Algerian driving schools, which involves two dimensions a measurable perception (the influence on digitalization of the SME), and contextual experience (the culture and behaviors). The study covered the involved stakeholders in digitalization process, whether they are external or internal, which are divided to:

- **The owners / managers**: through a qualitative research, five semi-directive interviews with five driving schools ‘owners/managers in Khenchela, Algeria. The participants have different profiles starting from professional backgrounds the socio-demographical information. Even the targeted schools are located in different neighborhoods with

different social classes. The interviews, which lasted about 20–40 minutes, capture the influence of managers' attitudes, backgrounds, and perspectives on the digitalization of SMEs.

- **Candidates (clients)**: The quantitative research is done with the help of an electronic questionnaire via google form, that addressed candidates from all over Algeria. This approach enables us to get an in-depth study of the candidates 'lifestyles, preferences and perceptions towards the digitalization of driving schools
- **The external pressure**: whether from the competition or the government. The impact of the competition is tested in the mentioned above five semi-structured interviews with the driving schools' owners/manager through a direct and indirect questions. on the other hand, the impact of the government is studied in qualitative approach through a non-directive survey with the director of the National Road Safety Agency khenchela, which allowed us to examines various aspects like change resistance, new laws and trainings.

The third reason is suggested by Thietart et al. (2014), in emerging fields, such as the digitalization of traditional SMEs in developing countries, combining exploration and testing within a single study is a recognized and legitimate scientific approach.

2 Research Design: A Mixed-Methods Approach

The study combined a mixed-methods design. This combination of the qualitative and quantitative techniques provides the research with the needed flexibility and the deep understanding of the same idea from different perspectives; Furthermore, the diversity in the population highly aligns with the nature of the problem and the underlying three hypothesizes.

3 Justification for the Mixed-Methods Design

Mixed-methods research is defined as an approach in which the researcher collects and analyzes research question (Creswell & Plano Clark, 2018). It is particularly suitable when neither approach alone can adequately capture the complexity of the phenomenon under study (Tashakkori & Teddlie, 2010).

In this scientific work the three hypotheses are related to different dimensions of the digitalization of driving schools; each one of them requires a distinct and complementary methodological response. Three hypotheses are addressed by both techniques, qualitative and quantitative; which complete each other in the analysis process. This design follows the triangulation model presented by Creswell and Plano Clark (2018); the interpretation of the merged two types of data collection produces a clear vision of the phenomenon. The triangulation model is better explained in the scheme below:

Source: Elaborated by the Author

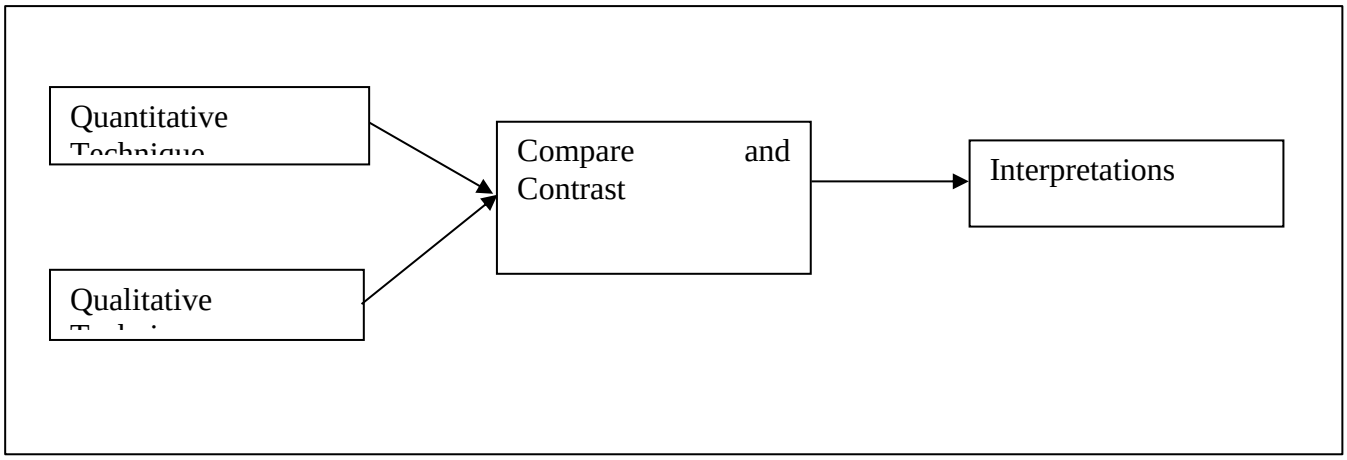


Figure 4: triangulation model presented by Creswell and Plano Clark (2018)

4 Quantitative Component

4.1 Electronic Questionnaire

The quantitative component was presented an electronic questionnaire distributed to driving school's candidate via Google Form. The decision of using the questionnaire is justified by the necessity of capturing a high number of candidates' perspective across a large geographical and demographical diverse, which cannot be done through interviews.

The questionnaire is compound of three sections. The first, measured lifestyle and learning preferences through seven items on a Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) which is directly related to 'no-bag lifestyle' and mobile-centricity constructs of H2. The second, Section 2 measured perceptions of digitalization credibility and preferences for digital driving schools (four items). The last, collected the demographic information (age, gender, status, daily smartphone usage).

Tableau 4: The Qualitative Research

Section	Content	Items	Scale	Hypothesis
1 - Lifestyle & Learning	Mobile convenience, inconvenience of printed	7 items	Likert 1–5	H2

	manuals, preference for app over book			
2 - Digital Perceptions	Trust in digital schools, willingness to pay for app, communication preferences	5 items (4 remained)	Likert 1–5	H1, H3 (candidate side)
3 – Demographic information	Age, gender, driving school status, smartphone usage	4 items	Categorical	Control variables

Source: Elaborated by the Author

4.2 Operationalization of UTAUT2 Constructs in the Questionnaire

The questionnaire was based on the (UTAUT2) (Viswanath Venkatesh et al., 2012), where each item corresponds to a specific construct and is linked to a particular hypothesis. This operationalization ensures alignment between theoretical concepts and their measurement.

Tableau 5: UTAUT2 Constructs and Questionnaire Items

Questionnaire Item	UTAUT2 Construct	Hypothesis
S1.Q1 Accessing learning materials on my smartphone is more convenient	Effort Expectancy	H1
S1.Q2 Carrying printed manuals is inconvenient	Habit (lifestyle friction)	H1
S1.Q3 I prefer tools I can use discreetly without a bag	Habit	H1
S1.Q4 I'd rather use a basic app than a printed book	Hedonic Motivation	H1/H2
S1.Q5 Digital tools make me feel more efficient	Performance Expectancy	H1
S2.Q1 A digital school seems more trustworthy	Performance Expectancy / Trust	H2
S2.Q2 I'd prefer a school offering digital services	Hedonic Motivation	H2
S2.Q4 I'd pay more for a mobile app	Price Value	H2
S4 Age, gender, status, smartphone usage	Moderating variables	H3

Source: Elaborated by the author

4.3 The quantitative Analysis Methods:

The quantitative data was collected through an electronic questionnaire via Google Form; than they were transmitted into Excel 2016 to be analyzed using IBM SPSS Statistics 27. A

structural approach was followed to ensure the accuracy, reliability , and relevance of the findings.

- Data preparation: the questionnaire responses were coded, entered and verified to ensure consistency and completeness before analysis.
- Descriptive statistical analysis: frequencies, percentages, and graphical representations were used to summarize the socio-demographic characteristics of the sample and provide an overview of respondents' profiles and general tendencies.
- Reliability testing: Cronbach's Alpha was calculated for each constructs to assess the internal consistency of the measurement scales and ensure the reliability of the used variables in the study.
- Correlation analysis: Spearman's rank correlation coefficient was employed to examine the strength and direction of relationships between variables measured on Likert scales.
- Hypothesis testing:

    - Simple linear regression analysis was conducted to test hypotheses H1 and H2, in order to evaluate the influence of behavioral variables such as digital habits, lifestyle, hedonic motivation, and trust on the acceptance of digitalization.
    - One-way ANOVA was applied to test H3 by comparing mean difference across socio-demographic groups, including age, gender, and levels of smartphone usage.

The statistical techniques allowed for systematic and objective examination of the relationships between variables, ensuring that the hypotheses were tested rigorously and in alignment with the research objectives.

5 Qualitative Component

5.1Semi-Structured Interviews with Driving School Managers

The qualitative part consists primarily from a semi-directive interview, combined of six sections, conducted with five driving schools' managers, owners and instructors in Khenchela, Algeria. In management research, the qualitative instrument is used to explore perceptions, attitudes, and contextual factors, which are difficult to be examined through a closed-ended survey questions (Thietart et al., 2014; Bryman, 2016).

The interview guide was designed to align with the three hypotheses. It covers three thematic areas professional background and digital profile of the respondent, current digital landscape of the school, managerial traits and cultural filters, perceptions of client expectations and lifestyle changes (from the manager's perspective), market strategy and peer influence, and future perspectives on digitalization.

Each interview took about 20 to 40 minutes in the driving schools of each participant to ensure the comfort and the natural expressions. All interviews were in Arabic, and recorded with participants 'prior agreement, then the interviews were transcribed and translated into English.

All the participants were informed of the academic purpose of the study, and the confidentiality of their response.

5.2 Non-Structured Interviews with Deputy of the National Road Safety

Another qualitative research was done with the Deputy of the National Road Safety Khenchela, Algeria. A non-directive interview that took about 20 minutes in the administration, his own desk. The interview was in Arabic language, then it was recorded, transcribed and translated into English language. Overall, the questions outlined the current level of digitalization in the diving schools sector, the efforts that are done by the government, the reactions of the driving school managers

The analysis is going through interpretive approach, which goes beyond quantifying the frequency of themes, but rather to understand the meaning and the context (Thietart et al., 2014).

5.3 Qualitative Sample: Purposive Sampling

For the five semi-directive surveys, the participants were carefully selected based on their direct relationship with the nature of the problematic. The purposive sampling strategy ensures relevant results for our multidimensional study, this non-probability technique expose the research to a high qualified participant, who could provide the information-rich and relevant opinions. “The logic and power of purposeful sampling lie in selecting information-rich cases for study in depth.” (Patton, 2002, p. 230)

The choice of participants was based on their direct involvement in the driving schools’ sector (managers, coaches and owners), or their administrative role in the National Road Safety. This approach highly aligns with the research methodology, which focus on selecting the participants based on their direct experience with the phenomenon. (Robert K. Yin, 2018).

6 Qualitative Data Analysis

The qualitative data collected through interviews were analyzed using NVivo 15. This phase aimed to complement and deepen the quantitative findings by providing contextual and interpretative insights grounded in the experiences of professionals in the driving school sectors.

- Data transcription and coding: interview data were transcribed and organized into thematic categories using NVivo, allowing for systematic exploration of recurring patterns and ideas
- Thematic Analysis: key themes related to digitalization, behavioral attitudes, and organizational practices were identified and interpreted in relation to the research objective.

- Use of Direct quotations: to illustrate key findings and enhance the credibility and authenticity of the analysis.
- Word Cloud visualization: A word cloud was generated as an exploratory tool to highlight the most frequently occurring terms, providing a general overview of dominant themes within the discourse.

Section 2: Organizational Context

Driving schools represents a particular category of service-oriented SMEs within the Algerian economy. This type of SMEs, driving schools, operates as educational, administrative and commercial institution; which makes it an interesting field of study.

This sector is characterized by a regulated operational framework. The driving schools are govern by laws regarding the training standards, the administrative procedures and the teaching conditions from the classroom till the vehicle.

Similar to the broader SME landscape, most driving schools in Algeria are managed by a single owner, who oversees multiple functions, including training, administration, customer relations, and the financial management. This organizational structure reflects the general tendency of Algerian SMEs toward centralized decision-making and informal management practices, which often limit the strategic development and the long-term planning (Atik & Ramdani, 2018).

A key feature of driving schools is their strong reliance on human interaction and service quality. The relationship between the instructor and the candidate plays a critical role in the clients' satisfaction, reputation, and the business success in general. This human-centered nature differentiates this sector from more automated or product-based SMEs.

However, the implementation of driving schools in this sector remains limited, which is the case for many SME in the Algerian context. Since the digitalization requires different organizational, financial and technological conditions and tools.

More broadly, the integration of information and communication technologies (ICT) within the Alerian SMEs is described as a gradual uneven, depending on internal capabilities and external environmental conditions (Atik & Ramdani, 2018). This situation explains why the concept of driving schools' digitalization is still new.

More importantly, in sensitive service-based business such as driving schools; the success of the digitalization does not depend solely on the availability of the technological tools, but also on how these tools are perceived and accepted by candidates. Their willingness to engage, digital trust, and daily habits play a crucial role in determining whether the digital solutions are adopted or resisted in practice.

Overall, the driving school in Algeria reflect the broader structural realities of SMEs: limited resources, informal management and slow digital adoption. At the same time, their service-based nature, regulatory environment, and strong reliance on interpersonal interactions make them a relevant context for investigating the technology acceptance and digital transformation dynamics

1 Host Organization Presentation:

The internship was carried out in Lazhari Bouchareb Auto Ecole, a driving school specialized in driver education and training for category B licenses. The institution operates in the professional training, focusing on well preparing candidates for passing the three examinations to obtain the driving license, through both theoretical and practical trainings.

The organization is made up of three parts:

- **The administration**: This section includes the reception desk, where the first contact with the candidates usually takes place. The candidates submit the required documents, which are then classified in the desk ‘s archive. In addition, any information regarding the internal regulation, the exams, and the tuitions fees payment would be explained there.
- **The classroom:** is equipped with the necessary materials and furniture, to ensure a well-organized and effective theoretical sessions.
- **The vehicle:** the training vehicle is an important component of the driving school, as the majority of the sessions take place in it. The vehicle meets specific regulatory requirements and conditions to unsure the candidate’s safety.

2 the Geographical Location:

Lazhari Bouchareb driving school is located in Khenchela, Algeria. Its strategic location ensures the accessibility for local residents, due to the availability of public transportation, as it situated near to the bus station and clearly positioned in front of the municipality.

3 Main Activities:

The main focus of this institution is producing responsible drivers through:

- Providing a theoretical lesson about the traffic rules and laws.
- Delivering practical driving lessons.
- Preparing candidates for driving license examinations
- Supervising and guiding learners throughout their training

4 Objective of the Organization:

This driving schools aims to:

- Contributing in the promotion road safety and security.
- Training competent and responsible drivers.
- Supporting the candidates to successfully get their driving license.

5 Future Insights of the Organization:

The organization is working hard to boost its service quality through:

- Integrating digital tools to enhance the process of teaching and learning.
- Involve the candidates in making decisions.
- Adopting digital solutions to facilitate the practical training and the administrative procedures.

6 The Reason behind choosing this institution:

The diving school is a suitable match for my thesis ‘problematic, due to many reasons:

- The driving school is a small and medium-sized enterprise (SME).
- It is managed directly by the owner, who acts as the driving coach at the same time.
- It operates in a highly service-oriented, face-to-face environment.
- The digitalization is not mandatory by the government in this sector, which make it a voluntary choice.
- The client-service provider relationship is so strong.
- Iin the Algerian context, the concept of driving school digitalization is still undeveloped

CHAPTER III: RESULTS AND DISCUSSION

This last chapter represents the analysis and interpretation of the convergent parallel mixed-methods design: the quantitative analysis of 109 candidates using SPSS (section 01); and the qualitative analysis of six expert interviews using NVivo, interpreted through three stakeholders' layers (sections 2); the third section merged both analyses in a triangulation discussion (section 3)

Section I: Quantitative Analysis

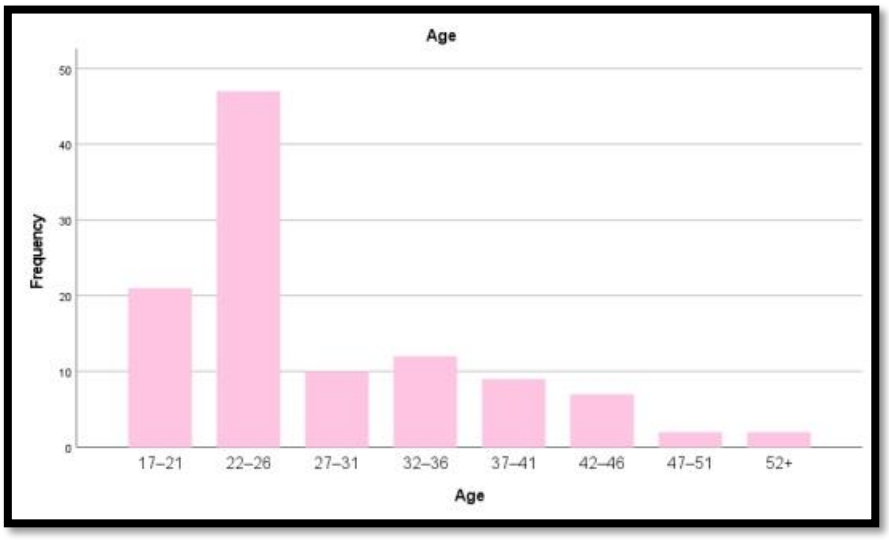
The quantitative approach is based on 109 valid responses, which were collected via Google Form, through direct messages and posts on social media platforms, in Arabic language. After translating the collected data into English language in Microsoft Excel 2016, they were processed using IBM SPSS Statistics 27. The analysis follows the structured sequence: Sample description, Reliability Testing using Cronbach's Alpha, Spearman Correlation Analysis, Hypothesis testing through Simple Linear Regression (for H1 and H2), and One-way ANOVA (for H3).

1 Sample Description

After collecting 110 responses, the one incomplete response was excluded; The final sample is 109 observations. The visuals clearly describe the variety of the sample.

1.1 Age:

Figure 2 : Age Group Distribution



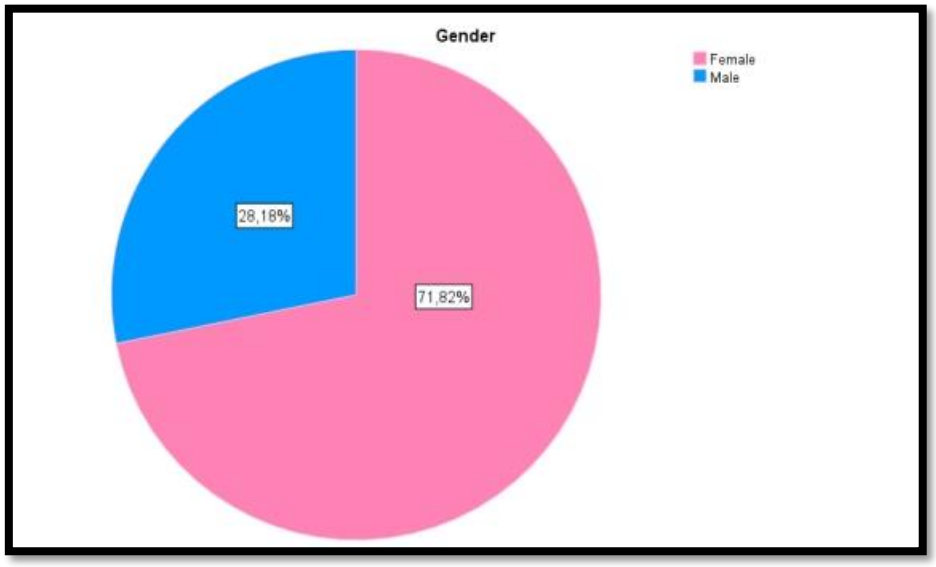
Source: Elaborated by the author via IBM SPSS Statistics 27

This bar chart presents the distribution of respondents across different age groups. The data indicate that the sample is predominantly composed of younger individuals, with the majority falling within the 22-26 category, followed by the younger age group, 17-21 years old.

However, the chart reveals a lower presence of the older respondents, which may lead to a limitation in capturing more diverse age-related perspectives, especially regarding resistance to change or digital barriers. This significant imbalance should be taken into consideration when interpreting the results, since age could be considered as an important factor in the process of adopting digital tools, particularly in light of the UTAUT2 ‘s framework.

1.2 Gender:

Figure 3 :Pie Chart of Gender Distribution

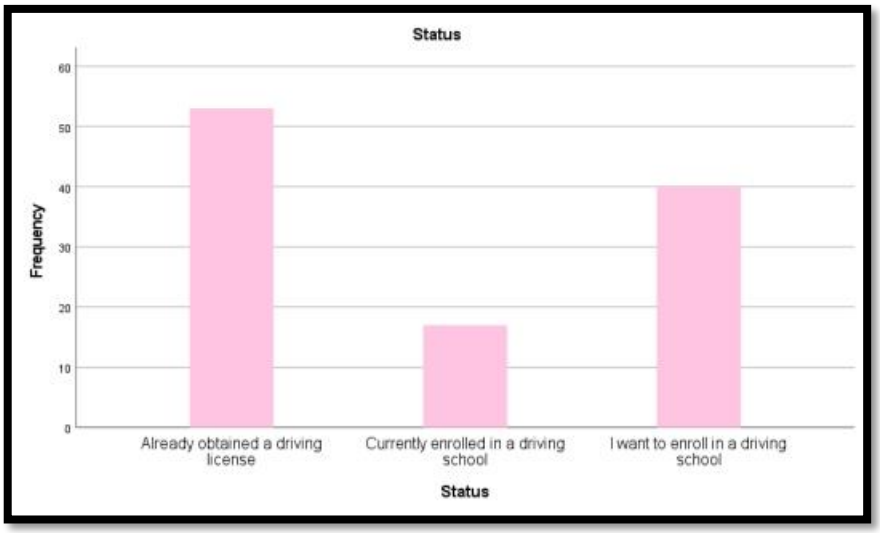


Source: Elaborated by the author via IBM SPSS Statistics 27

This pie chart introduces the gender distribution of the respondents. The results indicate a clear dominance of female respondents, representing 71.8% of the sample. The male segment barely makes up the third of the sample, which indicates a significant imbalance in the gender distribution of the respondents. Such distribution may influence the final findings, especially due to the fact that gender is considered one of the constructs of the UTAUT2.

1.3 The Enrollment Status

Figure 4 : Enrollment Status

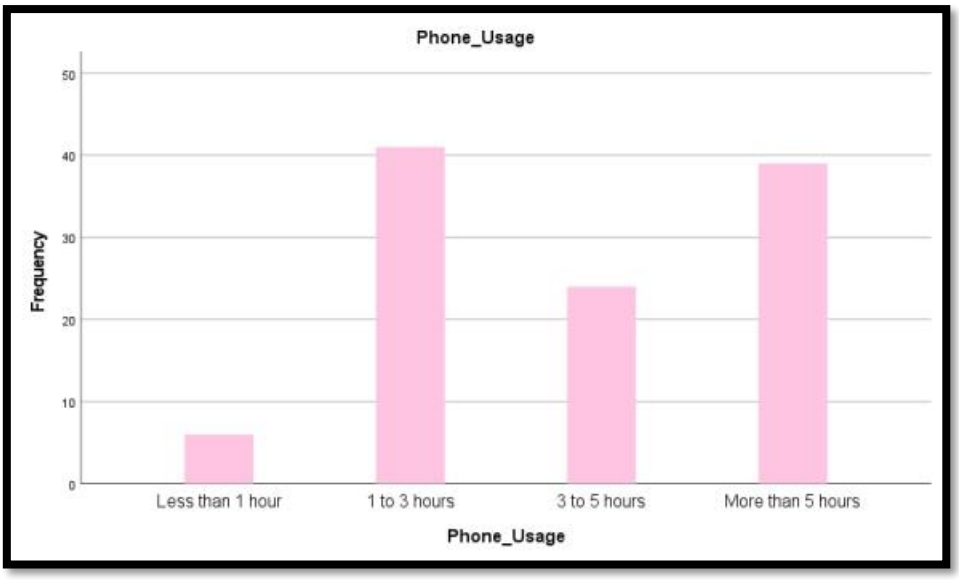


Source: Elaborated by the author via IBM SPSS Statistics 27

This bar chart clarifies the distribution of the respondents according to their enrollment status. The results indicate that more than half of the respondents already got their driving license. While about 40% of the sample express their intention to enroll, and the smaller proportion are currently enrolled. The distribution reflects a diversity in the sample combining experienced individuals and potential customers. The interpretation of the findings would capture both post-experience evaluation and pre-adoption expectations, which is valuable for analyzing attitudes toward digitalization in this sector.

1.4 Daily Smartphone Usage

Figure 5: Daily Smartphone Usage



Source: Elaborated by the author via IBM SPSS Statistics

The bar chart above illustrates the daily smartphone usage of the respondents. The visual show that the majority of individuals spend daily a significant amount of time on their phones. More than 40% of the respondents spend between one and three hours on their phone; followed by nearly 40% of the sample report daily phone usage exceeds five hours. In contrast a smaller proportion (just six people) report usage of less than an hour per day.

This indicates a high level of digital engagement among the respondents, suggesting that smartphones play a central role in their daily routines. Such behaviors support the relevance of digital solution in the context of driving school services.

2 Preliminary Data Examination:

Prior to conducting the statistical analysis, a preliminary examination of the dataset was carried out to ensure its suitability for the planned analytical procedures. This phase includes the assessment of the missing values and the nature of the collected data.

2.1Missing Values:

The questionnaire was administered electronically via Google Form, with all items set as mandatory. This prevented the submission of the incomplete responses. During data organization, one incomplete response was identified and removed. The final dataset therefore consists of 109 valid responses with no missing values.

2.2Data Nature and Measurement Scale:

The collected data consists of Likert-scale items as well as categorical variables (age group, gender, and smartphone usage). Likert-scale items are treated as ordinal variables, which supports the use of the non-parametric statical techniques.

Accordingly, Spearman's rank-order correlation will be used in the subsequent analysis, as it does not require normal distribution and is suitable for ordinal data (Field, 2018). The strength of correlation coefficients will be interpreted as follows: $\rho < 0.30$ (weak), 0.30–0.49 (moderate), and $\rho \geq 0.50$ (strong) (Cohen, 1988).

3 Reliability Analysis of Measurement Scales:

In order to examine the internal consistency of the used measurement instrument in the study, a reliability test was conducted. Cronbach's Alpha was employed to determine whether the items grouped under each construct consistently measure the same underlying concept.

Based on the theoretical framework and the questionnaire design, the items were grouped into two main constructs: Lifestyle and Motivation. The classification is derived from the adaptation of the UTAUT2 model, where lifestyle reflects behavioral tendencies related to digital usage, while Motivation represents users' perceptions and attitudes toward digital tools and services.

Each construct was tested separately to ensure measurement reliability.

3.1Reliability of the Lifestyle Construct

The Lifestyle construct includes seven items related to digital habits, smartphone usage, and preference for digital learning tools

Tableau 2: Reliability Statistics for Lifestyle Construct

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,757	,765	7

Elaborated by the Author using IBM SPSS Statistics 27

The results indicate that the lifestyle construct has an acceptable level of internal consistency, with a Cronbach' s Alpha value of 0.757, which exceeds the recommended threshold of 0.70. This suggests that the items are sufficiently correlated and measure a coherent underlying construct.

Tableau 7: Item-Total Statistics for Lifestyle constructs

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation
I need learning tools I can use at any time and place	20,88	16,773	,516	,351
I prefer tools I can use anywhere without a bag	21,51	18,437	,338	,149
Digital tools make me feel more effective and efficient	20,37	17,383	,610	,436
Using a smartphone to access lessons is easier	20,94	15,524	,586	,366
I prefer a phone app over a printed book	20,63	16,994	,570	,399
Carrying learning books is inconvenient daily	21,60	18,113	,312	,121
I prefer easy access even if less detailed	20,22	18,525	,450	,310

Elaborated by the Author using IBM SPSS Statistics 27

The corrected item-total correlations range from 0.312 to 0.610 confirming that all items contribute adequately to the construct. Moreover, the Cronbach's Alpha if Item Deleted values reveal that removing any item does not significantly improve reliability, supporting the retention of all items.

3.2 Reliability of the Motivation Construct

Initially, the Motivation construct included five items. The initial reliability analysis indicated insufficient internal consistency. An examination of the item-total statistics revealed the item (Using digital tools makes the learning process more difficult for me) negatively affected the overall reliability of the scale. Consequently, this item was removed, resulting in an improved Cronbach's Alpha of 0.713 for the final four-item construct, which is considered acceptable. The four items are related to the digital perceptions, preferences, and willingness to engage with digital platforms.

Tableau 8: Reliability Statistics for Motivation Construct

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,713	,720	4

Elaborated by the Author using IBM SPSS Statistics 27

The results show that the motivation construct demonstrates acceptable internal consistency, with a Cronbach's Alpha value of 0.713, which is above the minimum acceptable threshold of 0.70. This confirms that the items are sufficiently related and measure the same conceptual dimension.

Tableau 9: Item-Total Statistics for Motivation constructs

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation
App communication is important for a driving school	10,68	5,716	,592	,389
I prefer a school offering digital learning services	10,57	6,228	,554	,354
A digital school appears more credible	10,50	6,196	,421	,179
I would pay more to benefit from the school app	10,89	5,819	,458	,215

Elaborated by the Author using IBM SPSS Statistics 27

The corrected item-total correlation range between 0.421 and 0.592 showing that all items contribute meaningfully to the construct. In addition, the Cronbach's Alpha if Item Deleted values reveal that removing any item does not significantly improve reliability, supporting the retention of all items.

3.3 Conclusion of Reliability Analysis:

Overall, both constructs, Lifestyle and Motivation, demonstrate acceptable levels of internal consistency. This confirms that grouping of items into these two constructs is methodologically appropriate. Therefore, the variables are considered reliable and suitable for further statistical analysis.

Based on the results, composite variables for Lifestyle and Motivation were computed and used in the subsequent correlation and regression analyses.

4 Spearman Correlation Analysis:

Spearman's rank-order correlation was conducted to examine the relationship between the main variables of the study. This non-parametric technique is appropriate given the ordinal nature of data, particularly the Likert-scale items used to construct the variables.

Based on validated measurement scales, composite variables representing Lifestyle and motivation were computed. The correlation analysis aims to assess the strength and direction of the association between these variables, as well as their relationship with selected demographic factors.

The full correlation matrix is presented in Appendix D.

The results indicate that several correlations were found to be statistically significant at the 0.05 and 0.01 levels. There is a positive relationship between the Lifestyle and Motivation; suggesting that individuals with higher digital lifestyle tendencies also tend to exhibit stronger motivation towards digital adoption. Moreover, the analysis revealed that certain demographic variables, such as age and gender, show varying degrees of association with the main constructs. These observations provide additional insights into how individual characteristics may influence the digital adoption behavior.

In general, the findings shed the light on meaningful associations between the study variables, providing a basis for further hypothesis testing in the following section.

5 The Hypothesis Testing:

To examine the effect of digital lifestyle and hedonic motivation on digital adoption, two simple linear regression analyses were conducted. Digital adoption is used as dependent variable in both models.

5.1 Effect of Digital Lifestyle on Digital Adoption

(H1) The candidates' digital habits and lifestyle positively influence the digitalization of driving school training

A simple linear regression was performed to examine the effect of the digital lifestyle on the digital adoption

Model Summary:

Tableau 10: Model Summary of the effect of Digital Lifestyle on Digital Adoption

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,552[a]	,305	,299	,786

Elaborated by the Author using IBM SPSS Statistics 27

a. Predictors: (Constant), Digital_Lifestyle

The results indicate a strong relationship between digital lifestyle and digital adoption ($R = 0.552$). The coefficient of determination shows that digital lifestyle explains 30.5% of the variance in Digital Adoption ($R^2 = 0.305$, Adjusted $R^2 = 0.299$).

ANOVA Test

Tableau 3: ANOVA test of the effect of Digital Lifestyle on Digital Adoption

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29,004	1	29,004	46,992	,000[b]
	Residual	66,042	107	,617		
	Total	95,046	108			

Elaborated by the Author using IBM SPSS Statistics 27

a. Dependent Variable: Digital_Adoption
b. Predictors: (Constant), Digital_Lifestyle

The ANOVA results show that the regression model is statistically significant ($F = 46.992$, $p < 0.001$). This confirms that the model provides a good fit and that the digital lifestyle significantly predicts digital adoption.

Coefficients

Tableau 4:Coefficients test of the effect of Digital Lifestyle on Digital Adoption

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,996	,393		2,532	,013
	Digital_Lifestyle	,761	,111	,552	6,855	,000

Elaborated by the Author using IBM SPSS Statistics 27

a. Dependent Variable: Digital_Adoption

The coefficients table shows that digital lifestyle has a significant positive effect on digital adoption ($\beta = 0.552$, $t = 6.855$, $p < 0.001$). This means that an increase in the digital lifestyle is associated with an increase in the digital adoption.

Therefore, H1 is supported, indicating that the digital lifestyle significantly influences the digital adoption.

5.2 Effect of Hedonic Motivation on Digital Adoption (H2)

(H2) The candidates' hedonic motivation and trust toward digital content positively influence the digitalization of driving school training

A second linear regression was conducted to examine the impact of the hedonic motivation on the digital adoption.

Model Summary

Tableau 5: Model Summary of the Effect of Hedonic Motivation on Digital Adoption

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,746[a]	,556	,552	,630

Elaborated by the Author using IBM SPSS Statistics 27

a. Predictors: (Constant), Hedonic_Motivation

The results indicate a strong relationship between the hedonic motivation and the digital adoption (R = 0.746). The model explains 55.6% of the variance in Digital Adoption (R^2 = 0.556, Adjusted R^2 = 0.552), indicating strong explanatory power.

ANOVA Test

Tableau 6:ANOVA test of the effect of Digital Lifestyle on hedonic motivation

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52,782	1	52,782	132,788	,000[b]
	Residual	42,134	106	,397		
	Total	94,917	107			

Elaborated by the Author using IBM SPSS Statistics 27

a. Dependent Variable: Digital_Adoption
b. Predictors: (Constant), Hedonic_Motivation

The ANOVA results reveal that the model is statistically significant (F = 132.788, p < 0.001), indicating that the hedonic motivation significantly predicts the digital adoption.

Coefficients

Tableau 7: Coefficients test of the effect of Digital Lifestyle on hedonic motivation

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,437	,284		1,537	,127
	Hedonic_Motivation	,901	,078	,746	11,523	,000

Elaborated by the Author using IBM SPSS Statistics 27

a. Dependent Variable: Digital_Adoption

The coefficients show that the hedonic motivation has strong, positive, and significant effect on the digital adoption (β = 0.746, t = 11.523, p < 0.001); which indicates that the hedonic motivation is associated with higher digital adoption.

Therefore, H2 is supported, indicating that the hedonic motivation significantly influences the digital adoption.

Conclusion of Regression Analysis

The results demonstrate that both digital lifestyle and hedonic motivation significantly influence the digital adoption. However, hedonic motivation demonstrates a stronger explanatory power compared to digital lifestyle, suggesting that motivational factors play a more dominant role in shaping digital adoption behavior.

5.3 Effect of Socio-Demographic Profile on Digital Adoption (H3)

(H3) The adoption of digital tools in driving school training varies significantly according to candidates' socio-demographic profile.

To test the third hypothesis, group comparison analyses were conducted using digital adoption as the dependent variable. An independent Sample T-Test was used for gender, while One-Way ANOVA was applied for age group, and smartphone usage.

Gender:

Using Independent Samples T-Test

Tableau 8 : Independent Samples T-Test, Gender

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Digital_Adoption	Equal variances assumed	12,167	,001	-2,089	107	,039	-,410	,196	-,799	-,021
	Equal variances not assumed			-2,458	80,775	,016	-,410	,167	-,742	-,078

Source: Elaborated by the author via IBM SPSS Statistics 27

The results of Levene' s Test Equality of Variance are statistically significant (p = 0.001), indicating that the assumption of equal variance is violated. Thus, the results from the (equal variances not assumed) row are considered.

The findings reveal that there is a statistically significant difference between male and female respondents in terms of digital adoption (t = -2.458, p = 0.016).

This indicates that gender has a significant effect on digital adoption.

Age Group:

One-Way ANOVA

Tableau 9: One-Way ANOVA, Age Groups

ANOVA					
Digital_Adoption					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3,541	3	1,180	1,355	,261
Within Groups	91,505	105	,871		
Total	95,046	108			

10 Source: Elaborated by the author via IBM SPSS Statistics 27

The ANOVA results show that there is no statistically significant difference between age groups in digital adoption (F = 1.355, p = 0.261).

This indicates that age does not significantly influence digital adoption.

The non-significant effect of age may be explained by the relatively homogeneous age distribution of the sample, which is largely composed of younger respondents, who are already familiar with digital technologies.

Smartphone Usage:

One-Way ANOVA

Tableau 18: One-Way ANOVA, Smartphone Usage

ANOVA					
Digital_Adoption					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7,057	7	1,008	1,157	,334
Within Groups	87,988	101	,871		
Total	95,046	108			

Source: Elaborated by the author via IBM SPSS Statistics 27

The results reveal that there is no statistically significant difference between smartphone usage groups in digital adoption (F = 1.157, p = 0.334).

This reveals that smartphone usage does not significantly affect digital adoption.

This suggest that behavioral and psychological factors may have a significant effect on the digital adoption, comparing to the exposure to technology (like smartphone).

Conclusion of H3 Testing

In general, the results confirm that among the examined socio-demographic variables, gender is the only factor that has a statistically significant effect on digital adoption, while age, and phone usage do not show significant difference.

Hence, H3 is partially supported, as digital adoption varies according to gender but not according to other socio-demographic characteristics within the studied sample.

Section II: Qualitative Analysis

1 Three-Layer Stakeholder Interpretation

In this study, the qualitative phase completes the quantitative one by providing an in-depth understanding of the phenomenon through the voices of experts. Six participants were interviewed: five driving school owner/managers and instructors at the same time (P1-P5), and the Deputy Director of the National Road Safety Agency (P6) as an institutional representative. The contribution of these interviewees shed the light on other stakeholders of the process of driving schools' digitalization, in order to understand it from different perspectives. The translated transcripts, from Arabic into English, were analyzed using Nvivo 15, to reveal the coherent architecture of the interacting layers: the candidate demand, the managerial decision, and the institutional governance layer. The intellectual contribution of this scientific work lies in mapping the relationship and tensions between those three layers

1.1The Candidate Demand Layer

After statistically examining the candidates 'impacts on the digitalization process from their perspective. The following section investigates the same phenomenon, but from the perspective of driving schools' managers, who are in a daily interaction with candidates.

The Spontaneous Shift Away from Paper

According to the interviewed driving school coaches, the shift from traditional methods to the modern ones is not the result of a formal decision from the driving school itself; however, it is more informal, spontaneous and a bottom-up process.

(P1) Owner/Manager/Instructor

"Paper materials, such as small code books, are often lost or not maintained. Digital applications are more practical; they can be used at home, in cafes, or anywhere."

The first participant highlighted that candidates who get rid of engaging with papers, not because of a better alternative provided, but it is due to their mismatches with his/her daily lifestyle. In UTAUT2 terms, the effort expectancy that is associated with the paper-based methods is high, since carrying, maintaining and keeping books is hard for candidates; While the effort expectancy of smartphone-based is away lower. So, it simply lacks the school willing to act on it.

(P2) Owner/Manager/Instructor

"They prefer digital tools. If a given choice between an application and a book, they choose the application."

Another participant used the expression (If a given choice), which implies that the choice is not systematically offered. The candidates are expressing a preference in a context where the supply has not been adjusted to meet it. This visible demand-supply gap is questionable, especially with the awareness of the driving school managers of it.

(P3) Owner/Manager/Instructor

"They prefer digital tools, although they do not always use them effectively. Paper-based materials are used less frequently."

The use of (effectively) introduces the first layer of complexity. The choice of digital tools by candidate is not necessarily because of effectiveness, but it could be a result of the alignment of the digital services with their daily lifestyle. This concept of habit is a construct of the UTAUT2; where the technology is adopted because it fits the users' behavioral patterns, rather than its higher performance expectancy.

(P5) Owner/Manager/Instructor

"Based on my experience, digital tools such as television-based explanations are easier and more effective than books. Books require more effort, while digital tools simplify learning."

P5 presents the most operationally grounded view when it comes to simplicity effect, which reduces the cognitive load to align directly with the effort expectancy. Candidates prefer the friction removal, not just the addition of technology.

The Socio-Demographic Nuance

According to the quantitative study, the socio-demographic factors have no significant impact on the driving school's digitalization, since H3 is not valid. However, the managerial declarations reveal that the socio-demographic impact the digitalization process; Even though it is not captured by attitude scores, but the quality of the digital engagement is observed in the daily interaction with candidates.

Which groups prefer digital tools

(P1)

"Younger individuals more than older ones, and women more than men."

The first participant ‘s observation aligns with the UTAUT2 moderating variables. Which is not statistically approved (H3), maybe because of the insufficient variation in the sample. Unlike the P1 ‘s observation, which is based on a large population for more than 9 years of experience.

(P3)

"Candidates vary significantly in their educational levels, which makes communication and knowledge transfer challenging. Some candidates have limited literacy, while others have higher education levels."

(P4)

"Driving license training does not require a high academic level. Some candidates may be illiterate, so instruction must sometimes be delivered in a simplified or even dialect-based form. Digital tools often require a certain level of education, which is not always present."

The heterogeneity in candidates ‘educational level is captured by P3and P4, which tackles challenges in communication and transferring knowledge. This real-life observation suggest that this variation may differ the digitalization ‘s effectiveness and accessibility from one candidate to another.

The educational level, as a potentially important yet unmeasured moderating variable. While age and gender were included in questionnaire in line with UTAUT2, the educational background was not captured. Candidates with a lower literacy level may face more difficulties in using digital tools. This indicates that non-validation of H3 may be due to the unmeasured, contextually silent variables.

1.2 The Managerial Decision Layer

Once the first layer investigates the candidates wants, the second interpret the answers of mangers, who are already aware the candidates’ preferences. The tension between the two perspectives of managers and candidates towards the digitalization of driving school.

Digitalization as Opportunity vs. Threat

When the managers were asked whether they see the digitalization as an opportunity or threat. The answers were broader than a simple short choice. Their responds revealed five different positions, which are compared to their answers on another question regarding the level of digitalization in their driving schools.

Tableau 19 : The Five Managerial Positions on Digitalization

Code	Position	Key Quote (paraphrased)	Action Taken
P1	Conditional Optimism	"Any technology, if used correctly, is beneficial; if used incorrectly, it becomes detrimental."	Uses Messenger for candidate comms; open to admin systems
P2	Structural Realism	"A major opportunity, provided they are used properly."	Social media creator personally; plans driving simulator
P3	Regulated Pragmatism	"Beneficial if used correctly by qualified professionals."	Minimal use; relies on books and direct pedagogy
P4	Credibility-First Skepticism	"The most important issue is credibility. Many digital tools provide unreliable information."	Conducted own comparison: classical method wins on results
P5	Pragmatic Modernizer	"I decided to move toward modernization and adopt more advanced tools."	Facebook groups; plans full administrative digitalization

Source: Elaborated by the author from interview transcripts

There is no outright rejection of the concept of digitalization by the managers, which is consistent with H2's validation. The main concern that is shared by all of them is credibility and trust; which goes beyond the UTAUT2's standards that did not included credibility in its original formulation. Confirming the habit construct of the UTAUT2, P2 and P5 who are the most engaged participants are more open to the idea of driving school digitalization.

The Trust Deficit

The main concern of the majority of the interviewed managers is the digital content reliability, which might not be a problem for candidates who focus on the accessibility and the digital image. The tension between what candidates want (digitalization) and what managers fear (digital misinformation) is the structural heart of the demand-supply gap.

(P1)

"One issue is that the internet provides information without verified sources. Anyone can provide information, which may be correct or incorrect. It is preferable that a learner relies on one qualified instructor who follows established rules."

(P4)

"The most important issue is credibility. Many digital tools provide unreliable or misleading information, especially online. There is also a lack of regulation and enforcement, which allows misinformation and unfair practices to spread."

(P3)

"If misused, such as on social media without proper control, they may lead to misinformation and lack of value."

The three statement from the three participants led to the same diagnosis, the digital content for driving schools in Algeria lacks the quality guarantee. For them, the digital tools threaten the role of the driving instructor, not by replacing them, but rather by creating the uncontrolled content through knowledge channel, which may lead to serious problems concerning road safety outcomes. Mangers' trust deficit is not a change resistance, but rather a professional responsibility

The Listening-Acting Gap

The core question of these three layers analysis is whether the mangers are responding to the candidates' demand. The evidence suggest that managers are aware of the candidates want, but this awareness is not translated into real action.

(P1)

"Do candidates request digital services? Yes, frequently."

(P4)

"They prefer digital tools. If given a choice between an application and a book, they choose the application."

All five participants confirm that candidates prefer digital tools. The only participant that responded to this demand is P5; However, others acknowledge the preference without converting it into a service offering. The three structural patterns are: First the trust barrier, since the reliability is critical from a manager's standpoint. Second, the infrastructure gap, the lack of the official channels for delivering knowledge. Third, preferring to misunderstand, managers claim that the candidates' main focus is getting the driving license, justifying their inaction with assuming that their preferences are superficial.

(P2)

"Are candidates requesting digital services? No, they generally do not request them. Most candidates are mainly focused on obtaining the driving license."

The P2 's response sharply contrasts with P1's. The candidates in the same city are described as "frequently requesting digital services" by one manager and "not requesting them" by another. The candidate's demand is expressed depending on the manager receptivity. The listening-acting gap is highly depending on the manager 'attitudes and reactions.

The Gap Can Be Closed

(P1)

"I recommend an application for the candidates, after telling them of all the missing or wrong information"

(P5)

"A solution must benefit both me and the candidates. If it only benefits one side, it is not suitable. There must be balance."

P1's and P5 's decision patterns are the most candidate-responsive of all the participants. The first participant picks up a specific recourse that balance between the candidates' demand and the required reliability. The other manager verifies the content before sharing it with the candidates on Messenger groups, which create a quality assurance mechanism. Both of them found a substitute for the lack of the official quality and reliability control, instead of the total ignorance of the digital tools use. These strategies confirm that the trust barrier is associated with absence of the verification systems rather than the digitalization. Those case studies shows that the demand-supply alignment is achievable.

1.3 The Institutional Governance Layer

The last interview with (P6), the Deputy Director of the National Road Safety, provides the third layer, the institutional governance, that highlights the third stakeholder in the driving school digitalization. This section completes the full harmony of the driving school digitalization in practice in the Algerian context.

The Optional Nature of Digitalization:

(P6)

"Currently, no. The laws are still old. We can say that digitalization at this stage is more optional than mandatory."

This statement unlocks the structural logic of the entire three-layer system. Since the digitalization is still optional; The cautious face no external pressure to act; and the candidates do not receive any guarantee for their demand. In UTAUT2 terms, the Facilitating conditions (FC) are weak, through lack of regulations, infrastructure and the official digital platform. Under such conditions, the model predict that the digitalization process would be slow and more voluntary, as it is already observed in real life.

(P6)

"Driving schools are considered commercial entities, not administrative ones."

This classification is analytically significant. The driving schools are commercial entities, which place them outside of the governmental ‘s sphere of pushing the digitalization in this sector. For driving schools’ mangers, there is no external pressure to implement digitalization neither from the government, nor from the competitive market.

Digital Statistics Without Digital Systems:

(P6)

"We have digital statistics: candidates by age and gender, success rates, monthly detailed reports. These statistics are used to make decisions based on analysis."

"The problem is that files are still not fully digitalized. We still rely on physical documents instead of fully online systems."

The two statements reveal the internal contradiction in the digitalization process. On one hand, the continuous reliance on the physical documents; which could be due to the superficial success of digitalization in some administrative process without achieving the operational depth

On the other hand, the participant confirmed the availability of digital statistics that might be helpful in the decision-making process. This reflects a shift to an analytical governance and suggest a successful initial phase to digitalization.

1.4 Cross-Layer Synthesis

After analyzing the three layers of the phenomenon independently, this section tackles their interactions. The findings revealed that driving school digitalization in the Algerian context faces the finding the perfect harmony between three complex stakeholders. The three layers and the main obstacles, gaps, are summarized in the table below:

Tableau 20: Convergence and Divergence of three layers

Layer	Signal	Primary Source	Hyp.
Layer 1 Candidates	• Prefer digital tools overwhelmingly • Lifestyle already digital • do not perceive content reliability as their concern	**Qualitative** : P1-P5 unanimous; **Quantitative** : H1 M=3.48; H2 M=3.55	H1 H2
Layer 2 Managers	• Aware of candidate preference • Acknowledge the opportunity • blocked by trust deficit and absence of certified content	**P1:** "information without verified sources" **P4:** "credibility is the main issue"	H2 bridge
Layer 3 Institution	• Digitalization is optional • no certified platform exists • sector classified as commercial	**P6:** "optional not mandatory"; "system not yet ready"	H3 context
Gap 1-2 Listening-Acting	• Candidates want digital • managers are aware of the demand, but without action	**P1:** "yes, frequently" **P2:** "they don't request it" — same city, opposite readings	H1/H2
Gap 2-3 Trust-Enablement	• Managers want certified content • institution has not provided it	**P3:** "official government platform needed" **P6:** "laws still old"	H2/H3
Gap 1-3 Voice-Visibility	• Candidates' digital readiness is invisible to institution • it measures outcomes, not attitudes	**P6** collects success rates, not candidate satisfaction data	H3

Source: Elaborated by the author from qualitative and quantitative synthesis

2 The relationship between Three gaps:

The three gaps are structurally connected. The Listening-Acting gap (between the candidates and managers) persists partly due to the Trust-Enablement gap (between the managers and institutions), which has not been resolved yet. Managers cannot confidently offer the content for the lack of infrastructure that should be supervised by the institutions. The government do not take this gap into consideration, because they measure the candidates ‘outcome statistics over their attitudes and needs.

3 NVivo Visual Outputs

The Nvivo visualizations are interpreted below through the lens of the three-layers framework; which are analyzed in a correlation.

Figure 6: The Overall Word Cloud

Source: Elaborated by the author via Nvivo 15

According to the word cloud, the dominants terms: candidates, digital, digitalization, tools, driving, schools, information, teaching; which confirm that the digital transformation and its operational components are the thematic core.

Crucially, the appearance of terms such as: difficulties, concerns, trust, competition, opportunity, future reveals the nuanced perceptions and the ambivalence that characterizes the second layer, where the digitalization is associated with both opportunities and difficulties. This suggests that from a manger' s standpoint, digitalization is not just a technical shift, but rather a complex process that involves uncertainty and adaptation.

Furthermore, the presence of (Candidates) as a high-frequency term in the managerial interviews confirms that, despite the fact that the decision-making process in the driving school sector is a manager-centered, the user-related considerations remain embedded in the discourse. This reflects a partial alignment between the strategic decisions and the candidates 'wants.

After discussing the overall most used terminology, the next section interpreted the frequent used terms by managers to describe the observed candidates 'behavioral change.

Figure 7: The Word Cloud of Candidates' Behavioral Change

Source : Elaborated by us via Nvivo

This word cloud reflects how the five managers perceive change in candidates 'behavior in recent years. The central core of the discourse is expressed by the most repeated terms, such as candidates, behavior, changes and education. this indicates that the issue is primarily framed as a transformation in attitudes and learning patters rather than pure technical skills.

The surrounding terms suggest that these changes are viewed ambivalent. On one hand, terms like technology, tools and communication imply that candidates recently have been more exposed to information and modern learning resources. On the other hand, words like overconfidence, limited, issues and difficult point to the quality of change. Managers seem to associate the behavioral shifts less discipline, weaker preparation and recklessness.

Moreover, the presence of terms like youth, generation and today suggest that these changes are interpreted as a part of broader generational transformation, rather than an individual differences.

Section III: Triangulation and Discussion

The convergent parallel design created an analytical value at the triangulation stage: where the quantitative findings meet the qualitative ones. This section synthesizes both stands around the three hypotheses.

1 H1: Digital Habits and Lifestyle (Validated and Contextualized)

The quantitative results support H1, showing a significant positive effect of digital lifestyle on digital adoption ($\beta = 0.552$, $p < 0.001$), with explanatory power of 30.5%. This indicates that candidates' digital habits play an important role in shaping their acceptance of digital learning tools.

The qualitative analysis adds three critical insights. First, the lifestyles shift is already grounded in the candidates ‘behavior, not just in their attitudes. Candidates are not simply reporting preferences, but they already living them. Second, the preference is stronger among younger and female candidates; and weaker in lower-digital and less-education environments. The misalignment between the qualitative and quantitative findings could be due to the quantitative sample, which may could not capture the real-life homogeneity.

Moreover, findings suggest a perception gap rather than a deliberate trade-off. While candidates strongly prefer digital tools for their convenience and accessibility, their response indicate that they do not consciously accept lower-quality or less effective information. This implies that candidates perceive digital tools as both convenient and effective. However, qualitative insights from managers suggest that this perception may not always reflect actual learning outcomes, as digital engagement is sometimes associated with superficial understanding

Finally, the findings revealed a perception gap: while candidates value convenience, managers report that this may lead to superficial engagement, suggesting a mismatch between perceived and actual learning effectiveness.

2 H2: Hedonic Motivation and Trust (Validated with Structural Qualification)

H2 is supported, as hedonic motivation shows a strong and significant effect on digital adoption ($\beta = 0.746$, $p < 0.001$), explaining 55.6% of the variance. This indicates that motivational and perceptual factors play a central role in shaping candidates’ adoption behavior.

The qualitative findings provide a meaningful foundation to the quantitative results. While candidates trust driving schools with a high digital use (from the quantitative analysis), managers deeply distrust digital content (from the qualitative interpretation). This paradox between candidates ‘desires and mangers ‘fears lead to a huge gap. This problem could be solved by providing official accompaniment by the third stakeholder, the government, which is not available so far basing on the P6 declarations. Otherwise, the managers should create a quality assurance mechanism to fill the gap and align with the candidates’ preferences.

This contrast highlights a structural tension between demand and supply. Candidates are attracted by the image and convenience of digitalization, whereas managers remain cautious due to the absence of verified and regulated digital content. As a result, the adoption of digital tools is not limited by user motivation, but by concerns related to trust and content quality.

3 H3: Socio-Demographic Profile (Partially Supported and Theoretically Relevant)

H3 is partially supported, as no significant difference are observed for age or smartphone usage ($p > 0.05$), while gender shows a statistically effect on digital adoption. This suggests that socio-demographic influence is not uniform across all variables.

The quantitative results indicate that the digital adoption attitudes are relatively stable across age groups and levels of smartphone usage within the sample, with gender representing the only differentiating factor.

In contrast, the qualitative analysis highlighted a broader influence of socio-demographic factors. Mangers consistently report that age, gender, educational level, and regional context shape candidates' engagement with digital tools. In addition, the institutional perspective confirms that such data are systematically collected at the national level, reinforcing their administrative relevance.

This divergence may be explained by limited variability of the sample, which is predominantly young and highly digitally engaged, potentially reducing observable differences across groups. Furthermore, educational level, which is identified in the qualitative phase as an important factor, was not included in the quantitative model due to its absence in the original measurement design (UATUT2).

Hence, while H3 is only partially supported statically, it remains theoretically relevant, suggesting that socio-demographic factors may influence digital adoption under more diverse conditions.

Tableau 11: From Evidence to Recommendation (a Three-Layer Action Matrix)

Layer	Key Finding	Structural Gap	Required Action
Candidates (L1)	• Ready for digitalization • Lifestyle already digital • trust image of digital schools	Demand without supply response	• Create incentive for managers to offer digital tools • make candidate preferences officially visible
Managers (L2)	• Aware of demand • blocked by content trust deficit	Willingness without enablement	• Provide certified content platform • reduce financial barrier • offer technical guidance
Institution (L3)	• Digitalization is optional • No certified platform	Governance without mandate	• Mandate digital exams • develop national digital curriculum • reclassify sector for support eligibility
Gap 1-2	Listening-Acting Gap: managers know what candidates want but do not deliver it	Awareness without action	Introduce candidate satisfaction metrics into school evaluation

Gap 2-3	Trust-Enablement Gap: managers need institutional certification that does not exist	Responsibility without tools	ANSR or Ministry to develop and maintain verified digital content repository

Source: Elaborated by the author from three-layer qualitative-quantitative synthesis

4 Practical Recommendation

For driving school managers, the finding suggest that digital services are increasingly aligned with candidates' expectations. A gradual integration of simple and low-cost digital tools (such as communicating platform or television) may support communication and service delivery, while taking into account existing concerns related to content reliability.

For the institutional stakeholders, the results indicate the importance of strengthening the regulatory and infrastructural environment supporting digitalization. This includes improving supervision mechanisms and ensuring more structured digital resources for driving school.

5 limitations of the Study

This study has several limitations that should be acknowledged. First, the quantitative sample is relatively concentered among young, female, and highly digitally active respondents, which may limit the generalization of the findings to a broader population of driving school candidates in the Algerian context. Second, the qualitative study is limited in one region, khenchela, in Algeria. Finaly, the study focuses on perceived adoption and intention rather than actual long-term usage behavior.

General Conclusion

This thesis examines the impact of the behavioral and cultural impact of the clients on the digitalization of SMEs in the Algerian context, taking the sector of driving schools as case study. Positioned with UTAUT2 theoretical framework, and implemented through a convergent mixed-methods design. To ensure a deep understanding of the phenomenon, the study combined the qualitative analysis of 109 candidates, with a qualitative insight with interviews with six experts in the sector of driving schools.

The findings demonstrate that the digital adoption in driving schools is more influenced with behavioral and motivational dimensions, rather than the socio-demographic characteristics of the individuals. Specifically, digital lifestyle and hedonic motivation, which appeared as strong predictors on the digital adoption process. The candidates' daily digital practices and their perception of enjoyment and convenience highly shape their acceptance of digital tools. In contrast, the socio-demographic characteristics, with partial exception of gender, has no significant impact on the adoption behavior within the studied sample.

However, the qualitative findings add a critical depth to the quantitative findings, by revealing a multi-layered structural dynamic. Candidates exhibit a clear preference for the digitalization, driven by accessibility and its integration in their daily routines. Managers, while being aware of this demand, remain hesitated due to the lack of trust and reliability of these unofficial tools. At the institutional level, digitalization remains optional, with no standardized digital infrastructure or certified digital systems.

The integration of both datasets revealed a systemic misalignment between three key stakeholders. First, a listening-acting gap, where demand is recognized but not systematically addressed. Second, a trust-enablement gap that separates mangers from institutions, limiting the operationalization of digital solutions. Third, a voice-visibility gap disconnects candidates' digital readiness from institutional measurement systems, which remain focused on administrative outcomes rather than the behavioral expectations.

In general, the study that the slow digital transformation of digital schools in Algeria is not a result of user resistance, but rather of structural fragmentation. Bridging these gaps require the development of certified digital platforms, improved regulatory frameworks, and stronger alignment with stronger alignment with stakeholders. By addressing these systemic barriers, the sector can move from fragmented digital practices towards a coherent and suitable digital transformation model.

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APPENDENCIES

Appendix A - The Semi-Structured Interview Guide for the driving coaches

Target: Driving School Owners / Managers / Instructors
Purpose: To explore managerial perceptions, cultural influences, and market dynamics affecting the digitalization of driving schools.

Research Context

This interview is conducted as part of a master's research (electronic government major) project examining the behavioral and cultural factors influencing the digitalization of driving schools in Algeria. The aim is to understand how managerial attitudes, client expectations, and market dynamics shape the adoption of digital technologies in this sector.

The interview will take approximately **20–30 minutes**, and all responses will remain confidential and used for academic purposes only.

01- Professional Background

1. Could you please introduce yourself (academic background, professional experience, interests and skills)?

2. Could you briefly describe your professional experience in the driving school sector?

3. What is your current role in the driving school? (owner / manager / instructor)

4. How long has your driving school been operating?

5. Approximately how many candidates does your school train per year?

02- Current Digital Landscape

1. Does your driving school currently use digital tools (for example: social media, mobile applications, administrative software)?
If yes, which tools do you use and for what purposes?

2. How did the decision to adopt these digital tools occur?
Was it primarily your own initiative, or was it influenced by external factors such as client demand or market trends?

3. For which activities are digital technologies mainly used in your school? (e.g., communication with candidates, administration, theoretical learning support, marketing)

4. are you open for adopting new technological tools?

If the answer is yes, in which task

5. how was the feedback of the candidates towards digitalization?

03- Managerial Traits and Cultural Filters

(H1 – Managerial Skills, Uncertainty Avoidance, Cultural Intelligence)

1. Can you describe the last digital tool you introduced in your driving school? What motivated that decision?

2. In your daily work, which tasks take the most time or effort? Have you ever considered using digital tools to simplify them?

3. Have you ever considered adopting a digital system but decided not to? What made you hesitate?

4. When you face a technological decision in your school, who usually makes the final decision and what factors influence it?

5. Have you ever experienced a situation where a digital tool caused problems or failed? How did that experience influence your attitude toward technology?

If the answer is yes , Did that make you go back to the paper system immediately?

6. When you think about digitalization, do you perceive it mainly as a risk (financial, technical, or security-related) or as a strategic opportunity for the development of your business?

7. How do you manage the potential conflict between traditional teaching methods and the digital expectations of younger candidates?

8. If a company offered you a complete digital system for managing your driving school, what would be your first concern?

04- Client Expectations and Lifestyle Changes

(H2 – Lifestyle Alignment)

1. What major changes in candidates' behavior or expectations have you observed over the last 3–5 years?

2. Do candidates specifically request digital services such as mobile applications, online theory lessons, or digital communication tools?

3. How do candidates usually prefer to access theoretical learning materials today?

4. Do you feel that not offering digital services could cause you to lose potential candidates?

5. In your opinion, which digital services would be most valuable for candidates?

05- Market Strategy and Peer Influence

(H3 – Market Pressure, Collectivism, Subjective Norms)

1. How would you describe the level of competition among driving schools in your region?

2. Are digital technologies commonly used by other driving schools in your area?

3. Do you usually consult with other driving school owners before adopting new tools or changing working practices?
(tests collectivism / subjective norms)

4. Would you feel uncomfortable or isolated if your driving school were the only one in the region using a specific digital platform?

5. Does the lack of digital technologies among competitors encourage you to wait before adopting them, or does it motivate you to become a first mover?

6. Do you believe that digitalization could provide a competitive advantage for driving schools?

06- Future Perspectives

1. How do you see the future of digital technologies in the driving school sector in Algeria?

2. What types of digital tools would you consider implementing in the future?

3. In your opinion, will a driving school without digital services (such as a mobile app or online communication) be able to remain competitive in the next five years?

Appendix B - Semi-Structured Interview Guide: Administration (Khenchela)

1. Sector Digitalization (Macro Perspective)

How would you describe the current level of digitalization of driving schools at the regional and national levels?

2. Role of the Administration

What role does the administration play in encouraging and guiding the digitalization of driving schools?

3. Regulatory and Policy Framework

To what extent do existing regulations, policies, or reforms encourage or require driving schools to adopt digital tools?

Is digitalization currently optional, or is it progressively becoming mandatory?

4. Institutional Support and Constraints

What types of support (e.g., technical assistance, training, infrastructure) are provided by the administration to facilitate digitalization?

What are the main institutional challenges or limitations encountered in implementing digital transformation within this sector?

5. Consideration of User Needs and Expectations

To what extent does the administration take into account changes in citizens' and candidates' expectations when modernizing and digitalizing the sector?

6. Future Outlook and Strategic Orientation

What are the administration's future priorities and strategic orientations regarding the digital transformation of driving schools?

Appendix C - Electronic Questionnaire for The Candidates

Figure 8: The Qr code of the Candidates' Electronic Questionnaire

Target: Driving School Candidates (Learners)

Purpose: To measure candidates' digital habits, lifestyle preferences, and perceptions regarding the digitalization of driving schools.

Introduction This questionnaire is part of an academic research project examining the digitalization of driving schools in Algeria. The aim is to understand candidates' preferences and expectations regarding digital tools used in driving education. Participation is anonymous and the questionnaire requires approximately 3–5 minutes to complete.

Section 1: Learning Preferences and Lifestyle (H2 – Lifestyle Alignment / "No-Bag" Factor) Please indicate your level of agreement with the following statements:

Scale: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree Statement

1. Accessing learning materials on my smartphone is more convenient for me. ☐ ☐ ☐ ☐ ☐

2. Carrying printed manuals or books is inconvenient in my daily routine. ☐ ☐ ☐ ☐ ☐

3. I prefer learning tools that I can use discreetly in public without carrying a bag. ☐ ☐ ☐ ☐ ☐

4. I would rather use a basic mobile application than carry a high-quality printed book. ☐ ☐ ☐ ☐ ☐

5. Using digital learning tools makes me feel more efficient as a learner. ☐ ☐ ☐ ☐ ☐

Section 2: Perceptions of Driving Schools and Digitalization (H1 & H3 – Trust and Digital Image) Statement

1. A driving school that uses digital tools appears more trustworthy and transparent. ☐ ☐ ☐ ☐ ☐

2. I would prefer enrolling in a driving school that offers digital learning services. ☐ ☐ ☐ ☐ ☐

3. Digital communication (e.g., messenger) is essential for interacting with a driving school. ☐ ☐ ☐ ☐ ☐

4. I would be willing to pay slightly more for a driving school that provides a mobile learning application. ☐ ☐ ☐ ☐ ☐

5. Digital tools make the learning process more complicated for me. (Reverse-coded control question) ☐ ☐ ☐ ☐ ☐

Section 3: Demographic Information

Age ☐ 17–21

☐ 22–26

☐ 27–31

☐ 32–36

☐ 37–41

☐ 42 and above

Gender • ☐ Male • ☐ Female

Status

☐ Currently enrolled in a driving school

☐ Obtained a driver's license

☐ Want to enroll in a driving school

Smartphone Usage

☐ Less than 1 hour

☐ 1–3 hours

☐ 3–5 hours

☐ More than 5 hours

Appendix D- Spearman Correlation Analysis

Correlations						
			Smartphone_Easy	Books_Inconvenient	Learn_Anywhere	Prefer_App
Spearman's rho	Smartphone_Easy	Correlation Coefficient	1,000	,172	,446**	,444**
		Sig. (2-tailed)	.	,073	,000	,000
		N	109	109	109	109
	Books_Inconvenient	Correlation Coefficient	,172	1,000	,291**	,320**
		Sig. (2-tailed)	,073	.	,002	,001
		N	109	109	109	109
	Learn_Anywhere	Correlation Coefficient	,446**	,291**	1,000	,482**
		Sig. (2-tailed)	,000	,002	.	,000
		N	109	109	109	109
	Prefer_App	Correlation Coefficient	,444**	,320**	,482**	1,000
		Sig. (2-tailed)	,000	,001	,000	.
		N	109	109	109	109
	Digital_Efficient	Correlation Coefficient	,524**	,159	,483**	,544**
		Sig. (2-tailed)	,000	,099	,000	,000
		N	109	109	109	109
	Quick_Info_Pref	Correlation Coefficient	,147	,213*	,213*	,273**
		Sig. (2-tailed)	,127	,026	,026	,004
		N	109	109	109	109
	Access_Anytime	Correlation Coefficient	,334**	,216*	,454**	,271**
		Sig. (2-tailed)	,000	,024	,000	,004
		N	109	109	109	109
	Digital_Credibility	Correlation Coefficient	,443**	,240*	,228*	,311**
		Sig. (2-tailed)	,000	,012	,017	,001
		N	109	109	109	109
	Prefer_Digital_School	Correlation Coefficient	,559**	,172	,275**	,412**
		Sig. (2-tailed)	,000	,074	,004	,000
		N	109	109	109	109

	App_Communication	Correlation Coefficient	,225*	,298**	,195*	,196*
		Sig. (2-tailed)	,018	,002	,042	,041
		N	109	109	109	109
	Pay_For_App	Correlation Coefficient	,168	,151	,086	,140
		Sig. (2-tailed)	,082	,119	,378	,148
		N	108	108	108	108
	Age	Correlation Coefficient	,009	-,027	,002	-,015
		Sig. (2-tailed)	,925	,784	,982	,878
		N	109	109	109	109
	Phone_Usage	Correlation Coefficient	,080	,193*	,057	,167
		Sig. (2-tailed)	,406	,044	,558	,083
		N	109	109	109	109