

Digital Entrepreneurship and Territorial Bricolage: The Mechanisms Underlying the Construction of a Smart Territory in Dakhla-Oued Eddahab

Entrepreneuriat numérique et bricolage territorial : les mécanismes de construction d'un territoire intelligent à Dakhla-Oued Eddahab

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Date submitted : 01/08/2026

Date of acceptance : 11/10/2026

To cite this article :

BOUSSIF L. (2026) «Digital Entrepreneurship and Territorial Bricolage: The Mechanisms Underlying the Construction of a Smart Territory in Dakhla-Oued Eddahab», Revue Internationale des Sciences de Gestion « Volume 9 : Numéro 4 » pp : 60 - 83

Abstract

In peripheral territories with still limited digital resources, the emergence of innovative entrepreneurial practices raises questions about the concrete mechanisms through which digital technology contributes to building a smart territory. This is the case of the Dakhla-Oued Eddahab region, engaged in a digital transformation dynamic driven by national strategies and the Morocco Digital 2030 vision, yet where entrepreneurs must navigate significant territorial constraints. This research aims to understand how entrepreneurs mobilize territorial bricolage to turn these constraints into levers for building a smart territory in Dakhla-Oued Eddahab. The study adopts an interpretivist qualitative stance based on a single case study. Twenty semi-structured interviews were conducted with stakeholders of the regional ecosystem and analyzed through a reflexive thematic analysis assisted by Nvivo12, following an abductive approach. The findings show that the contribution of digital entrepreneurship to smart territory construction rests on the interaction between digital infrastructure, territorial governance, entrepreneurial ecosystem dynamics, and entrepreneurs' adaptive capabilities. They further reveal an emerging mechanism, territorial digital entrepreneurial bricolage, through which entrepreneurs creatively mobilize locally available resources to overcome structural constraints. This mechanism enriches the theoretical model and opens avenues for other comparable peripheral territories.

Keywords : Digital entrepreneurship ; Territorial bricolage ; Smart territory ; Entrepreneurial ecosystem ; Territorial governance.

Résumé

Dans un territoire périphérique aux ressources numériques encore limitées, l'émergence de pratiques entrepreneuriales innovantes interroge les mécanismes concrets par lesquels le numérique contribue à la construction d'un territoire intelligent. C'est le cas de la région de Dakhla-Oued Eddahab, engagée dans une dynamique de transformation numérique portée par les stratégies nationales et la vision Maroc Digital 2030, mais où les entrepreneurs doivent composer avec des contraintes territoriales fortes. Cette recherche vise à comprendre comment les entrepreneurs mobilisent un bricolage territorial pour transformer ces contraintes en leviers de construction d'un territoire intelligent à Dakhla-Oued Eddahab. L'étude adopte une posture qualitative interprétativiste fondée sur une étude de cas unique. Vingt entretiens semi-directifs ont été menés auprès des parties prenantes de l'écosystème régional, puis analysés selon une démarche d'analyse thématique réflexive assistée par Nvivo12, dans une logique abductive. Les résultats montrent que la contribution de l'entrepreneuriat numérique à la construction du territoire intelligent repose sur l'interaction entre infrastructures numériques, gouvernance territoriale, dynamiques de l'écosystème entrepreneurial et capacités adaptatives des entrepreneurs. Ils mettent surtout en évidence un mécanisme émergent, le bricolage entrepreneurial numérique territorial, par lequel les entrepreneurs mobilisent de façon créative les ressources disponibles localement pour dépasser les contraintes structurelles. Ce mécanisme enrichit le modèle théorique et ouvre des perspectives pour d'autres territoires périphériques comparables.

Mots-clés : Entrepreneuriat numérique ; Bricolage territorial ; Territoire intelligent ; Écosystème entrepreneurial ; Gouvernance territoriale.

Introduction

Currently, digital transformation plays a crucial role in transforming territorial development by providing new avenues for innovation, entrepreneurship, and value creation. However, this concept, apart from being characterized by the use of digital technologies, depicts a serious institutional and organizational change since this phenomenon also requires redefining the ways of governance practices, public service delivery, and relationships between the actors of the territories (Lahlimi, Karim, & Wahbi, 2023). Nevertheless, the situation in the Dakhla-Oued Eddahab region of Morocco remains difficult since the level of digital infrastructure in this region is still rather low, as it is underdeveloped in terms of financing, and geographical distance continues to remain a structural barrier. Still, despite these barriers, the creation of a great number of digital business projects demonstrates that entrepreneurs transform the lack of resources into innovation opportunities. From this viewpoint, it can be asserted that digital entrepreneurship entails activities that have digital technology as the main force behind their development. Digital technology leads to changes in the way opportunities are identified, in business models, and in the manner companies utilize relationships (Nambisan, 2017; Autio et al., 2018). Entrepreneurs are likely to use entrepreneurial bricolage and use available resources in innovative combinations whenever they face resource shortages (Baker & Nelson, 2005). The proposed viewpoint is a complement to the idea of Digital Entrepreneurial Ecosystem, which points out the interconnected contribution of digital infrastructure, institutions, collaborative networks, and governance into the process of entrepreneurship (Sussan & Acs, 2017; Spigel, 2017; Satalkina & Steiner, 2020). The literature points to the interdependence of digital entrepreneurship and intelligent territories since digital advancement leads to entrepreneurial development and entrepreneurs to innovation and development (Berman et al., 2023; Dana et al., 2022). The nature of the combined effect created by all mentioned factors affecting this interdependence is not well understood. This gap is particularly evident in Morocco, where research has largely focused on the individual determinants of digital entrepreneurship while paying limited attention to its territorial dimension (El Yahyaoui, Azami Hassani, & Toubtou, 2023; Ait Oufkir & Ouzaka, 2024). In this context, the Dakhla-Oued Eddahab region, supported by the Morocco Digital 2030 strategy, provides a relevant setting for examining how entrepreneurial, institutional, and territorial mechanisms including territorial entrepreneurial bricolage contribute to the construction of a smart territory despite persistent structural constraints.

The main goal is to comprehend how the digital players play their part in constructing Dakhla as a territory, rather than determining whether or not it is a smart territory.

Accordingly, this study addresses the following research question:

How do entrepreneurs mobilize territorial bricolage to contribute to the construction of a smart territory in the Dakhla-Oued Eddahab region?

To respond to this inquiry, the research formulates a foundational theoretical framework that fuses the Smart Territory, Smart Governance, Digital Entrepreneurial Ecosystem, and Digital Technology Perspective approaches with entrepreneurial bricolage. These concepts are unified to create a basic conceptual model which is then tested using empirical evidence. Through the interpretivist qualitative case study method, the study uses semi-structured interviews which have been analyzed through Reflexive Thematic Analysis, assisted by the software program Nvivo12. The theoretical hypotheses have been verified against the data using abductive reasoning, opening an opportunity for the emergence of a new concept of territorial digital entrepreneurial bricolage. The structure of the paper is as follows: the first section describes the Literature Review, the second section presents the methodology of the study, the third section describes the empirical results and interprets the findings within the proposed theoretical framework, and the final section presents the contributions, limitations and direction for future research.

1. Literature Review

1.1. Smart Territory and Smart Governance

The notion of smart territory builds on that of smart city and applies it to rural and remote regions. Instead of being solely linked to technology, the smart territory concept is currently understood as the combination of digital infrastructure, collaborative governance, innovation, and sustainable development (Meijer & Bolívar, 2016; Gorelova et al., 2021; Almulhim, 2025). Accordingly, smart governance can be viewed as the capability of public organizations to coordinate various stakeholders, ensure information sharing, and stimulate participation in decision-making, with collaboration within and between institutions being one of the key factors for territorial transformation (Meijer & Bolívar, 2016; Almulhim & Yigitcanlar, 2025).

Nonetheless, there are some drawbacks to viewing both smart-territory and smart governance in the context of peripheral or resource-strapped territories. Existing literature focuses in large part on the smart-territory notion from the viewpoint of institutional capability, digital

infrastructure, public authority coordination, and technology-enabled governance. While the above-mentioned aspects are important, the given approach seems to overlook the part played by non-state actors, especially entrepreneurs, in producing the changes taking place in a territory. Also, smart governance is often described as the precondition for territorial intelligence, rather than as a process emerging as a consequence of the interplay of public authorities, companies, entrepreneurs, and other local parties. This leads to the important theoretical problem: how possible is it for a territory to be smart using only bottom-up entrepreneurial practices if institutional and technological resources are limited? The answer to this question requires moving on from the governance approach and researching the means through which entrepreneurs make use of the resources available in the territory.

1.2. Digital Entrepreneurial Ecosystem and Digital Entrepreneurship

Digital entrepreneurship implies the entrepreneurial activity that establishment and growth of which depend on digital technologies that facilitate identifying opportunities, changing business model, and interacting with stakeholders (Nambisan, 2017; Autio et al., 2018; Paul et al., 2023). Such activities exist within the framework of the Digital Entrepreneurship Ecosystem, which refers to a socio-technical system incorporating entrepreneurs, digital infrastructure, institutions, investors, and assisting organizations (Sussan & Acs, 2017). Previous qualitative findings in Dakhla-Oued Eddahab indicate that there is a strong influence of four internal elements on the creation of digital start-ups, namely territorial resources, institutional support, business networks, and local innovation processes (Author, 2026). The effectiveness of the ecosystem relies not only on technology but also on collaborative networks, institutional potential, and governance standards (Spigel, 2017; Satalkina & Steiner, 2020).

The concept of the digital entrepreneurial ecosystem has its shortcomings when it comes to territorial transformation. The focus on interactions among entrepreneurs, institutions, infrastructures, financiers, and support institutions makes this concept relevant in explaining the drivers of digital entrepreneurship. However, the notion of the ecosystem lacks attention to the ways in which entrepreneurs operate when the ecosystem experiences resource deficit. Thus, the presence of an ecosystem cannot be regarded as sufficient in explaining entrepreneurial performance and territorial transformation in peripheral regions. Under such conditions, entrepreneurs need to forge networks, recombine resources at hand, establish

informal partnerships, and overcome financial and institutional shortcomings. Hence, the notion of the ecosystem should be supplemented by a theory of entrepreneurial activity.

1.3. Entrepreneurial Bricolage: A Resource-Constrained Perspective

However, building on these frameworks, it should be noted that they generally presume the existence of sufficient digital, institutional, and financial resources, which is not often the case in remote regions. The entrepreneurial bricolage concept introduced by Baker and Nelson (2005) solves this problem, emphasizing the ability of businesspeople to utilize available resources creatively, rather than waiting until they have access to the ideal conditions. This way, the entrepreneurial bricolage approach in territorial development emphasizes transforming local constraints (such as geographical isolation, low level of financing, and limitation of expertise) into potential opportunities.

The concept of entrepreneurial bricolage offers an invaluable view of entrepreneurship in the sense that it redirects the attention from the availability of resources to the ways in which entrepreneurs act with the existing resources. Still, most of the literature concerning entrepreneurial bricolage is focused on studying the phenomenon either at the individual or firm level, while the question of the spatial component is examined insufficiently. The concept indicates how entrepreneurs manage to deal with resource shortages but does not explain how these practices might lead to the impact of greater magnitude beyond the particular firm. Specifically, the connection between local resources recombination, establishment of informal networks, and development of innovative practices of digital entrepreneurs is unclear. Thus, this gap evidences the fact that it is necessary to relate the concept of entrepreneurial bricolage to the issues of digital entrepreneurial ecosystems, smart governance, and smart territories.

1.4. Research Gap

Table 1: Comparative Synthesis of the Theoretical Perspectives and Research Gap

Perspective	What it primarily explains	What it does not sufficiently explain in this research
Smart Territory & Smart Governance	Territorial transformation, innovation, digital development, stakeholder coordination, and institutional collaboration.	The concrete role of entrepreneurs and their day-to-day practices in contributing to territorial transformation, particularly in resource-constrained and peripheral contexts.
Digital	Digital value creation,	How digital entrepreneurial

Entrepreneurship & Digital Entrepreneurial Ecosystem	opportunity development, entrepreneurial activity, and interactions among entrepreneurs, institutions, networks, and support actors.	practices translate into broader territorial transformation and how entrepreneurs respond to local constraints and unevenly distributed resources.
Entrepreneurial Bricolage	Creative mobilization, recombination, and use of available resources under conditions of resource constraints.	How individual or organizational bricolage practices generate collective effects and contribute to digital transformation and smart territory construction.

Sources: Meijer and Bolívar (2016); Sussan and Acs (2017)

The literature reviewed indicates that the existing approaches provide fragmented, albeit complementary, explanations of territorial digital transformation. Smart territory/smart governance approaches are primarily concerned with explaining the process of territorial transformation from perspective of innovation and institutional coordination, leaving the role of entrepreneurs in making these dynamics happen as unknown factor. Perspectives on digital entrepreneurship and the entrepreneurial ecosystem emphasize digital value creation, networks, and interactions of actors; however, their territorial implications and the effects of resource constraints are still underexplored. Entrepreneurial bricolage explains how entrepreneurs creatively use limited resources, but its contribution to wider processes of territorial transformation has been underexplored. The primary gap lies therefore in not the absence of these concepts but insufficient theoretical elaboration of their interrelation. Specifically, there are still few studies on how digital entrepreneurs can contribute to the development of smart territories by mobilizing resources effectively, interacting with ecosystem actors and organizations. This gap has particular importance in peripheral territories like Dakhla-Oued Eddahab, and thus the objective of the study is not to determine whether Dakhla is a smart territory, but rather the understanding of the entrepreneurial and territorial mechanisms through which digital actors help build this smart territory through its construction.

2. Methodology

2.1. Methodological approach

2.1.1. Epistemological stance

The methodological approach of this research work is interpretive, aiming for constructivism, whereby social reality is interpreted as constructed from the interaction, social practices, and representation of the actors involved (Guba and Lincoln, 1994). Therefore, the creation of a

smart territory is treated as a process established cooperatively by entrepreneurs, institutions, and other parties involved. This approach corresponds to a qualitative methodology that seeks to understand the processes of changes in the territory in their specific context. Besides, it corresponds to a reflexive thematic analysis which involves the concept of themes as co-created between the data, theory, and the researcher's interpretation (Braun and Clarke, 2019, 2021).

2.1.2. Reasoning method

The method of reasoning of the research is abductive, given the fact that it starts from existing theoretical models (digital entrepreneurship, entrepreneurial ecosystems, smart territories) which determine the data collection process, while leaving room for categories and processes that may arise in the field of study. That is, a circular process between theory and practical data allows for the gradual refinement of the analytical framework, following the approach similar to grounded theory as well as the approaches used in qualitative studies (Eisenhardt, 1989; Yin, 2018).

2.2. Analysis model

In accordance with abductive reasoning employed in this research, the first analytical framework was derived from literature and used to direct data collection while still being able to integrate new concepts emerging from the data. Instead of assuming that theories are separate frameworks, the study categorizes theories according to four analytic levels. The micro level includes Digital Technology Perspective and Entrepreneurial Bricolage, through which entrepreneurs' opportunity identification process, digital activity, resource combination, adaptation, and improvisation are examined. The meso level consists of Digital Entrepreneurial Ecosystem, which deals with networks and partnerships as well as relations of entrepreneurial actors and institutions. The territorial level deals with Smart Governance and Smart Territory, which is responsible for public policies, institutional coordination, digital infrastructure, territorial resources, and territorial development processes. The macro level creates the wider context in terms of policy and institutions, including national digital strategies and territorial development policies. This framework enables the study to investigate the interplay between entrepreneurial practices, ecosystem dynamics, and territorial management. While accounting for the new mechanisms produced by the empirical investigation, it also shows the importance of the concept of territorial digital entrepreneurial

bricolage in explaining the way entrepreneurs utilize and combine the available resources when faced with territorial limitations.

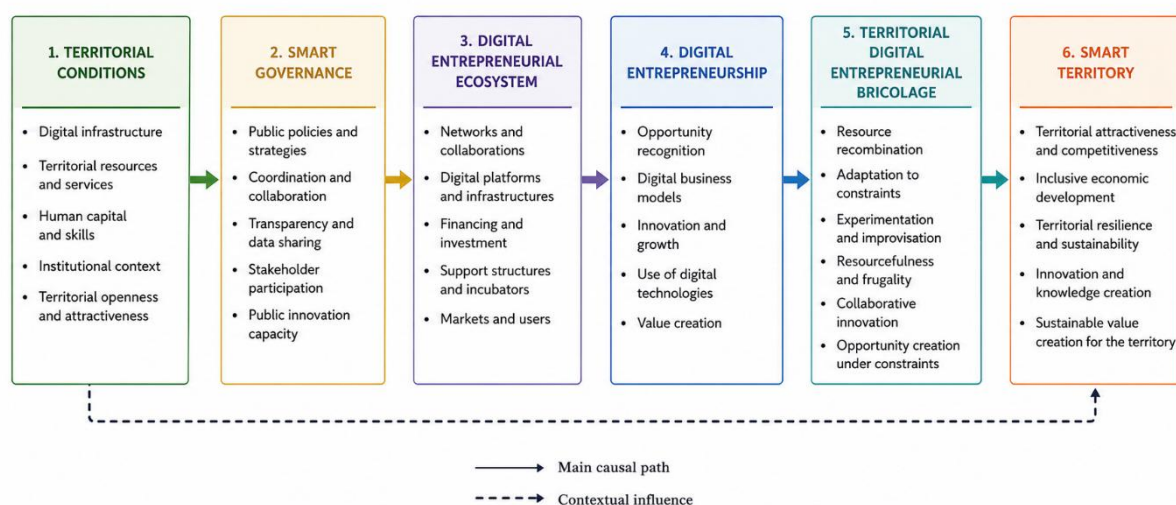
Table 2. Theoretical constructs

Analytical level	Theoretical construct	Analytical role	Dimensions of analysis	Main references
Micro	Digital Technology Perspective	Explains how entrepreneurs use digital technologies to identify opportunities and create value.	Opportunity recognition, digital platforms, digital practices, value creation	Nambisan (2017); Autio et al. (2018)
Micro	Entrepreneurial Bricolage	Explains how entrepreneurs act and adapt under resource constraints.	Resource recombination, improvisation, adaptability, resourcefulness	Baker & Nelson (2005); Desa (2012);
Meso	Digital Entrepreneurial Ecosystem	Explains interactions and resource flows among entrepreneurial and support actors.	Networks, partnerships, funding, support organizations, digital platforms	Sussan & Acs (2017); Spigel (2017)
Territorial	Smart Governance	Explains institutional coordination and collective action supporting territorial transformation.	Coordination, participation, public policies, institutional support	Meijer & Bolívar (2016); Almulhim (2025)
Territorial	Smart Territory	Represents the broader territorial outcome of digital, entrepreneurial, institutional, and collaborative dynamics.	Territorial vision, digital infrastructure, territorial resources, innovation, territorial development	OECD (2019); Gorelova et al. (2021)
Macro	National and territorial policy context	Provides the broader institutional and policy environment within which entrepreneurial and territorial dynamics develop.	National digital strategies, territorial policies, public programs, regulatory environment	Relevant national policy documents; Morocco Digital 2030

Source: Authors, based on the literature.

Figure N°1: Theoretical model

Figure 1. Initial Theoretical Model



Source: Authors, based on the literature

2.3. Data collection, processing and analysis techniques

2.3.1. Scope of investigation, sampling and data collection

The research takes place in the Dakhla-Oued Eddahab area, which was selected for the case study and its active engagement in national policies on spatial development. Purposive sampling was used in this study (Patton, 2015) with an aim of getting the main participants of the regional ecosystem (entrepreneurs, support organizations, and actors from public institutions). A purposive sample of 20 participants was selected to ensure sufficient diversity of perspectives relevant to the research question, including entrepreneurs, support organizations, and public institutional actors. Rather than relying on theoretical saturation, the adequacy of the dataset was assessed progressively throughout the analytical process. Purposive sampling was used in this study (Patton, 2015) to select 20 key participants of the regional ecosystem, ensuring a diverse range of perspectives from entrepreneurs, support organizations, and public institutional actors.

The interviews, lasting on average 60 to 90 minutes, were recorded with the consent of the participants, then fully transcribed before processing in Nvivo12. To ensure transparency in the process, Table 3 presents the characteristics of the participants. Each respondent is identified by an anonymization code (E1 to E20), specifying their profile, field of activity, professional seniority, and key information relating to data collection, guaranteeing the diversity of viewpoints used in the analysis. The semi-structured interviews, lasting on

average 60 to 90 minutes, were recorded with the participants' consent and fully transcribed. To ensure transparency, Table 3 presents the characteristics of the anonymized respondents (E1 to E20), detailing their profiles, sectors of activity, and professional seniority. Throughout the coding process in NVivo 12, theoretical saturation was progressively assessed. From the seventeenth interview onward, no substantially new codes or thematic categories emerged, meaning that the remaining interviews primarily served to reinforce existing relationships and confirm the cross-cutting role of territorial digital entrepreneurial bricolage.

Table 3: Participant characteristics

Code	Profile / Function	Business sector	Seniority (years)
E1	Incubator Manager	Entrepreneurial support	9
E2	Nursery Manager	Innovation	5
E3	CRI Representative	Regional development	6
E4	Institutional Manager	Digital transformation	10
E5	Entrepreneur	FinTech	6
E6	Entrepreneur	Digital services	3
E7	Teacher-researcher	Innovation and entrepreneurship	6
E8	Entrepreneur	AgriTech	7
E9	Entrepreneur	Digital logistics	5
E10	Territorial Manager	Economic development	4
E11	Entrepreneur	E-commerce	8
E12	Entrepreneur	Software development	7
E13	Entrepreneur	Digital marketing	10
E14	Public agency executive	Territorial investment	9
E15	Innovation expert	Advice	12
E16	Entrepreneur	Digital tourism	15
E17	Entrepreneur	Digital platforms	10
E18	Consultant	Digital transformation	9
E19	Association representative	Supporting startups	8
E20	Entrepreneur	IT Services	13

Source: Authors' elaboration based on interview data (Nvivo12)

The differences among the participants were by design in order to make sure that the phenomenon was covered from different viewpoints within the regional digital entrepreneurial environment. Entrepreneurs shared their experience on identification of opportunities, usage of digital tools, resource limitations, adjustments made, and entrepreneurial bricolage. Incubator representatives and support organizations shared their viewpoint on networking, funding, mentoring, and ecosystem assistance, while public and regional players shared insights regarding public policies, governance, infrastructure, and development initiatives. The voice of researchers, consultants and representatives of non-

government organizations enriched views regarding the territory. Thus, the analysis used both similar perceptions and opposite perceptions of the aforementioned groups. The emphasis was laid on the differences of entrepreneurial experience and institutional/supportive considerations so that it became possible to define whether the territorial policies and support provided corresponded with the real conditions faced by the digital entrepreneurs.

2.3.2. Data processing and analysis

The analysis of the data was conducted by employing reflexive thematic analysis (Braun & Clarke, 2006, 2019, 2021), a technique connected to the examination of complex and often not fully theoretical phenomena. The coding process was based on a flexible abductive reasoning, which contained features of both deductive and inductive approaches. The initial conceptual framework of the study outlined the ‘sensitizing concepts’ and guided writing the codes at the initial stages of the process, while at the same time leaving the participants’ accounts open for unexplored meanings. The developed codes thus resulted from interaction between the theoretical approach and data obtained during the research project. The suggested themes gradually emerged from the analysis of relationship and similarities among codes. After that the themes were verified against the data set to check the consistency and singularity of each of them. The researcher took a critical stance throughout the process to ensure that the theoretical framework and interpretations of the data were properly used for the coding process and theme formation. Throughout the coding process it was decided not to exclude contradictory information to ensure that the themes reflected the multifaceted character of participants’ experiences. After all interviews were transcribed fully, the obtained data set was imported into Nvivo12, which is software for data structuring and coding. The analysis and reasoning can be performed according to the logic of abductive reasoning. The logical steps of the analysis are as follows. In the first stage, open coding was employed to derive meanings, practices, and experiences surrounding the participants while not constraining them to any irrelevant theoretical framework. In the second stage of the analysis, interconnected codes were established into broader themes and tested against the initial hypotheses of the research. During the analysis, the idea of territorial digital entrepreneurial bricolage gradually came to light. Finally, results obtained during the analysis were incorporated into a refined model. In order to make the analysis credible and accountable, each theme is backed up by a quote from recorded interviews (E1 – E20). According to Guba and Lincoln (1994), scientific rigor includes four criteria: credibility (the range of interview

subjects), transferability (the scope of the context of the study), dependability through transparency of the analytical process, and confirmability through the traceability of interpretations to the empirical material. Nvivo 12 supported the organization and management of the dataset but was not considered a guarantee of validity, reliability, or interpretive quality. In terms of ethics, the participants were informed about the goals of the research, consented to it, and were guaranteed anonymity with regards to the collected information. By utilizing this framework, including the concept of Smart Territory, Smart Governance, Digital Entrepreneurial Ecosystem, and Entrepreneurial Bricolage, the following propositions were developed for the purposes of data collection and analysis:

P1: Territorial conditions, particularly the quality of digital infrastructure and territorial coordination capacity, constitute a determining factor in the development of digital entrepreneurship (Meijer & Bolívar, 2016; Gorelova et al., 2024).

P2: Interactions and collaborations among entrepreneurial ecosystem actors (entrepreneurs, incubators, institutions, support organizations) foster the development of digital entrepreneurship (Sussan & Acs, 2017; Spigel, 2017; Stam, 2015).

P3: Territorial governance, through institutional coordination between public and private actors, structures and facilitates the development of the digital entrepreneurial ecosystem (Meijer & Bolívar, 2016; Trencher, 2019; Almulhim, 2025).

P4: The contribution of digital entrepreneurship to smart territory construction is positively influenced by the availability of digital and institutional resources, while being less dependent on entrepreneurs' individual adaptive capabilities.

P5: Digital entrepreneurship directly contributes to territorial value creation, particularly in terms of attractiveness, competitiveness, employment, and sustainable development (Berman et al., 2023; Dana et al., 2022).

3. Analysis of results

Data analysis was conducted using a reflective thematic analysis approach assisted by Nvivo12. Following the open coding process and the progressive grouping of categories, five main themes emerged from the corpus. While these themes share several points of convergence with research propositions formulated based on the literature, their structure primarily stems from the empirical data collected from participants. Each theme is presented according to the same analytical logic. An initial descriptive reading is offered based on a word cloud and the main sub-themes identified. This step is followed by an in-depth analysis

based on representative verbatim transcripts, allowing for the interpretation of the actors' perceptions and highlighting the mechanisms observed in the field. Finally, the results are compared with previous work to evaluate the research propositions.

The interview guide combined questions derived from the theoretical model with open-ended questions designed to allow the emergence of unanticipated mechanisms. During the coding process, entrepreneurial bricolage progressively emerged as a transversal category linking several dimensions of the analysis.

3.1. Theme 1: Entrepreneurial adaptive capabilities as an emerging mechanism of territorial transformation

Although entrepreneurial bricolage was considered in the theoretical framework, the empirical analysis revealed a broader and context-specific mechanism. Rather than simply illustrating entrepreneurial bricolage, the findings point to a form of territorial digital entrepreneurial bricolage that emerged as an integrative mechanism linking the different dimensions of the analytical model. It focuses on adaptive capabilities to cope with the constraints of the territorial context. It emerged from the interviews and shows that entrepreneurs do not simply benefit from infrastructure or public policies; they develop adaptive capabilities to address the constraints of the territorial context. Analysis of the corpus reveals a set of entrepreneurial practices that go beyond the mechanisms identified in the theoretical framework. Participants describe adaptation strategies used to cope with constraints related to financing, geographical remoteness, available skills, and institutional limitations. The most frequent words in this theme are: «Adaptation; Solutions; Innovation; Resources; Learning; Experimentation; Flexibility; Network; Digital; Opportunities».

These results show that entrepreneurs are not only beneficiaries of the ecosystem; they become actors capable of recombining available resources in order to pursue their projects.

Highlighted in the following quotations is the actual practice, experience, and strategies followed by participants. What is remarkable here is that, apart from the methods discussed in the literature, entrepreneurs find new ways of adaptation that change the course of the territory.

E12: « We cannot wait for all the conditions to be met. We are moving forward with the resources available and adapting our model as we go. »

E8: « Many solutions we use today arose from local constraints rather than an initial plan. »

The data indicates that digital transformation is not only reliant on governance and infrastructure but also hinges on the talent of entrepreneurs to recombine resources at their disposal and convert territorial limitations into the opportunities for innovation. This prompted to the development of a new integrative analytical mechanism which was absent in the theoretical framework: territorial digital entrepreneurial bricolage. It can be defined as the skill of digital entrepreneurs to mobilize, recombine, and transform the material, digital, institutional, and relational resources available in a specific territory in order to create new solutions contrary to structural restrictions. While the idea arises from the concept of entrepreneurial bricolage (Baker & Nelson, 2005), it contributes to the literature by adding the special features of digital entrepreneurial ecosystems and peripheral territories.

3.2. Theme 2: Territorial conditions as a catalyst for digital entrepreneurship

Overall, the interviews suggest that geographic conditions, especially digital infrastructure, connectivity, funding opportunities, territorial characteristics, and institutional support make a crucial contribution to digital entrepreneurship. It was noted by the participants, that better connectivity makes it possible to access information, networks, and economic opportunities, while geographic and resource limitations make it necessary for entrepreneurs to adapt in a creative way through mobilizing available resources. Overall, these conditions allow the emergence of territorial digital entrepreneurial bricolage as the way of responding to local possibilities and limitations.

E15: « Today, without good connectivity, it is difficult to develop a sustainable digital business in Dakhla. Infrastructure is the starting point for everything else. »

E14: « Public investment has created a more favorable environment, but it is still necessary to strengthen support mechanisms and synergies between local actors. »

E7: « It's not just the technology that matters; it's above all the territory's ability to connect the different stakeholders around a common vision. »

On top of certain infrastructure features, the findings stress the importance of the territorial coordination capacity of institutions, entrepreneurs, and support organizations and their positive impact on communication. In Dakhla-Oued Eddahab, such a territorial condition provides ground for entrepreneurial practices that are adaptive in nature. Though this idea appears in some studies focused on entrepreneurial ecosystems (Spigel, 2017, Stam, 2015), the results prove that this idea is especially relevant for peripheral regions where connections among the actors are crucial. Thus, the results confirm Proposition P1 and, at the same time,

broaden its applicability by describing the territorial coordination capacity as an additional mechanism. Moreover, the findings show that the favorable territorial conditions do not lead directly to the development of digital entrepreneurship, but contribute to the establishment of the environment within which entrepreneurs utilize territorial digital entrepreneurial bricolage in order to overcome local obstacles. This insight will be presented in the revised theoretical model.

3.3. Theme 3: Ecosystem interactions as a driver of digital entrepreneurship

This theme emphasizes the importance of cooperation among actors in an entrepreneurial ecosystem in initiating digital inventions. The lexical analysis indicates a high prevalence of words such as collaboration, network, partnership, support, incubator, startup, shared trust, and sharing, focusing on the significance of relationship as opposed to resources availability. Unlike the previous theme, which focused on territorial conditions, this theme shows that the success of entrepreneurial projects largely depends on the ability of the various actors entrepreneurs, institutions, incubators, universities and support structures to build lasting relationships that promote the circulation of knowledge, skills and business opportunities. Participants emphasize that the performance of digital companies depends less on individual resources than on their ability to mobilize a network of partners and to adopt a collaborative approach.

E11: « At the beginning, we had limited resources, but thanks to exchanges with other entrepreneurs and support structures, we were able to develop our project much more quickly. »

E14: « Incubators play a networking role. They allow entrepreneurs to meet investors, experts, and partners they would never have been able to approach on their own. »

E13: « The projects that succeed are those built with partners from the beginning. Cooperation has become one of our most valuable strategic resources. »

E19: « Today, value no longer comes solely from the company, but from its ability to work with the entire ecosystem. »

The analysis highlights that interactions between actors constitute a structuring factor of the digital entrepreneurial ecosystem. The data shows that cooperation networks not only facilitate access to resources and funding, but also the circulation of knowledge, collective learning, and the identification of new entrepreneurial opportunities. Beyond the traditional

forms of collaboration described in the literature, the interviews reveal a dynamic based on adaptive cooperation, characterized by flexible, evolving partnerships built according to project needs. This approach transcends formal institutional collaborations and reflects a strong capacity among stakeholders to adapt to local constraints.

The outcomes reinforce the necessity of dynamic and flexible collaboration among various players from a particular territory. Such collaborative processes include the sharing of resources, addressing barriers, and encouraging entrepreneurial innovations. Contrary to treating the 'adaptive ecosystem cooperation' as a separate theoretical concept, the results are interpreted as an empirical dimension of territorial digital entrepreneurial bricolage, demonstrating how entrepreneurs and other actors of the ecosystem create relations and partnerships to counteract their resource deficiency and exploit new opportunities. Such results complement findings of Spigel (2017) and Stam (2015) due to their emphasis on social networking processes and interactions within entrepreneurial ecosystems, revealing that such processes may take informal, flexible forms in a remote setting like Dakhla-Oued Eddahab. Overall, the outcomes confirm Proposition P2, demonstrating further relational character of territorial digital entrepreneurial bricolage.

3.4. Theme 4: Territorial governance as a lever for coordinating the digital ecosystem

The third theme underscores the importance of territorial governance in establishing the configuration of the digital entrepreneurship ecosystem. The analyses performed using NVivo 12 revealed repetition of keywords such as governance, coordination, institution, public policy, partnership, data, services, steering, and vision that are indicative of the significance placed on the coordination mechanism shared with public and private actors.

Unlike the previous themes, which focused respectively on territorial resources and relationships between stakeholders, this theme emphasizes that the creation of a smart territory also depends on the capacity of institutions to ensure coherent governance, coordinate initiatives, and foster a shared vision of digital development.

Participants believe that the development of digital entrepreneurship depends not only on individual initiatives, but also on the ability of territorial institutions to coordinate the various actors in the ecosystem.

E3: « Our role is primarily to create an environment that facilitates private initiatives, by simplifying procedures and strengthening partnerships. »

E9: «When institutions coordinate effectively, it becomes much easier for entrepreneurs to launch projects and build partnerships. »

The findings demonstrate that territorial governance represents an integrating instrument that connects all actors in the entrepreneurial ecosystem. Interviewees stressed more the importance of institutional coordination instead of proliferation of various public programs. Going beyond the governance instruments mentioned in the literature, the interviews suggest that successful territorial governance is characterized by flexible coordination between public authorities, entrepreneurs, support institutions, and private partners. This coordination does not imply an analytical instrument, but rather is a way to improve the territorial digital entrepreneurship ecosystem by allowing all parties involved to access the required information and institutional assistance. Therefore, findings support the ideas of Meijer (2016), Trencher (2019), and Almulhim (2025), proving that in the region of Dakhla-Oued Eddahab smart governance does not depend much on technological developments but rather on the ability of the actors to create the territorial coordination mechanisms. In summary, results support Proposition P3 but provide further clarification of the proposition. Instead of merely treating governance as a coordinating mechanism, results show that governance creates institutional conditions enabling entrepreneurs to engage in digital territorial entrepreneurship. This points to the crucial role of governance in facilitating flexible entrepreneurship practices in peripheral regions.

3.5. Theme 5: Towards territorial value creation based on digital entrepreneurship

The final theme explores the relationship between digital entrepreneurship and territorial value creation in the Dakhla-Oued Eddahab region. Based on the previous themes, findings show territorial value is the result of the interaction between favorable territorial conditions, ecosystem cooperation, governance mechanisms, and entrepreneurship adaptive capabilities. Respondents understand digital transformation as the creation of innovative businesses and other implications such as regional attractiveness, competitiveness, employment, inclusion, and sustainability.

The most frequently used words in this theme are value, development, territory, employment, attractiveness, innovation, growth, competitiveness, investment, and sustainability, reflecting a comprehensive view of the contribution of digital entrepreneurship to regional development. The verbatim quotes below show that the actors do not perceive digital entrepreneurship as an end in itself, but as a lever for economic, social and territorial transformation.

E8: « Digital startups create much more than just businesses. They attract talent, investors, and give the region a new image. »

E5: « Digital technology now makes it possible to develop activities that were previously unimaginable in Dakhla. »

E18: « If all stakeholders continue to work together, digital technology can become a true driver of sustainable territorial development. »

The researcher's findings provide evidence that territorial value creation does not stem from the digital technologies themselves. Rather, it is a result of interactivity between digital infrastructure, collaboration ecosystem, territorial governance, and entrepreneurs' adaptive capabilities to utilize the local resources. Together, all the above-mentioned elements create a more powerful process of territorial digital entrepreneurial bricolage, involving the generation of various economic, social, and territorial benefits through entrepreneurial initiatives. The findings of the investigation prompt the authors to reflect on the issue of moving beyond the linear concept of digital transformation. The data show that digital entrepreneurship serves as a mechanism for orchestrating territories since entrepreneurs become not only business creators but also agents of economic, social, and institutional transformation of the territory. Therefore, the value created goes beyond the economic indicators. Overall, the outcomes of the study prove proposition P5 while substantiating it. This integrative mechanism connects territorial conditions, ecosystem interactions, governance, and entrepreneurial adaptability, providing a more comprehensive explanation of how smart territories emerge in peripheral regional contexts such as Dakhla-Oued Eddahab.

4. Discussion of results

The findings both confirm and extend the existing literature while also challenging certain assumptions of the theoretical framework. First, the results confirm the importance of digital infrastructure, stakeholder collaboration, entrepreneurial ecosystems, and place-based governance in supporting digital entrepreneurship and territorial development. These findings are consistent with Nambisan (2017), Sussan and Acs (2017), Stam (2015), and Spigel (2017), who emphasize the role of digital technologies, networks, institutional support, and ecosystem interactions in entrepreneurial value creation. The findings therefore support the propositions concerning the contribution of digital entrepreneurship, ecosystem interactions, and governance to the development of territorial dynamics.

Secondly, the results broaden these perspectives by indicating that access to territorial and ecosystem resources cannot account for the ways in which digital entrepreneurship affects territory transformation. Entrepreneurs are able to react to local context, repurpose available resources, build partnerships, and convert obstacles to opportunities. The mechanism of territorial digital entrepreneurial bricolage emerges from these practices, which articulates the link between territorial resources or ecosystem interactions and generation of entrepreneurial value. This finding advances the research on entrepreneurial ecosystems (Stam, 2015; Spigel, 2017), emphasizing the importance of entrepreneurial agency and resource recombination in peripheral regions.

The results are in conflict with the premise of P4, which states that the role of digital entrepreneurs is largely determined by the availability of resources, regardless of the adaptive capabilities of entrepreneurs. The empirical data failed to support P4. The results demonstrate that resources do not automatically become sources of entrepreneurial and territorial value. Their conversion into opportunities depends on the entrepreneurs' capacity to adapt, combine the resources, and use relationships within the ecosystem. This finding has a theoretical value in that it implies that territorial resources must be seen not only as enabling factors but also as valuable resources, which need to be activated by entrepreneurs.

In general, this study provides improvements in the field by merging digital entrepreneurship, entrepreneurial ecosystems, smart governance and smart territory using a multilevel approach, thus demonstrating that territorial digital entrepreneurial bricolage can serve as a link between territory-related circumstances, ecosystem-related processes and entrepreneurial activities. The outcomes of the research also indicate that the nature of public policies on building investment in the field of digital infrastructure should be more multifaceted and should include the improvement of entrepreneurial capabilities, networks, mechanisms of collaboration and opportunities for resource mobilization. Even though the study has been conducted based on Dakhla-Oued Eddahab, this knowledge may serve as a basis for analysis of other peripheral territories undergoing processes of digital transformation.

Conclusion

This research aimed to understand how digital entrepreneurship contributes to the development of a smart territory in the Dakhla-Oued Eddahab region. Using a qualitative approach based on a case study and thematic analysis of interviews, the results show that this contribution relies not only on the development of digital technologies, but also on the

interplay between territorial conditions, interactions within the entrepreneurial ecosystem, collaborative governance, and the adaptive capabilities of stakeholders. These results thus provide a nuanced answer to the initial research question by demonstrating that the digital transformation of a territory is a collective, contextualized, and evolving process.

Table 4: Theoretical Contribution

Concept	Primary object	Level of analysis	Main resources	Context / focus	Main limitation addressed by the proposed framework
Entrepreneurial Bricolage	Creative use and recombination of resources under constraints	Micro	Available material, human, and organizational resources	Entrepreneurial action	Limited attention to broader territorial and ecosystem effects
Digital Entrepreneurship	Creation and development of digitally enabled entrepreneurial activities	Micro	Digital technologies, platforms, knowledge, and digital capabilities	Digital entrepreneurial activity	Limited integration of territorial and institutional dynamics
Entrepreneurial Ecosystem	Interactions among entrepreneurs, institutions, networks, and support organizations	Meso	Networks, funding, knowledge, support, and partnerships	Ecosystem relationships	Limited explanation of how entrepreneurs creatively respond to territorial resource constraints
Smart Territory	Territorial transformation through digitalization, innovation, governance, and collaboration	Meso / Territorial	Digital infrastructure, institutional resources, territorial assets	Territorial development	Limited attention to micro-level entrepreneurial practices and resource recombination
Territorial Digital Entrepreneurial Bricolage	Adaptive recombination of digital, territorial, institutional, and relational resources to transform constraints into opportunities	Multi-level	Material, digital, institutional, human, and relational resources	Peripheral and resource-constrained territories	Integrates entrepreneurial agency, ecosystem interactions, and territorial conditions to explain how digital entrepreneurs contribute to territorial value creation

Source: Authors

This study, however, has certain limitations. The results are based on a single case and a limited number of participants, which does not allow for statistical generalization of the conclusions. Furthermore, the analyses reflect the perceptions of the interviewees at a specific point in the territorial transformation. These limitations open up several avenues for research. Comparative studies between different Moroccan or African regions would allow for an assessment of the transferability of the proposed model. Quantitative or mixed-methods research could also empirically test the relationships identified between the different mechanisms of the adjusted model. Finally, a more in-depth exploration of the concept of territorial digital entrepreneurial bricolage in other territorial contexts would help to clarify its role in the processes of digital transformation and the development of smart territories.

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