

Toward a Model of Entrepreneurial Uncertainty Reduction Mechanisms: Insights from Moroccan Incubators.

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Pour citer cet article : EL BEKRI .A & TORRA .M (2026) « Toward a Model of Entrepreneurial Uncertainty Reduction Mechanisms: Insights from Moroccan Incubators », African Scientific Journal « Volume 03, Num 38 » pp: 001 – 034.



DOI : 10.5281/zenodo.22791442

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Abstract

This article examines the mechanisms through which Moroccan incubators contribute to reducing the entrepreneurial uncertainty faced by the ventures they support. The study adopts a qualitative approach based on ten semi-structured interviews conducted with managers of Moroccan incubators. The empirical sample comprises ten incubators with diverse organizational profiles, operating across different sectors and supporting ventures at various stages of development. The data were analyzed using MAXQDA software through a cross-case analysis. The findings reveal five main mechanisms through which incubators address entrepreneurial uncertainty: project structuring and monitoring, experimentation and market validation, learning through adjustment, access to resources and expertise, and intermediation and networking. These mechanisms do not follow a uniform sequence; rather, their mobilization evolves in response to needs that emerge as the venture develops. The study therefore proposes a configurational and adaptive model in which incubators contribute not by eliminating uncertainty, but by providing entrepreneurs with reference points, information, and courses of action that enable them to revise their decisions and move their ventures forward despite residual uncertainty. The Moroccan context emerges as a condition shaping how these mechanisms operate, particularly in light of the administrative, financial, and market-related constraints that ventures may encounter. The article thus contributes to an empirically grounded understanding of incubation that emphasizes the adaptation of support practices to the evolving needs of entrepreneurial ventures.

Keywords: entrepreneurial uncertainty; incubators; entrepreneurial support; incubation mechanisms; innovative entrepreneurship; Morocco.

1. Introduction

Entrepreneurship involves making decisions while some of the information required to do so remains unknown. This situation is particularly pronounced when a venture is still taking shape: future demand is difficult to anticipate, the relevance of the offering has yet to be fully established, and the resources required for its development are not always accessible. Uncertainty is therefore an inherent condition under which entrepreneurial action unfolds. Knight's (1921) seminal distinction between risk and uncertainty provides a foundation for understanding this issue, while McMullen and Shepherd (2006) more directly show that entrepreneurial action requires individuals to decide and act despite the uncertainty surrounding an opportunity. The challenge for entrepreneurs, therefore, is not necessarily to wait until uncertainty disappears, but rather to develop the ability to act, learn, and revise their decisions as new information becomes available. It is within this context that entrepreneurial support becomes particularly relevant. Incubators work with ventures that are still under development, providing various forms of support, including monitoring, mentoring, access to knowledge and resources, opportunities for experimentation, and connections with actors in the entrepreneurial ecosystem. Recent research on the incubation process suggests that context, interventions, underlying mechanisms, and associated outcomes should be considered jointly (Sohail et al., 2023). This perspective shifts the focus of analysis: rather than simply identifying what incubators provide to entrepreneurs, the aim is to understand how their practices can help entrepreneurs better understand their situation, test their assumptions, and make decisions under conditions of uncertainty.

This question deserves particular attention in the Moroccan context. Existing research has notably examined university-based support structures, highlighting the development of academic incubation as well as some of the challenges affecting their operation, particularly those related to resources, financing, and the administrative environment (Elyoussoufi Attou et al., 2019; El Afqih & Messaoudi, 2025). While these studies provide useful insights into university incubation, the present research examines a more diverse set of entrepreneurial support organizations. The objective of this article, however, is not to assess the performance of Moroccan incubators, but to understand, through an examination of their practices, how the support they provide addresses the uncertainty faced by entrepreneurial ventures. Accordingly, the following research question is

addressed: Through what mechanisms do Moroccan incubators contribute to reducing the entrepreneurial uncertainty faced by the ventures they support?

To address this question, the study draws on qualitative research conducted with ten managers of Moroccan incubators. Based on the data collected, the analysis seeks to identify the mechanisms through which support practices contribute to making certain dimensions of uncertainty progressively more manageable. On this basis, the article develops a model that articulates these mechanisms and is grounded in the empirical findings. Following a presentation of the theoretical framework on entrepreneurial uncertainty and incubation, the article describes the methodological approach and presents the study's findings. These findings are then discussed to highlight the main theoretical and managerial contributions, before addressing the study's limitations and avenues for future research.

2. Theoretical Framework and Literature Review

Analyzing the mechanisms through which incubators contribute to reducing entrepreneurial uncertainty requires bringing together two streams of literature. The first focuses on the uncertainty inherent in entrepreneurial action and the conditions under which entrepreneurs make decisions when available information remains incomplete and the outcomes of their actions cannot be fully anticipated. The second focuses on incubation and, more specifically, on the forms of support through which incubators assist entrepreneurs in developing their ventures.

Bringing these two perspectives together makes it possible to move beyond an understanding of incubation centered solely on the services or resources provided. Instead, it raises the question of what these interventions produce within the entrepreneurial process and which mechanisms may help entrepreneurs better navigate uncertain situations. This perspective is particularly relevant to the present research, which does not seek to measure incubator performance, but rather to understand how their support practices operate in the face of uncertainty.

Accordingly, the literature review is organized into three parts. First, it clarifies the concept of entrepreneurial uncertainty and its relationship with entrepreneurial action and decision-making. Second, it examines the literature on incubators and the mechanisms through which entrepreneurial support may operate under conditions of uncertainty. Finally, bringing these two bodies of literature together provides the basis for positioning the present research and identifying the theoretical gap that the empirical study seeks to address.

2.1. Entrepreneurial Uncertainty

Uncertainty is a central dimension of entrepreneurial action. Knight's (1921) distinction between risk and uncertainty provides one of its major theoretical foundations. Whereas risk refers to situations in which probabilities can be estimated, uncertainty characterizes situations that cannot be reduced to known probabilities. This distinction is particularly relevant in entrepreneurship, where decisions frequently concern novel situations whose consequences remain difficult to anticipate. Entrepreneurs must therefore exercise judgment without having all the information that would allow them to determine the outcomes of their actions in advance.

The relationship between uncertainty and action is further developed by McMullen and Shepherd (2006). The authors show that entrepreneurial action depends jointly on perceived uncertainty and an individual's willingness to bear that uncertainty. Uncertainty is therefore not merely a characteristic of the environment in which entrepreneurs operate; it also shapes how they assess a situation and decide whether to act. This perspective helps explain why entrepreneurial action may be undertaken even when the opportunity and its future outcomes are not fully known.

The inability to predict the future accurately also calls for decision-making logics suited to conditions of uncertainty. In this regard, Sarasvathy (2001) distinguishes between causation and effectuation. Causation is primarily based on prediction: a goal is defined and the means required to achieve it are then identified. Effectuation, by contrast, emphasizes a logic of control, whereby entrepreneurs begin with the means available to them and progressively construct a range of possible outcomes. Uncertainty therefore does not necessarily have to be eliminated before action can occur; entrepreneurs can move forward based on what they know, what they can mobilize, and the possibilities that emerge throughout the process.

Taken together, these studies suggest that uncertainty should be understood as a condition that entrepreneurs must navigate rather than as a phenomenon that can be entirely eliminated. In this study, reducing uncertainty therefore does not mean making it disappear. Rather, it refers to the process through which certain dimensions of uncertainty become progressively more manageable, particularly as entrepreneurs acquire new information, test their assumptions against real-world conditions, and gain new elements that enable them to adjust their decisions. This conceptualization shifts the analysis toward the role of entrepreneurial support and, more specifically, toward understanding how incubator practices can contribute to this process.

2.2. Incubators and the Management of Uncertainty

Incubators play a distinctive role in supporting ventures during their creation and development. Their intervention is not limited to providing physical space. Incubation models have progressively incorporated various forms of support designed to assist the development of entrepreneurial ventures. Bergek and Norrman (2008) identify three components that characterize incubation models: selection, business support, and mediation. Mediation refers, in particular, to the way incubators connect the ventures they support with relevant actors in their environment. Incubation can thus be understood as a combination of support practices whose configuration varies according to the characteristics and objectives of each incubator.

This evolution is also reflected in the analysis proposed by Bruneel et al. (2012), who show that incubation models have expanded over time. Initial functions centered on infrastructure and material resources were progressively complemented by business support services and greater access to networks. The authors nevertheless emphasize that the availability of a range of services alone is insufficient to characterize the support actually mobilized by incubated ventures; the use of these services and their alignment with venture needs must also be considered. This observation suggests that incubation should not be reduced to an inventory of available services.

Subsequent research further confirms the diversity of dimensions that constitute the incubation process. The systematic review by Hausberg and Korreck (2020) highlights selection, monitoring and assistance, resource provision, business support, and mediation as important dimensions of the incubation process. It also shows that several theoretical perspectives, particularly those based on resources, social capital, and open innovation, have been used to understand how incubators support the ventures they assist. Incubators can therefore be viewed not only as providers of resources but also as intermediaries capable of facilitating access to knowledge and relationships that may not be readily available within young ventures.

More recently, Sohail et al. (2023) propose examining the incubation process through the interplay between context, interventions, mechanisms, and outcomes. Their systematic review, structured around the Context–Intervention–Mechanism–Outcome (CIMO) framework, emphasizes the need to understand how different interventions may activate mechanisms that lead to particular outcomes depending on the context in which incubation takes place. This approach is particularly relevant to

the present research because it shifts the analytical focus from the services provided to the mechanisms through which entrepreneurial support operates.

However, these studies do not justify directly equating incubation with uncertainty reduction. The main frameworks addressing incubation primarily examine forms of support, resources, networks, processes, and the outcomes associated with entrepreneurial support. Bringing this literature into dialogue with research on entrepreneurial uncertainty instead leads to an analytical proposition: certain incubation practices may contribute to making some dimensions of uncertainty progressively more manageable, particularly by providing entrepreneurs with access to information, resources, expertise, interactions, and opportunities to test their ventures against real-world conditions. The remaining question is therefore to determine the mechanisms through which these practices actually operate in the face of uncertainty, rather than assuming their effects.

2.3. Research Positioning and Theoretical Gap

Bringing together the literature on entrepreneurial uncertainty and incubation reveals an important point of convergence. On the one hand, research on entrepreneurial action shows that entrepreneurs must act and make decisions without being able to fully anticipate the outcomes of their choices (McMullen & Shepherd, 2006; Sarasvathy, 2001). On the other hand, incubation research highlights various forms of intervention, including business support, access to resources, and mediation, that may shape the conditions under which entrepreneurs develop their ventures (Bergek & Norrman, 2008; Bruneel et al., 2012; Hausberg & Korreck, 2020). Recent studies further call for greater attention to the mechanisms linking incubation interventions to observed outcomes, while taking into account the context in which these interventions occur (Sohail et al., 2023).

The relationship between incubation and uncertainty, however, is not absent from the literature. Friesl et al. (2019) examine this relationship in the specific context of technological uncertainty within science incubation. More recently, Wang et al. (2026) explicitly draw on uncertainty and entrepreneurship theories to develop a framework of incubation mechanisms within entrepreneurial support organizations. These studies confirm the relevance of uncertainty as an analytical lens for examining entrepreneurial support. They also show that the relationship between incubation and uncertainty can no longer be regarded as an entirely unexplored area of research. Nevertheless, the empirical understanding of the mechanisms through which incubation practices address uncertainty remains contingent on the forms of support and the contexts examined.

The present research builds on this stream of literature by adopting an empirical perspective centered on the practices reported by incubator managers. It does not assume that a particular service automatically leads to a reduction in uncertainty; rather, it seeks to identify how different support practices contribute to making certain dimensions of uncertainty progressively more manageable. By examining ten incubators with diverse profiles, the study explores these mechanisms within the Moroccan context and develops a model of their configuration based on recurring patterns observed in the data.

3. Methodology

This research adopts a qualitative approach aimed at understanding, based on the practices reported by incubator managers, the mechanisms through which support can contribute to making certain dimensions of entrepreneurial uncertainty progressively more manageable. The empirical study presented in this article relies exclusively on interviews conducted with ten managers of support organizations operating in Morocco, anonymized using the codes I1 to I10. The diversity of these organizations in terms of their status, the ventures they support, and their modes of intervention makes it possible to examine both convergences and variations in the practices observed.

This section first presents the research approach, followed by the characteristics of the research setting and sample, the data collection procedures, and the analytical process conducted using MAXQDA. The aim is to make explicit the methodological process through which the data collected led to the identification of the mechanisms presented in the results.

3.1. Research Approach

This research is grounded in an interpretivist epistemological perspective, consistent with its aim of understanding support practices through the meanings and experiences reported by incubator managers and within the organizational contexts in which these practices take place. Rather than seeking to test predetermined causal relationships, the study examines how support practices operate in situations of entrepreneurial uncertainty and how the actors involved make sense of these practices. The research follows an abductive mode of reasoning, involving an iterative dialogue between existing theoretical concepts and empirical observations. The literature on entrepreneurial uncertainty and incubation provided an initial conceptual orientation for the analysis, while the examination of the interview data allowed recurring patterns and relationships to emerge and progressively refine the interpretation. This iterative process is particularly appropriate when

empirical analysis is used not simply to confirm an existing framework but to develop theoretically informed explanations grounded in the data (Timmermans & Tavory, 2012).

This research adopts a qualitative approach aimed at understanding the mechanisms through which incubators' support practices operate in the face of entrepreneurial uncertainty. This choice reflects the exploratory and interpretive nature of the research question: the aim is not to measure the effect of incubation on a performance indicator, but to examine the practices implemented, the underlying logics that inform them, and how they may contribute to making certain dimensions of uncertainty progressively more manageable.

The research follows a multiple-case study design. This type of design makes it possible to examine a phenomenon within its context and to compare several empirical configurations in order to identify convergences and differences (Yin, 2018). In this respect, each incubator constitutes a case through which support practices can be examined within a specific organizational configuration. Cross-case comparison is then used to identify regularities and variations that may shed light on the mechanisms under study. This approach is consistent with the comparative logic proposed by Eisenhardt (1989), whereby the systematic comparison of cases helps recurring patterns emerge while maintaining a close connection between analytical constructs and empirical data.

The analysis therefore adopts a cross-case perspective on the practices reported by the managers of the organizations studied. It does not seek to establish a causal relationship between incubation and entrepreneurial performance, but rather to develop an understanding of the mechanisms through which different support practices may operate in the face of uncertainty, through an iterative interpretation of empirical observations in light of existing theoretical concepts.

3.2. Research Setting and Sample

The research setting consists of ten support organizations operating in Morocco, anonymized using the codes I1 to I10 to preserve participants' confidentiality. The sample reflects considerable organizational diversity: it includes private, university-based, public, and semi-public organizations, as well as organizations specializing in different fields, including digital technology, craftsmanship, and green entrepreneurship. The ventures supported are also diverse, ranging from early-stage idea holders to innovative start-ups engaged in market validation or development processes.

Case selection follows a qualitative logic of diversification rather than an objective of statistical representativeness. The value of the ten cases therefore lies in the variety of support configurations they allow the study to examine. The organizations differ in terms of their status, the ventures they support, their length of operation, and their modes of intervention. Some place particular emphasis on learning by doing or rapid market validation, whereas others rely more heavily on science-based entrepreneurship, technological infrastructure, or specialized support. This diversity provides an empirical basis for comparing practices and identifying mechanisms that recur across cases or, conversely, remain specific to particular organizational configurations.

3.3. Data Collection

The data used in this article were drawn from ten semi-structured interviews conducted with managers of support organizations operating in Morocco. Semi-structured interviews made it possible to organize the discussions around themes related to the research question while allowing participants to elaborate on their experiences, practices, and understanding of the situations they encountered. This data collection method is particularly well suited to a qualitative approach seeking to understand practices and experiences through the accounts of the actors concerned. In this regard, the methodological literature emphasizes the value of an interview guide that is sufficiently structured to ensure consistency across interviews while retaining the flexibility required for qualitative exploration (Kallio et al., 2016).

The interviews were conducted face-to-face and lasted approximately 40 minutes each. They were audio-recorded to ensure an accurate record of the discussions for subsequent processing and analysis. This data collection method also made it possible to maintain a common structure across the interviews while allowing certain issues to be explored in greater depth depending on participants' responses.

The interview guide covered the main dimensions of entrepreneurial support, including the forms of support provided to ventures, validation and experimentation, learning and adjustment processes, access to resources, relationships with ecosystem actors, and the difficulties encountered by the entrepreneurs supported. Particular attention was also paid to how the managers interviewed perceived the uncertainty faced by the ventures they support and the practices used to address it.

To preserve the confidentiality of participants and organizations, the data were anonymized, and each incubator was assigned a code ranging from I1 to I10. This anonymization was maintained throughout the analytical process and in the presentation of the findings.

Quotations from interview participants were translated from French into English by the authors; the wording was kept as close as possible to the original statements.

3.4. Data Analysis

The interview data were analyzed using MAXQDA software following a thematic coding approach. The qualitative analysis involved identifying and grouping segments of discourse related to the various dimensions of entrepreneurial support and then examining their presence and articulation across the ten cases studied. The coding process led to the identification of seven main categories: support mechanisms, uncertainty reduction, access to resources, coordination among actors, institutional legitimation, the Moroccan context, and factors of success and failure.

The analysis was then conducted from a cross-case perspective to identify convergences and variations across incubators. MAXQDA functionalities, particularly the Code Matrix Browser, were used to examine the distribution of categories across cases and facilitate comparison. These tools made it possible to visualize how the categories were distributed and to identify both similarities and specificities among the organizations studied. This comparative analysis was not based solely on the frequency of code occurrences; it also considered the content of the coded segments and their meaning within the context of the practices described by the managers interviewed.

For the specific purposes of this article, a targeted analysis of the categories and coded segments was conducted in relation to the research question concerning entrepreneurial uncertainty reduction. This step made it possible to bring together practices that, across the different cases, shed light on how support operates in the face of uncertainty. The analysis thus revealed five mechanisms around which the findings are organized: project structuring and monitoring, experimentation and market validation, learning through adjustment, access to resources and expertise, and intermediation and networking. These mechanisms do not correspond to five predetermined MAXQDA codes; rather, they constitute analytical groupings developed a posteriori through a cross-cutting analysis of the coded data.

4. Results

The cross-case analysis of the ten interviews highlights several practices through which incubators address situations of uncertainty faced by the ventures they support. Despite the diversity of the organizations studied, the participants' accounts reveal recurring patterns in their modes of intervention. These practices were grouped into five analytical mechanisms: project structuring and monitoring, experimentation and market validation, learning through adjustment, access to resources and expertise, and intermediation and networking.

These mechanisms should not be understood as successive stages of a uniform process. They may be mobilized at different points throughout the support process and combined according to the characteristics of the venture, its stage of development, and the specific modes of intervention adopted by each incubator. They are presented separately here for analytical clarity, before the next section examines how they are configured within the proposed model.

4.1. Project Structuring and Monitoring

Project structuring emerges as a first recurring mechanism across the support practices observed. It takes the form of training, mentoring, coaching, and operational support, as well as monitoring practices designed to help ventures move forward on the basis of more clearly defined objectives and actions. Incubators intervene, in particular, in developing the business model, clarifying the value proposition, conducting market research, and preparing the subsequent stages of venture development. These various forms of intervention are found across several cases, although their combination and intensity vary among organizations.

At I5, project structuring is embedded in a support approach strongly oriented toward action and the market. The manager describes this approach as follows:

"Our model is based on practical training, mentoring, networking, and access to operational resources. Our approach is results-oriented, with personalized support enabling project holders to move quickly from idea to market." (I5)

This case illustrates an approach to support in which structuring is not limited to the transmission of knowledge. Instead, it combines several forms of support to help project holders progressively transform an initial idea into concrete actions oriented toward market testing.

A different approach emerges at I4, where project structuring is more closely associated with learning by doing and clarifying the direction of the venture. The manager emphasizes this point:

"Entrepreneurial support is provided through practice, testing, and perseverance, even in the event of failure. Entrepreneurs also need to have a clear medium- and long-term vision before moving into operational activity." (I4)

Here, structuring appears as a process that combines forward planning with engagement in action. The venture is not treated as fully stabilized before implementation; its development also depends on the lessons drawn from testing and experience.

Monitoring constitutes another component of this mechanism. At I3, it is based on regular exchanges, observation of the venture's progress, and the adjustment of priorities according to its stage of development. The manager states:

"Monthly exchanges, updates of activity KPIs. Each stage has its own priorities / orientation toward the most suitable support programs." (I3)

In this case, monitoring is not limited to maintaining contact with the entrepreneur. It enables the venture's progress to be periodically reassessed and support to be adjusted according to the priorities that emerge as the venture develops. More broadly, this logic is reflected in the individualized monitoring practices observed across several organizations, although their specific modalities differ from one incubator to another.

Cross-case comparison thus reveals a shared emphasis on providing ventures with reference points to guide their progress, while also highlighting distinct approaches: a results-oriented approach at I5, a combination of vision and learning by doing at I4, and periodic monitoring adapted to the venture's stage of development at I3. These differences reflect the heterogeneity of the organizations studied and the ventures they support.

In relation to the research question, structuring and monitoring can therefore be interpreted as a first mechanism for progressively reducing entrepreneurial uncertainty. They do not make it possible to predict the outcome of a venture or eliminate the uncertainty surrounding it. Rather, they help clarify the venture's direction, establish reference points, and periodically reassess priorities as it develops. Support can therefore make certain dimensions of uncertainty progressively more manageable by providing entrepreneurs with elements that help them move forward and adjust their decisions as the venture takes shape.

4.2. Experimentation and Market Validation

Experimentation and market validation constitute a second mechanism through which incubators support ventures facing uncertainty. Across several cases, support encourages entrepreneurs not to base their decisions solely on their initial assumptions, but rather to progressively confront their ventures with real-world conditions. This confrontation can take various forms, including market validation, prototyping, testing, simulations, or the development of a prototype or MVP. The interviews show, however, that the extent to which these practices are used is not uniform and depends, in particular, on the type of venture and the resources available to the support organization.

This logic is particularly explicit at I1, where experimentation constitutes a central and formalized stage of the program. The manager emphasizes the need to confront entrepreneurs with concrete field-based actions:

"We push founders to prove that they have carried out field actions." (I1)

In this case, experimentation serves to test entrepreneurial assumptions. The purpose is not merely to develop an internally coherent proposition, but to obtain evidence through action that helps determine whether the assumptions made hold up when confronted with real-world conditions. This orientation is consistent with I1's model, which is based, in particular, on learning by doing and includes support for market validation.

At I4, experimentation is more closely linked to the technical maturation of the venture. Support is adapted to the venture's stage of development: ventures that are still at the idea stage receive support in developing their business model and development plan, while those that have reached the prototype or MVP stage can access the organization's technological platforms and network.

The manager explains:

"For the Prototype or MVP phase, we help the project holder move forward on the technical side by facilitating access to our technological platforms or by connecting them with our internal or external network to accelerate the launch of their solution on the market." (I4)

The I4 case thus shows that experimentation is closely linked to the venture's stage of maturity. Progression from the idea stage to a POC and then to a prototype or MVP is accompanied by different forms of support. Market confrontation is therefore associated with technical progress that makes the solution sufficiently concrete for further validation.

This logic, however, is not implemented in the same way across all organizations. At I9, experimentation is notably organized through "simulations," with the manager also noting that the emphasis placed on experimentation may depend on the venture and its sector. At I10, the modalities appear even more dependent on available resources, with experimentation phases organized "according to existing possibilities and means." These cases introduce an important variation: while exposing the venture to testing situations is observed across several organizations, the degree of formalization and the resources mobilized are not uniform.

Cross-case comparison thus reveals a shared orientation toward progressively confronting the venture with observable evidence, albeit through different modalities: field-based validation at I1, progression from POC to prototype or MVP supported by technological platforms at I4, simulations at I9, and experimentation conditioned by available resources at I10. Experimentation therefore appears less as a standardized procedure than as a set of practices adapted to the nature of the venture, its stage of development, and the capacities of the support organization.

In relation to the research question, experimentation and market validation constitute a second mechanism for progressively reducing entrepreneurial uncertainty. Their contribution does not lie in the ability to definitively predict market response or the future viability of the venture. Rather, they make it possible to confront certain assumptions with empirical evidence—field feedback, technical feasibility, test results, or progress toward a prototype—thereby generating new information on which entrepreneurs can base their decisions. In this sense, experimentation helps make certain dimensions of uncertainty progressively more manageable by replacing some initial assumptions with evidence derived from the venture's confrontation with its environment.

4.3. Learning, Adjustment, and Pivoting

A third mechanism emerges from the interviews: support does not consist solely of helping entrepreneurs test their ventures, but also of helping them draw lessons from the results obtained and revise their trajectory when necessary. Several organizations thus link learning to reflection on experience, coaching focused on errors and adjustments, and successive modifications to the venture. This orientation is particularly evident at I2, I3, I4, and I6, which mention individual coaching centered on errors and adjustments.

At I3, this logic is particularly evident in the way failure situations are handled. Rather than immediately treating an unfavorable outcome as the end of the venture, support first seeks to understand the reasons behind it and to consider the possibility of reorientation:

"In the event of failure, we try to understand why and whether a pivot is possible. If a pivot is recommended, the start-up continues to be supported as usual." (I3)

This case highlights the connection between reflecting on experience and reorienting the venture. Pivoting does not appear as an automatic response to every difficulty; it is considered only after reflecting on the causes of failure and is then incorporated into ongoing support when it appears relevant. Information generated through experience is thus used to reconsider the venture's initial trajectory.

This conception of pivoting is also found at I2, although with a particularly positive view of reorientation. The manager explains:

"Without saying it, we encourage pivots, it leads to new ways of doing business." (I2)

Here, pivoting is viewed as an opportunity to explore new ways of developing the business, rather than simply as an acknowledgment of the failure of the initial direction. This position is consistent with the same case's reliance on individual coaching centered on errors and adjustments.

At I10, learning is expressed more directly through the role attributed to failure in the entrepreneurial process:

"Failure is an important stage in the learning process." (I10)

The I10 case thus places greater emphasis on the learning function of experience, whereas other organizations structure this learning through several practices. I9, for example, mentions debriefings after each phase of the program, experience-sharing among start-ups, coaching focused on errors and adjustments, and connections with experienced entrepreneurs. Pivoting is also described as being encouraged in this case.

Cross-case comparison thus reveals a shared conception of learning in which the difficulties encountered do not necessarily lead to discontinuing the venture. Instead, they may provide elements that make it possible to reconsider certain aspects of it. The modalities nevertheless differ: analysis of causes and consideration of pivoting at I3, encouragement to explore new directions at I2, explicit recognition of failure as a source of learning at I10, and a combination of debriefings, experience-sharing, and coaching at I9.

In relation to the research question, learning through adjustment thus constitutes a third mechanism for progressively reducing entrepreneurial uncertainty. This does not mean that entrepreneurs become able to anticipate all future developments of their ventures. Rather, the results generated through action can become a source of information for understanding what works, what needs to be reconsidered, and, in some cases, whether reorientation is warranted. Support thus helps make certain dimensions of uncertainty progressively more manageable by helping entrepreneurs turn experience—including when it produces an unfavorable outcome—into elements that can inform their subsequent decisions.

4.4. Access to Resources and Expertise

Access to resources constitutes a fourth recurring mechanism in the support practices observed. Ventures' needs are not limited to financial resources: the managers interviewed also mention infrastructure, technical equipment, training, mentor expertise, legal and administrative support, and access to investors. The combination of these resources nevertheless varies across organizations. I1, for example, provides workspace, technical equipment, a network of mentors and experts, as well as legal and administrative support, whereas I4 combines infrastructure, equipment, expertise, training, and financial support.

Access to expertise appears particularly relevant when the resources required for venture development are not directly available to the entrepreneur. At I4, this function is especially visible in supporting ventures that have reached a more advanced technical stage. The manager explains: "We organize this by facilitating access to our technological platforms or by connecting entrepreneurs with the appropriate technical experts." (I4)

In this case, the incubator serves as a point of access to technical capabilities that project holders do not necessarily possess internally. The intervention therefore does not consist solely of providing a material resource: it also involves identifying the venture's needs and directing it toward the equipment or expertise deemed appropriate.

The expertise mobilized can also play a role when the venture encounters difficulties. At I7, reliance on mentors is explicitly based on their professional experience and their ability to help project holders reconsider their choices:

"Mentors are mobilized to support people in this situation; through their experience and professional hindsight, they manage [...] to cushion the effects of failure and help these people

revisit their business model canvas, or, if the project has been abandoned, look for other opportunities." (I7)

Beyond its oral phrasing, this quote shows that access to external expertise can provide project holders with an additional perspective on the difficulties encountered and the options available. The mentor thus acts less as the holder of a predetermined solution than as a resource that makes it possible to reexamine the venture in light of their experience.

Access to financing represents another form of intervention. Incubators do not necessarily finance ventures directly; several instead facilitate access to funders or help entrepreneurs prepare for their financing efforts. At I3, this intervention notably takes the form of "pitches in front of investors." The manager also notes that financial needs vary depending on the venture's trajectory:

"Since each venture needs financing for specific purposes (product development, equipment, marketing, etc.), obtaining this financing has a direct impact on the venture's progress [...] depending on the type of financing obtained." (I3)

This facilitation function appears in different forms across the other cases. I4 and I6 mention assistance with preparing financing applications, while I7 draws on several forms of support: connecting entrepreneurs with private investors, support with calls for projects, preparation of applications, and the organization of pitch sessions.

Cross-case comparison thus reveals a convergence around the need to broaden the resources accessible to project holders, albeit through different configurations: access to material resources and technical expertise at I4, mobilization of mentors' experience at I7, facilitation of investor meetings at I3, and support with financing procedures at several other organizations. The incubator therefore does not appear solely as a direct provider of resources. It also acts as an intermediary enabling the venture to access skills, equipment, or financial resources located outside the entrepreneurial team.

In relation to the research question, access to resources and expertise thus constitutes a fourth mechanism for progressively reducing entrepreneurial uncertainty. Its role is not to guarantee that the venture will have all the necessary resources or that mobilizing them will produce the expected outcome. Rather, support helps reduce certain constraints that limit entrepreneurs' capacity to explore and develop their ventures: obtaining specialized advice, accessing equipment, preparing a financing application, or meeting an investor opens up new possibilities for action and provides

additional elements for decision-making. Access to resources and expertise thus helps make certain dimensions of uncertainty progressively more manageable by broadening the means and knowledge available when entrepreneurs must decide how to move forward with their ventures.

4.5. Intermediation and Networking

Unlike the access to resources discussed above, intermediation here refers to the way incubators connect the ventures they support with external actors and facilitate their integration into the entrepreneurial ecosystem. The focus, therefore, is not primarily on the resource obtained as a result of the connection, but on the connecting function performed by the incubator. The interviews reveal relationships with a variety of actors: academic and industrial partners, public institutions, potential clients, other support organizations, and professional networks.

This function is particularly visible at I5. The incubator reports collaborating with several categories of actors and situates its activity within networks that extend beyond the direct relationship between the support provider and the entrepreneur. The manager explains:

"We collaborate with public institutions, private actors, professional chambers, and other support organizations to facilitate entrepreneurs' access to financing, training, and networking opportunities, both nationally and internationally." (I5)

In this case, intermediation thus relies on a set of relationships maintained by the incubator with its environment. This function extends into venture monitoring, as I5 reports maintaining connections between entrepreneurs and partners through regular follow-up meetings, digital communication tools, and personalized support. The incubator thus occupies an intermediary position between the venture and various interlocutors to whom the entrepreneur would not necessarily have the same level of access when acting alone.

At I4, intermediation is likewise based on the incubator's relatively broad integration into different networks. The organization reports facilitating connections with academic, industrial, and institutional partners. Its manager describes its positioning more broadly as follows:

"Our incubator is very active, first through its contribution to various entrepreneurial acceleration programs, and through its participation in different networks around entrepreneurial partnership projects at the local, national, Mediterranean, and European levels." (I4)

Here, intermediation takes on a dimension that extends beyond connections made on a case-by-case basis. The organization's participation in various networks allows it to position itself at the

interface of several spaces—academic, industrial, or institutional—and to draw on these relationships in supporting ventures.

This function also appears at I7, though in a different configuration. In this organization, which specializes in supporting craftspeople, networking is associated with the other forms of support provided:

"It is an incubator with an administrative character that plays an important role for this category and this sector, because beyond training, it provides coaching, networking, and makes a commercialization space available to craftspeople." (I7)

Beyond its oral phrasing, this quote shows that networking is embedded within a form of support tailored to a specific audience and sector. Intermediation does not therefore necessarily take the same form across organizations; it also depends on the ventures supported and the incubator's position within its environment.

This heterogeneity emerges more clearly in responses to the interview guide question on whether connections are made systematically or opportunistically. It should be noted that this distinction was proposed in the question put to the managers and therefore does not constitute a category that emerged spontaneously from their accounts. The responses nevertheless make it possible to compare the modalities of intermediation observed. I5 describes its connections as "Systematic," while I4 states that they are "fairly systematic." I7 describes them as "opportunistic." I3 answers "both," whereas I9 states "not necessarily."

The case of I3 also provides additional insight into how some incubators define their position within this environment. Asked about its organization's positioning within the Moroccan entrepreneurial ecosystem, the manager described it as:

"A [uniter] of the ecosystem" (I3)

The wording is preserved as it appears in the interview, including the wording irregularity present in the original French ("fédérateur" rather than "fédérateur"). It reflects a representation of the incubator's role that is not limited to internal venture support but also includes a function of bringing different actors together. However, this function is not exercised with the same intensity across all cases, as shown by the variations observed in the preceding responses.

Cross-case comparison thus reveals a convergence around connecting the venture to its environment, accompanied by noticeably different modalities: structured collaborations with

multiple categories of actors at I5, integration into diversified networks at I4, networking adapted to a specific sectoral environment at I7, and the unifying position claimed by I3. The responses concerning the systematic or opportunistic nature of these connections further show that this function can be more or less formalized depending on the organization. Intermediation is therefore not a uniform practice; it depends on the networks available to the incubator, its positioning, and the needs of the ventures it supports.

In relation to the research question, intermediation and networking can thus be interpreted as a fifth mechanism for progressively reducing entrepreneurial uncertainty. Their role is not to eliminate the uncertainty associated with the market, partners, or the venture's future possibilities. Rather, by connecting entrepreneurs with interlocutors they would not necessarily mobilize on their own, incubators broaden the sources of information, the opportunities for confronting the venture with its environment, and the interactions likely to inform their decisions. These relationships can thus provide new elements for understanding the venture's environment, identifying relevant interlocutors, or considering possibilities that were not initially accessible. In this sense, intermediation helps make certain dimensions of uncertainty progressively more manageable, without prejudging the outcome of the relationships established or the venture's future trajectory.

5. Toward a Model of Entrepreneurial Uncertainty Reduction Mechanisms

The analysis of the ten cases made it possible to identify five recurring mechanisms through which incubators intervene in situations of uncertainty faced by the ventures they support: project structuring and monitoring, experimentation and market validation, learning through adjustment, access to resources and expertise, and intermediation and networking. Although presented separately in the previous section to specify their empirical manifestations, these mechanisms take on greater meaning when considered in relation to one another.

This section therefore seeks to move beyond their simple juxtaposition in order to examine how they may be articulated throughout the support process. The aim is not to construct a universal sequence or to establish a causal relationship between incubation and entrepreneurial success. Rather, based on the regularities observed across the cases studied, it is to propose an integrative representation of how several forms of intervention can complement one another to help entrepreneurs clarify certain aspects of their ventures, generate new information, revise their choices, and continue to act despite residual uncertainty.

The analysis first focuses on the articulation among the five mechanisms identified, before examining the role of the Moroccan context in shaping the conditions under which they are mobilized. The proposed model should therefore be understood as an analytical construction derived from the empirical findings, intended to account for the observed relationships between support practices and the way certain dimensions of uncertainty become progressively more manageable for action and decision-making.

5.1. Articulation of Uncertainty Reduction Mechanisms

Cross-case analysis shows that the five mechanisms identified are not mobilized in the same way from one venture to another, nor are they mobilized consistently throughout the support process. On the contrary, their configuration tends to evolve according to the needs that emerge as the venture takes shape, encounters difficulties, or generates new information. The issue, therefore, is not simply to observe that several forms of support coexist, but to understand how their combination is adjusted over the course of venture development.

The case of I4 particularly illustrates this logic. At the idea stage, support focuses mainly on developing the business model and the development plan. As the venture reaches a more advanced stage, particularly the prototype or MVP stage, needs become more technical and may lead to the mobilization of technological platforms, experts, networks, or financing solutions. The significance of this case thus lies in the progressive shift in the content of support: the configuration of mechanisms changes according to the nature of the problems the venture must address.

A similar logic appears at I5. Monitoring is based on regular meetings, monthly objectives, and progress indicators, while other forms of support are mobilized according to the venture's stage of development. Practical training, mentoring, networking, operational resources, testing spaces, and market validation do not form a set of practices applied uniformly. Their mobilization depends on the needs identified through monitoring. In this case, monitoring thus plays an important role in detecting needs and directing ventures toward the forms of support considered relevant.

A comparable dynamic emerges from the relationship between experimentation and learning. When a test or confrontation with real-world conditions produces an unexpected result, the information obtained may lead to reconsidering certain aspects of the venture. At I3, for example, analyzing the causes of a failure can lead to examining the possibility of a pivot. The need for support then evolves based on the information generated by the action itself: a test may reveal a

need for adjustment, which may in turn require expertise, an additional resource, or a new connection.

The differences observed across cases confirm that this is not a standardized process. I10, for example, describes "à la carte support based on needs and demand," while I7 relies on weekly monitoring aimed at reassessing the venture's progress and objectives. These variations suggest that the ability to reorient support according to emerging needs constitutes a central feature of the process observed.

The proposed model is therefore based on a configurational and adaptive logic. Its specificity lies not only in the fact that several mechanisms can be combined, but also in the fact that their relative weight and mobilization can be reconfigured throughout the support process. Structuring may reveal a need for validation; experimentation may generate information that leads to an adjustment; this adjustment may reveal a need for expertise or resources; a new connection may, in turn, lead to reconsidering certain assumptions about the venture. The movement is therefore neither linear nor unidirectional.

The core of the model thus lies in the continuous adjustment of the support configuration to the needs that emerge over the course of the venture's trajectory. Incubators therefore contribute less by applying a stable set of support arrangements than by mobilizing different forms of intervention when they become relevant to the entrepreneur. This capacity for adjustment gives project holders greater purchase on the situation, enabling them to interpret it, revise their choices, and continue to act despite residual uncertainty.

5.2. The Moroccan Context as a Condition Shaping the Operation of the Mechanisms

The mechanisms identified across the cases studied do not operate independently of the environment in which entrepreneurs develop their ventures. The interviews reveal several characteristics of the Moroccan context that influence the conditions under which support is provided: administrative and regulatory constraints, difficulties in accessing financing, market characteristics, and limitations in certain connections within the ecosystem. These elements do not constitute an additional mechanism. Rather, they form the context within which the five previously identified mechanisms are mobilized, adjusted, and combined according to the situations encountered by the ventures.

The administrative and regulatory dimension emerges explicitly in several cases. I3 directly identifies "administrative and regulatory burdens" as a characteristic of the Moroccan context and describes them as a constraint. I1 also mentions administrative burdens among the obstacles encountered by ventures, associating them with market availability. At I7, the constraints are expressed more broadly:

"Administrative burdens, lack of professionalism, lack of culture, entrepreneurship, access to financing. Our approach is to strengthen awareness and training and to submit recommendations to the relevant authorities." (I7)

Beyond its oral phrasing, this response shows that certain support practices acquire particular significance precisely because entrepreneurs must contend with constraints that extend beyond the boundaries of their ventures. Incubators cannot eliminate these constraints, but they can adapt their interventions by strengthening, for example, awareness, training, or guidance toward interlocutors who may help project holders better navigate them.

Financing constitutes another difficulty mentioned in the interviews. I10 notably associates access to financing with access to land and, more broadly, considers certain characteristics of the context to be constraints that may discourage project holders despite their skills. I6, for its part, highlights difficulties related to sector-specific requirements and authorizations, as well as to the market, customer income, and taxation. The situations of uncertainty faced by entrepreneurs therefore do not arise solely from defining the offering or the business model. They also stem from the institutional and market conditions within which the venture must find its place.

These findings should be situated within a Moroccan institutional environment that is simultaneously experiencing a strengthening of support schemes dedicated to innovative entrepreneurship. The national Digital Morocco 2030 strategy (Ministère de la Transition Numérique et de la Réforme de l'Administration, 2024), officially presented in September 2024, notably provides for the development of an internationally oriented start-up ecosystem, the strengthening of local incubators, financing mechanisms adapted to different stages of development, and measures designed to facilitate market access. This orientation is also reflected in a range of support covering different stages of the start-up life cycle, from ideation to fundraising.

Other initiatives illustrate this structuring of the ecosystem. Technopark Morocco (Technopark Maroc, n.d.) notably combines access to prototyping spaces, the mobilization of experts, market access, financial support, and networking. It also directs companies toward various financing instruments, including Innov Invest. These institutional initiatives are relevant to the mechanisms identified through the empirical analysis: several dimensions supported at the ecosystem level—experimentation, expertise, financing, market access, and networks—overlap with the practices observed in the incubators studied. This should not, however, be taken to imply that these policies determine the practices reported in the interviews. Rather, they help situate the mechanisms identified within the institutional environment in which support organizations operate.

The existence of these initiatives does not eliminate the difficulties reported by the managers interviewed. Instead, the findings point to the coexistence of two dynamics: a progressive strengthening of institutional support instruments and the persistence of perceived administrative, financial, and market-related constraints. It is precisely within this space that the mechanisms identified acquire particular significance. Financing difficulties may increase the need for intermediation or support with financing procedures; regulatory complexity may make access to appropriate expertise more useful; and a market that is difficult to assess may increase the relevance of testing and validation practices. These connections nevertheless constitute interpretations derived from a cross-reading of the findings, rather than causal relationships established across all cases.

The Moroccan context is not perceived uniformly either. Whereas I3 describes some of its characteristics as "constraints," I9 presents them as "an opportunity." The available data do not make it possible to attribute this divergence with certainty to the status of the organization, its sector of intervention, or its age. It nevertheless suggests that the characteristics of the same environment may be interpreted differently by support actors. What constitutes a constraint for some ventures may thus coexist with the emergence of new possibilities for others. This variation constitutes a possible line of interpretation raised by the data, but one that they do not allow us to resolve conclusively.

The question of adaptation to the local context also emerges directly from the interviews. I1 summarizes this concern by stating:

"Morocco must build its own model." (I1)

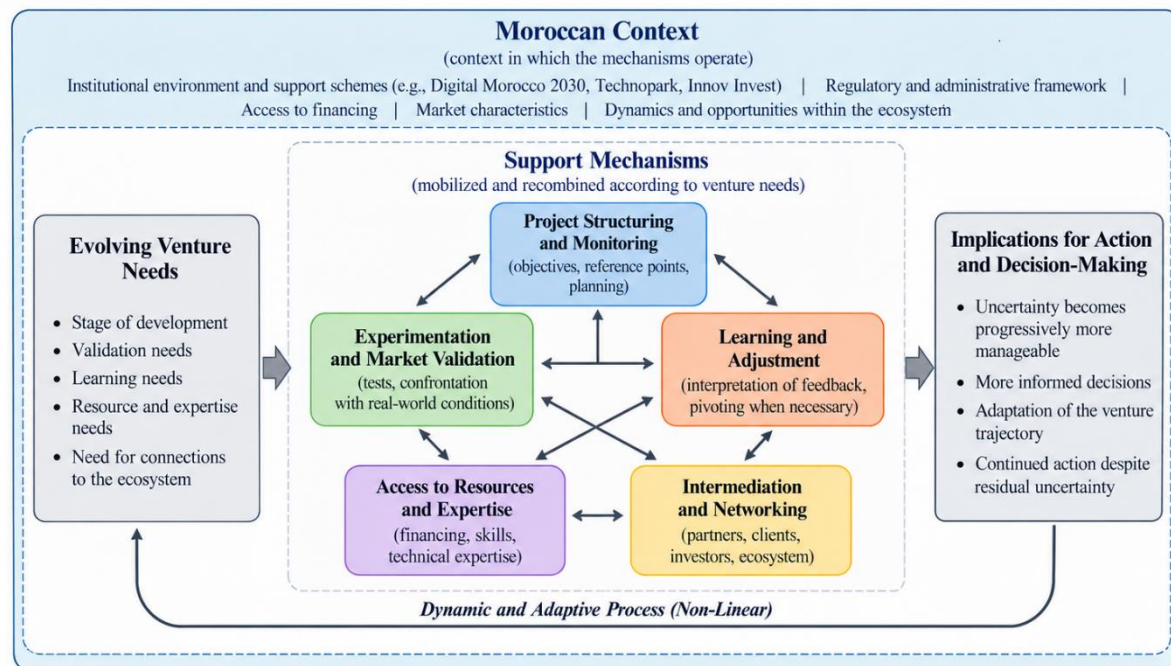
This position is echoed by I5, which advocates an incubation model inspired by international practices but refocused on realities on the ground, particularly early market validation, the generation of initial revenues, operational support, and access to professional networks. These two cases thus draw attention to the need to adapt support practices to the concrete conditions under which entrepreneurs develop their activities, rather than mechanically transposing models designed in other environments.

The Moroccan context therefore occupies a specific place in the proposed model. It constitutes neither an additional stage nor a sixth mechanism; rather, it represents the environment within which venture needs emerge and mechanisms are mobilized and recombined. This interpretation connects the adaptive logic identified in Section 5.1 with the concrete conditions under which it operates. Depending on the problems encountered, support may rely more heavily on expertise, experimentation, monitoring, access to resources, or connections with other actors.

The model thus conceptualizes support as an articulation among the evolving needs of the venture, the combination of mechanisms mobilized by the incubator, and the characteristics of the Moroccan entrepreneurial environment. Context does not mechanically determine the venture's trajectory, any more than incubation makes it possible to predict its outcome. It nevertheless contributes to defining some of the problems that entrepreneurs must address and, consequently, the forms of support that may give them greater capacity to act, revise their choices, and continue developing their ventures despite residual uncertainty.

Figure 1 synthesizes the proposed model derived from the analysis of the ten cases. It connects the evolving needs of ventures, the five mechanisms identified, and the implications to which their articulation may contribute in the face of uncertainty, while situating this dynamic within the Moroccan context. The needs represented do not correspond to a predetermined sequence of stages: they vary according to the maturity of the venture and the difficulties encountered. Similarly, the mechanisms do not form a linear chain but can be mobilized and recombined throughout the support process.

Figure 1. Configurational and Adaptive Model of Support Mechanisms for Addressing Entrepreneurial Uncertainty in Moroccan Incubators



Note. The model represents a configurational and adaptive logic rather than a linear sequence of stages. It was developed from the analysis of the ten cases studied and situated within the Moroccan institutional and entrepreneurial context.

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The model thus highlights a configurational and adaptive logic. Venture needs constitute the starting point from which support is adjusted, while the five mechanisms may operate in complementary ways: structuring provides reference points to guide action; experimentation confronts certain assumptions with real-world conditions; learning makes it possible to interpret the feedback obtained and adjust the trajectory; access to resources and expertise broadens the means that can be mobilized; and intermediation connects the venture with actors in its environment. The bidirectional relationships represented among the mechanisms reflect this complementarity and indicate that one mechanism may feed into or reactivate another, without assuming an identical sequence across all cases.

This entire process is embedded within the Moroccan context, which constitutes the environment in which the mechanisms operate rather than an additional mechanism. The institutional, regulatory, financial, and market characteristics of this environment may alter the needs that

support must address and, consequently, the combination of mechanisms mobilized. Finally, the feedback loop represented in the lower part of the figure underscores the dynamic nature of the model: the information and experiences generated throughout the support process may give rise to new needs and lead to further adjustments. Reducing uncertainty therefore does not mean eliminating it, but rather progressively making certain dimensions of uncertainty more manageable by providing entrepreneurs with additional reference points, information, resources, and possibilities for action that enable them to make decisions and continue developing their ventures despite residual uncertainty.

6. Discussion

The findings show that incubators' contribution to addressing entrepreneurial uncertainty does not rest on a single practice, but on the articulation of several mechanisms mobilized according to the evolving needs of the venture. This interpretation is consistent with research conceptualizing incubation as a combination of forms of support, resources, and mediation (Bergek & Norrman, 2008; Bruneel et al., 2012; Hausberg & Korreck, 2020), while shifting the analytical focus toward how these interventions can help entrepreneurs act and revise their decisions when the future remains difficult to predict. The findings thus extend the perspective proposed by Sohail et al. (2023), which focuses on the mechanisms linking incubation interventions to their outcomes, by showing empirically that these mechanisms operate less as a standardized sequence than as an evolving, context-dependent configuration.

6.1. Incubation and Uncertainty Reduction

The findings show that incubation can address entrepreneurial uncertainty by shaping the conditions under which entrepreneurs understand their situation, make decisions, and continue to act. This interpretation is consistent with McMullen and Shepherd (2006), for whom entrepreneurial action occurs despite the impossibility of fully knowing the consequences of one's choices. In the cases studied, incubation provides reference points, facilitates the confrontation of assumptions with real-world conditions, and broadens access to information, expertise, and actors that may inform the development of the venture.

These findings also extend research on incubation that highlights the functions of business support, access to resources, and mediation (Bergek & Norrman, 2008; Bruneel et al., 2012; Hausberg & Korreck, 2020). The contribution of the present study lies in showing that these functions can be

understood not only as services offered to entrepreneurs, but also as mechanisms that help them act and revise their decisions when certain dimensions of the venture remain uncertain. Incubators thus appear less as support organizations capable of securing the entrepreneurial trajectory than as actors that help make decision-making and action more workable in an environment that remains uncertain.

6.2. Progressive Reduction Rather Than Elimination of Uncertainty

The findings call for a more nuanced understanding of uncertainty reduction itself. From Knight's (1921) perspective, certain entrepreneurial situations cannot be reduced to calculable risk; support can therefore neither make the future fully predictable nor guarantee the outcome of the venture. The practices observed instead show that entrepreneurs progressively gain elements that help them better assess their situation and revise their choices: tests confront certain assumptions with real-world conditions, monitoring brings new priorities to light, and experience may lead to an adjustment or even a pivot.

This dynamic is consistent with the logic developed by Sarasvathy (2001), in which acting under uncertainty does not necessarily depend on the ability to predict the future. Uncertainty reduction should therefore be understood, in this study, as a progressive and partial process: certain dimensions of uncertainty become progressively more manageable, while residual uncertainty remains. The aim of support is therefore not to produce certainty, but to enable entrepreneurs to continue making decisions, experimenting, and adjusting their actions despite this uncertainty.

6.3. Complementarity of the Mechanisms

One of the main insights of this study is that the five mechanisms identified derive their significance from their interactions rather than from their isolated mobilization. The cases studied show, in particular, that experimentation can generate information that leads to an adjustment of the venture, which may in turn reveal a need for expertise, resources, or a new connection. Conversely, access to an external actor or expertise may lead entrepreneurs to reconsider certain assumptions and initiate new tests.

This articulation resonates with the attention given by Sohail et al. (2023) to the mechanisms linking incubation interventions to their outcomes, but the data examined make it possible to further specify how this process operates: the combination of mechanisms evolves according to the venture's needs and the information generated throughout the support process. The proposed model

is therefore less sequential than configurational and adaptive; it accounts for a process in which mechanisms can reinforce or reactivate one another, or be recombined as the venture develops.

6.4. The Effect of Context

Finally, the findings show that the mechanisms identified cannot be separated from the context in which they are mobilized. The administrative, financial, and market-related constraints reported by several managers may alter venture needs and, consequently, the forms of support required. Context, however, does not operate uniformly: some of its characteristics are perceived as obstacles by certain actors, while others view them as opportunities.

This observation is consistent with the approach proposed by Sohail et al. (2023), which emphasizes the importance of context in analyzing incubation mechanisms. In the Moroccan case, the findings therefore lead us to conceptualize context not as an additional mechanism, but as a condition shaping how the mechanisms operate and are recombined. The value of the proposed model thus lies in the relationship among the venture's evolving needs, the mechanisms mobilized by the incubator, and the environment within which entrepreneurial action unfolds.

7. Theoretical, Empirical, and Managerial Contributions

At the theoretical level, this research offers a view of incubation centered on the articulation of the mechanisms mobilized in addressing entrepreneurial uncertainty. Its contribution lies not in the isolated identification of support practices already documented in the literature, but in their organization within a configurational and adaptive model. The findings show that structuring, experimentation, learning, access to resources, and intermediation can be combined and reorganized according to the needs that emerge as the venture develops. The study thus clarifies how incubation can help make decision-making and action more workable without assuming that uncertainty disappears.

At the empirical level, the study provides findings drawn from ten diverse Moroccan support organizations and documents how these mechanisms manifest themselves and are articulated in their practices. It thus contributes to contextualizing the analysis of the mechanisms linking incubation and entrepreneurial uncertainty within the Moroccan setting, which remains relatively underdocumented in the literature examined, without assuming that the findings can be generalized to all incubators in the country.

At the managerial level, the findings suggest that incubators should focus less on systematically applying all five mechanisms than on organizing their mobilization according to the needs actually encountered by ventures. In this respect, monitoring can play an orienting role: regular assessments of a venture's progress can help identify a need for testing, expertise, resources, or connection with an external actor, allowing support to be adjusted accordingly. For incubator managers, this implies designing sufficiently flexible programs and relying on support staff capable not only of monitoring ventures, but also of identifying emerging needs and directing them toward appropriate resources or actors. For public actors supporting the Moroccan entrepreneurial ecosystem, the findings draw attention to the value of schemes that enable incubators to combine monitoring, experimentation, expertise, access to resources, and connections to the ecosystem, rather than focusing solely on multiplying services offered independently of one another.

8. Conclusion, Limitations, and Future Research

This research aimed to understand the mechanisms through which Moroccan incubators contribute to reducing the entrepreneurial uncertainty faced by the ventures they support. The analysis of ten support organizations made it possible to identify five mechanisms: project structuring and monitoring, experimentation and market validation, learning through adjustment, access to resources and expertise, and intermediation and networking. Their contribution, however, lies less in their isolated presence than in their articulation and mobilization according to the evolving needs of the venture. The proposed model thus leads to viewing incubation as a configurational and adaptive process that can help entrepreneurs gain additional reference points and possibilities for action, without eliminating the uncertainty inherent in the entrepreneurial process.

This research nevertheless presents several limitations. It is based on ten interviews with incubator managers and therefore primarily reflects the perspective of support organizations. The findings cannot be generalized to all Moroccan incubators, nor do they make it possible to establish the relative effectiveness of the mechanisms identified. Future research could compare these findings with the perspective of the entrepreneurs supported, examine how the mechanisms evolve over time, and explore their mobilization across different incubation configurations. Such an approach would help test and refine the proposed model while deepening our understanding of the conditions under which support helps entrepreneurs act and make decisions despite uncertainty.

References

- Bergek, A., & Norrman, C. (2008). Incubator best practice: A framework. *Technovation*, 28(1–2), 20–28. <https://doi.org/10.1016/j.technovation.2007.07.008>
- Bruneel, J., Ratinho, T., Clarysse, B., & Groen, A. (2012). The evolution of business incubators: Comparing demand and supply of business incubation services across different incubator generations. *Technovation*, 32(2), 110–121. <https://doi.org/10.1016/j.technovation.2011.11.003>
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. SAGE Publications.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532–550. <https://doi.org/10.5465/amr.1989.4308385>
- El Afqih, B., & Messaoudi, A. (2025). The role of university incubators in stimulating entrepreneurial education activities and sustainable innovation in Morocco: A critical analysis. *Journal of Education Culture and Society*, 16(1), 873–891. <https://doi.org/10.15503/jecs2025.2.873.891>
- Elyoussoufi Attou, O., Taouaf, I., & Arouch, M. (2019). University incubators in Morocco: State of play and perspectives. *International Journal of Innovation and Applied Studies*, 26(1), 163–174.
- Friesl, M., Ford, C. J., & Mason, K. (2019). Managing technological uncertainty in science incubation: A prospective sensemaking perspective. *R&D Management*, 49(4), 668–683. <https://doi.org/10.1111/radm.12356>
- Hausberg, J. P., & Korreck, S. (2020). Business incubators and accelerators: A co-citation analysis-based, systematic literature review. *The Journal of Technology Transfer*, 45(1), 151–176. <https://doi.org/10.1007/s10961-018-9651-y>
- Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*, 72(12), 2954–2965. <https://doi.org/10.1111/jan.13031>
- Knight, F. H. (1921). *Risk, uncertainty and profit*. Houghton Mifflin Company.
- McMullen, J. S., & Shepherd, D. A. (2006). Entrepreneurial action and the role of uncertainty in the theory of the entrepreneur. *Academy of Management Review*, 31(1), 132–152. <https://doi.org/10.5465/amr.2006.19379628>

Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243–263.
<https://doi.org/10.5465/amr.2001.4378020>

Sohail, K., Belitski, M., & Castro Christiansen, L. (2023). Developing business incubation process frameworks: A systematic literature review. *Journal of Business Research*, 162, 113902.
<https://doi.org/10.1016/j.jbusres.2023.113902>

Timmermans, S., & Tavory, I. (2012). Theory construction in qualitative research: From grounded theory to abductive analysis. *Sociological Theory*, 30(3), 167–186.
<https://doi.org/10.1177/0735275112457914>

Wang, C., Fu, S., Wang, M., & Xin, S. (2026). On the construction of the entrepreneurship incubation mechanisms of entrepreneurial support organizations (ESOs) from the perspective of uncertainty. *International Entrepreneurship and Management Journal*, 22(1), 1–26.
<https://doi.org/10.1007/s11365-025-01120-6>

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.

Institutional Sources

Ministère de la Transition Numérique et de la Réforme de l'Administration. (2024). *Digital Morocco 2030*. Gouvernement du Royaume du Maroc.
Technopark Maroc. (n.d.). *Services d'accompagnement*.