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EXPLORATORY ANALYSIS ON STARTUP ACCELERATORS TO OPEN-TECHNOLOGY INNOVATION: A STUDY OF BUSINESS START-UPS, BUSINESS INCUBATORS & BUSINESS ACCELERATORS

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Abstract. This paper is interested in the acceleration of the open-technology innovation ecosystem of startups in a world that is chaotic and perpetually changing. Acceleration can be considered an innovation strategy that provides a cross-sectional perspective combining two worlds: strategy and entrepreneurship. Accelerators are crucial in helping entrepreneurs reach higher levels of “open-technology innovation” growth than incubators, which focus on the early stages of project development. Through the lens of dynamic capabilities theory, Our research aims not only to analyze how accelerators help their accelerated startups improve technological innovation, also, emphasizes the mutually beneficial relationship between startups and accelerators, which goes beyond incubation to speed up the cycle of “open-technology innovation”.

Accelerators play a crucial role in the face of entrepreneurial ecosystem megatrends, not only by connecting startups with the market to maximize the effectiveness of their acceleration process, but also by creating collaborative strategies with other ecosystem participants, including investors, industry partners, and other startup founders working in the same sector. This ensures a more comprehensive acceleration offering that encourages the search for fresh, creative methods of incubation, acceleration, and support, assisting startups in creating a long-lasting climate of trust and sustaining an ongoing increase in “open-technology innovation”.

This article focuses on acceleration beyond incubation in the Moroccan context, which is still in its infancy as a setting for entrepreneurial support. This highlights the necessity of a qualitative approach to gain a deeper comprehension of how accelerators boost the “open-technology innovation” of Moroccan businesses that have been accelerated as a new dimension have already exploded. This study analyzed three axes related to open-technology innovation: the selection criteria for an open-technology innovative project by accelerators, acceleration process for open-Innovative Startups, and open-technology innovation strategy through acceleration.

We achieved this study by conducting 6 semi-structured interviews with four startups that have already experienced acceleration as well as an accelerator and incubator.

Keywords: *ecosystem Megatrend, Startups, business incubators, Accelerators, Entrepreneurial Ecosystem, Open-technology innovation, dynamic capabilities theory.*

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Introduction

When we hear the term "open-technology innovation," it brings to mind the connection between entrepreneurship and innovation—an association established between these two fields since the emergence of Schumpeter's concept of "creative destruction." This concept signifies that the rise of innovative new businesses leads to the decline of older ones, driven by the innovative entrepreneur. This process of creative destruction is the source of accelerated economic fluctuations and, consequently, long-term economic growth. "*The fundamental nature of capitalism is that every business must adapt to it, willingly or otherwise*"(Schumpeter, 1883–1950). Innovation by small, innovative businesses enables them to obtain temporary monopolies in the market, while simultaneously encouraging existing firms to engage in competition, seeking new creative ideas,

thereby contributing to economic growth and dynamism. This also prompts smaller structures to learn and adapt to change swiftly. The acceleration of open-technology innovation is the main topic of this paper; Recent studies on innovative entrepreneurship have shown how important it is for corporate incubators and accelerators, as well as other ecosystem actors, to support and accelerate open-technology innovation (Benjamin Le Pendeven, Florimond Labulle, and Dominique Frugier, 2014–2015; Jean-Michel Sahut and Erick Leroux, 2011; Nurul Aryani et al., 2023; T.A. Alka, Aswathy Sreenivasan, M. Suresh, 2024). These partnerships offer resources like the importation of creative ideas, the commercialization of brevets, and the transfer of technology and information.

Business incubators (BI) and Business accelerators (BA) help entrepreneurs by offering them material and financial assistance, management, accounting, and finance learning, networking opportunities, and more. Furthermore, it seems like the goal of helping others is shared by incubators, accelerators, and other actors in the support network. Incubators, on the other hand, concentrate on helping entrepreneurs in the early stages of project creation and frequently stop working on a project once it is up and running. Entrepreneurs may look for post-creation incubation and follow-up support if they want more assistance.

Accelerators, however, are essential to letting emerging firms advance to new open-technology innovation frontiers. They help hyper-innovative solutions to emerge quickly by giving people access to vital resources, qualified mentors, and support networks. It is important to remember that third-generation incubators working in green technology, technological innovation, and pre-digitalized virtual incubators may perform the same capacity as accelerators in the current era of modernization and accelerated incubation procedures.

The primary objective of this paper is to explore and understanding the contribution of accelerators to enhancing open-technology innovation within startups.

Literature review

The Selection Criteria for an open-technology innovative project

In recent decades, the innovation is the key cornerstone for growth and economic competitiveness for glossary, larges-compagnies and country, especially stimulated by technological startups.

In modern support ecosystem, the open-technology innovative projects are essential to successful startups operations. Higher and megatrends in incubation structures should promote entrepreneurs skills and focus on innovation.

When choosing open-technology innovation projects, the incubator plays a meso-managerial role that goes beyond traditional criteria like project quality, idea innovation, return rate, or project progress. Given that the project must not only satisfy present needs but also demonstrate hyper-agility and forecasting capabilities in the area of open innovation, it can match the project's level of creativity with current trends in the innovation ecosystem. These standards are crucial for new technological businesses. Levina et al. (2017) and Cai et al. (2017) were developing an idea of global informatization as a necessary sign of progress, the idea of using information technologies to solve problems of optimization and increase the efficiency of businesses. This figure summarizes the selection criteria for an open-technology innovative project by Prioritization matrix:

BI & BA corporate: A focus on acceleration process of Open-technology innovation:

The terms small business incubator, enterprise center, business technology center, technology business incubator, and innovation center are often used interchangeably, creating challenges in distinguishing between incubators that support new firms in general and the more specialized incubators that deal with technology-related problems associated with the startup of technology-oriented new firms. (E.Lubishtani. E.Beka. A.Jahja, 2022). Because of the variety of actors and their different methods, the support ecosystem is complicated. Typically, these support systems aid new businesses in the early stages of development. Their specialization in specific sectors or more sophisticated knowledge, such technology incubators that effectively mentor emerging firms' technological innovation, account for their diversity. However, accelerators frequently help to accelerate this recently developed innovation. Business Accelerator is considered as a strategy that helps in the expansion and growth of new startups.

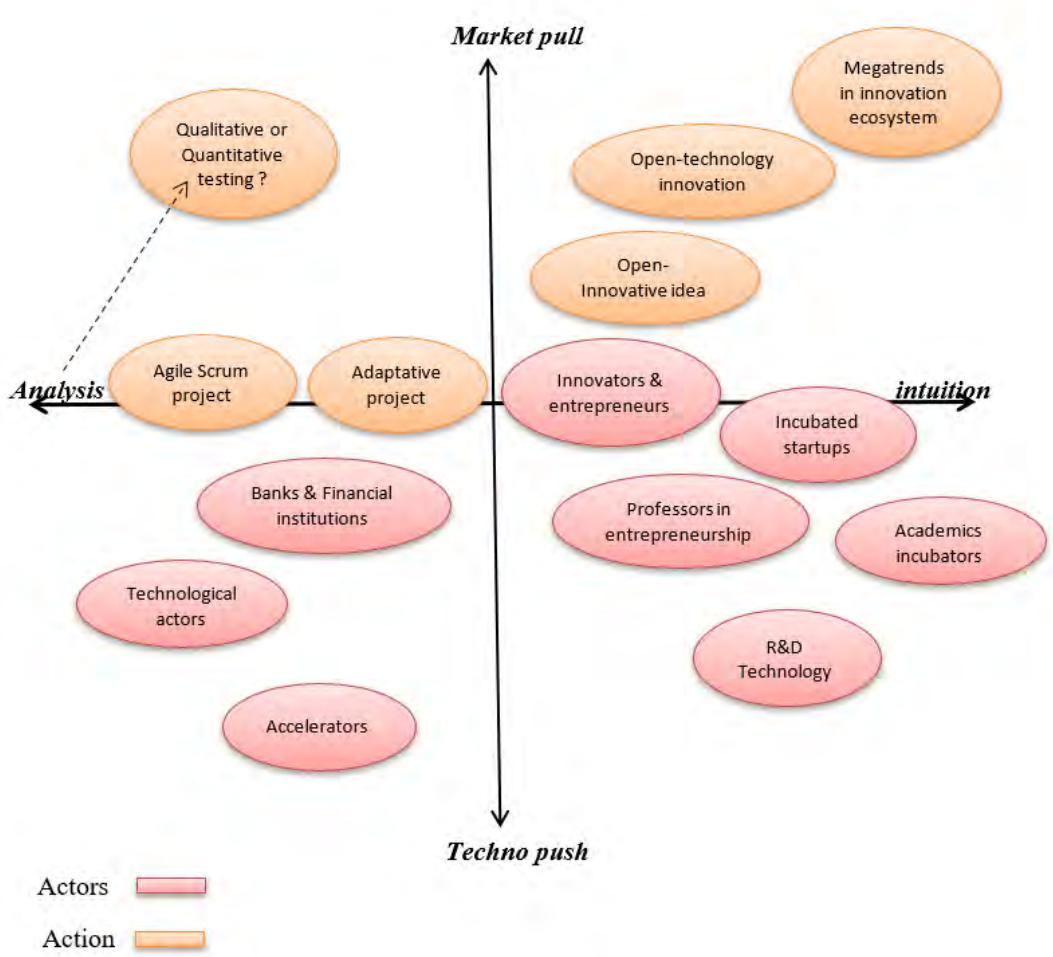


Figure 1. The selection criteria for an open-technology innovative project by Prioritization matrix

Source: Author.

Pauwels' (2016) research highlighted the role of accelerators in providing their startups with superior acceleration support, from creating a business plan to facilitating the networking necessary to create a long-lasting cycle of innovation and growth. Above all, they emphasised the importance of remaining interconnected with the megatrends of the startup innovation ecosystem. "*What an accelerator programme can offer start-ups was written about in a study by Pauwels et al. (2016), who presented an accelerator programme model based on their analysis of 13 European accelerators. A well-functioning mentoring system, which helps start-ups with issues related to designing a business model and establishing contacts with customers and investors, was identified as a cornerstone of a successful programme. Related to this issue are also various training and advisory services accelerators provide. Furthermore, the accelerator programme should include events where startups can present themselves and establish contacts with potential customers. Research has shown that accelerator programmes can offer various forms of funding and additional services such as providing office space, etc.*" (Michal Banka, 2024). The literature considers open innovation as a paradigm in operational management and specific areas where innovation may arise, rather than as a theory.

The change from a paradigm of hierarchical innovation oriented toward control to one of open innovation (Chesbrough, 2003; Chesbrough et al., 2006) depends on the idea that the resources required to create innovation will not necessarily be shared with those who commercialize them, as well as seeking to explain why startups should commercialize external sources of innovation (West and Bogers, 2014). Therefore, and specifically the open-technology innovation is a paradigm in which a technological startup can use external and internal ideas, transform their extreme actions into proactive, open-technology, and inventive information system.

Open-technology innovation strategy between BI or BA and Business startups: dynamic capabilities theory under focus.

It is evident that the theory of dynamic capabilities has been addressed in the strategic management literature from two approaches: an organisational evolutionary approach (D.J. Teece et al., 2007; K.M. Eisenhardt, et J.A. Martin, 2000 ; M. Zollo et S.G. Winter, 2002 ; C.L. Wanget P.K. Ahmed, 2007), and an entrepreneurial approach (R. Adner et C.E. Helfat, 2003, p. 1012). Given the technological changes currently taking place in the startup ecosystem and the subject of this paper, we have learned more towards the analysis through the entrepreneurial approach. Dynamic capability is a notion that reflects the search for new productive combinations based on exploitable resources. It has the profile of an innovative entrepreneur who can maintain a high degree of competitiveness through the exploration of technical opportunities. To do this, the startup should invest in technological innovations and maintain and expand its technological capabilities and complementary assets.

In this research, we have gone deeper into the study of open technology innovation rather than only discussing it. The technological startup ecosystem megatrend, which incorporates technology into their ongoing innovation process, is the reason for this concept's comeback. This is an outstanding instance of the adaptability and flexibility of these small, ambidextrous, and anti-fragile organizations that go beyond knowledge and technology exploration and exploitation, demonstrating their dynamic capacities to promote an open technological innovation pace that is sustainable. Therefore, to establish social networks that are beneficial and innovative for the new startup, it is crucial to highlight the intermediary role of the incubator or accelerator. The following table provides an overview of the dynamic capabilities of the startup, the entrepreneur, and the entrepreneurial ecosystem:

Table 1. Dynamic Capabilities for open-technology innovation

Entrepreneurial capability	Dynamic Capabilities for open-technology innovation
Entrepreneur	*Development of new technological products* Resources, competences & capabilities: psychological resilience, Creativity, adaptability, leadership, entrepreneurial mindset, subconscious, emotional intelligence, tacit knowledge, optimizing the new experiences, high-level education.
Startup	*Development of new process* e-Business Model, accelerating the open-innovative idea, learning management system integration, collect and store critical data etc.
Entrepreneurial ecosystem	*Development of new markets* Business intelligence, e-commerce, digital marketing strategy, incubation-network, accelerators, support entrepreneurial ecosystem, social network benefits, corporation advantages, co-innovation, stakeholders in a coopetition, competitive value-added in startups ecosystem.

Source: Author.

This set of stakeholders and actors fosters interaction in order to accelerate open-technology innovation and their dynamic capabilities are illustrated in the table. Rather, in today's ecosystem of startup megatrends, the challenge lies in the frameworks provided by accelerators and incubators and how they are designed to establish a continuous cycle of open-technology innovation.

Methodology

To analyze any situation accurately, the researcher must use language that resonates with the studied phenomena. For that reason, the researcher wants to immerse themselves within the world of the studied phenomena so that they can understand all the meanings given to interpretations concerning the whole situation.

Using interpretivism in our study concerning the impacts of accelerators allows us to understand the role of these infrastructures in influencing innovation from the lenses of entrepreneurs, incubators and accelerators, enhancing our understanding of the entrepreneurial support ecosystem. The following figure sets out our position regarding the processing of the data:

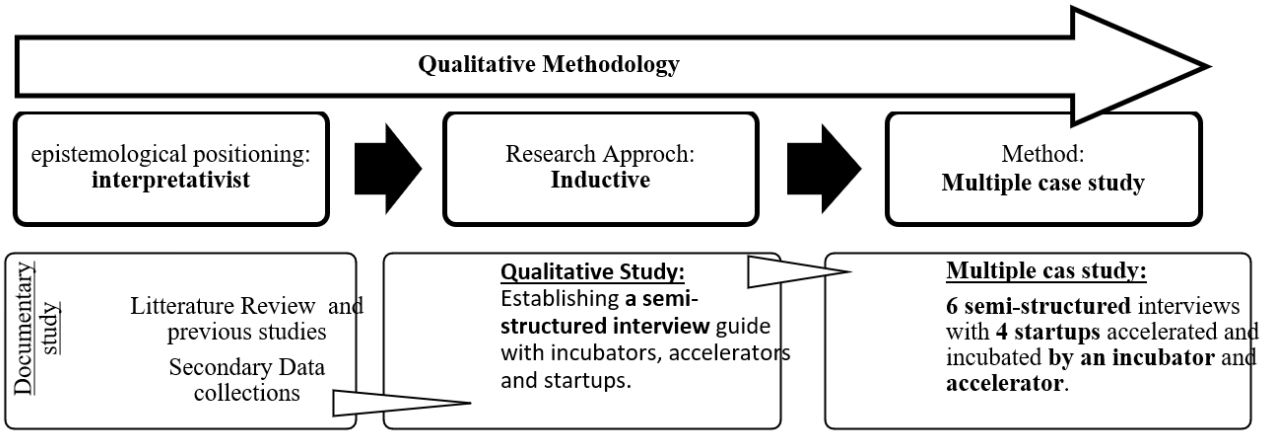


Figure 2. Exploratory Analysis

Source: Author.

Our research has an exploratory purpose, in which we conducted 6 semi-structured interviews with various actors of the entrepreneurial support ecosystem, including four startups whose open technology innovation was accelerated by two actors (accelerator and incubator).

Moreover, this diversity of interviewed stakeholders could constitute a source of richness and innovation for scientific knowledge, and this difference is considered among the criteria for the selection of our Moroccan context:

Table 2. The diversity of accelerator & incubator and their characteristics in Morocco

Case study	The sector of activity	The objective	The mission	The intervention phase	The period	Service offered
EBF (incubator and accelerator)	Digital technologies, digital platforms, digital marketing	To support technological innovation and accelerate the growth of digital startups	To facilitate the development of digital technology startups through intensive mentoring and access to a strategic network. They focus on transforming high-potential startups into industry leaders.	Post-ideation to pre-growth (early stage to growth stage)	3 to 6 month	Personalized mentoring Access to technology experts Workshops on emerging technologies Brainstorming sessions Support in agile development Introduction to strategic partners Resources for product development Marketing support Funding and access to investors
Acces Lab Accelerator	Sports, tourism, event technologies, wellness, and fitness	To promote innovation in the sports and wellness sectors and support the international growth of startups	To provide comprehensive support to innovative startups in sports, tourism, and wellness, including technological development and business model optimization. They aim to prepare startups to enter global markets.	Pre-growth to growth (early stage to growth stage)	3 to 9 months	Workshops on new technologies Brainstorming and collaboration sessions Strategic partnerships Product development support Strategic mentoring Access to R&D experts Fundraising support Operations optimization Personalized guidance Preparation for business expansion

Source: Author.

The diversity of incubators and accelerators reflects the growing complexity of today's entrepreneurial support ecosystem, both in terms of the variety of resources provided, the types of projects incubated, the sectors of activity targeted, and the stage of intervention specific to each structure.

Table 3. The characteristics of accelerated startups

Startup	Date of creation	Share capital	Sector of activity	Number of employees	Acceleration duration	Amount of funds raised
Nssayblik	2022	100.000,00 Dhs	Technological	-10	12 months	In progress
Guichet	2018	555.600,00 Dhs	Technological, ticketing	-30	6 months	50Mdh
Yofitt	2020	393.000,00 Dhs	Technological and wellness	-15	6 months	In progress
Wanaut	2019	138.880,00 Dhs	Technological, event, and community experiences	-10	6 months	2Mdh

Source: Author.

The selection of these cases did not occur ex nihilo. It is the result of a set of predefined selection criteria designed to determine the relevance of our sample, ensuring it is representative of the Moroccan startup acceleration ecosystem:

Table 4. Sample selection criteria

Selection criteria	Characteristics of Moroccan entrepreneurial support ecosystem
Heterogeneity	Diversity of Stakeholders: 4 startups, accelerator and incubator
Homogeneity	Activity sector: technological innovation Acceleration duration: less than 1 year Effectif: less than 30
Balance	A highly balanced incubation & acceleration relationship, ensuring mutual respect in the collaboration between the two actors: startup with his incubator or his accelerator.

Source: Author

The selection of our case studies, as in any rigorous research design, is based on a set of criteria structured around the degree of homogeneity among the cases, the diversity they represent, and the extent to which the overall sample ensures balance and contextual representativeness.

Results and discussion

The Selection Criteria for an open-technology innovative project

This research revolves around the phenomenon of the acceleration of open technology innovation, with a particular focus on accelerated technology startups. Fieldwork has revealed that startups often apply selection criteria to their choice of acceleration structures in ways that diverge significantly from what is suggested in the literature review. This is exemplified by the case of the startup *Nsayblik*, which selected the EBF accelerator specifically for its sectoral expertise in emerging open technologies and its ability to connect startups with strategic industry stakeholders. *Nsayblik* particularly valued EBF's personalized mentorship approach and its extensive network of partners. As emphasized by the *Nsayblik* team: *« The choice of* EBF*'s acceleration program was motivated by their sector-specific expertise and their ability to connect startups with strategic industry stakeholders. Their extensive network of partners, combined with a mentorship-oriented approach, proved to be particularly well aligned with our requirements for achieving rapid and sustainable hypergrowth. ».* Guichet.com, also supported by EBF, was drawn to their expertise in digital technologies and marketing. The accelerator provided an extensive network of technological partners and a strong emphasis on digital marketing strategies, both of which are essential for the online ticketing sector. As Guichet.com states: *"We chose acceleration with* EBF *due to their in-depth*

expertise in digital technologies and marketing. These competencies are crucial for our growth in the online ticketing industry". For Wanaut, the selection of the Accelab accelerator was grounded in its expertise in sports and tourism, as well as its profound understanding of technology and innovation. Wanaut considered Accelab's holistic approach integrating product development, support for international growth, and the optimization of business models as fully aligned with their mission to revolutionize the experiences market. The Wanaut team articulated this choice as follows "Accelab was selected for several strategic considerations. Its expertise in the fields of sports and tourism, coupled with a profound understanding of technology and innovation, made it an ideal partner in advancing our mission to transform the experience market."

Yofitt, specializing in technology and wellness, opted for Accelab due to its expertise in wellness technologies and its well-established network within the sports industry. Accelab not only provided access to funding opportunities and crucial technological resources to support their growth, but also offered an acceleration program better tailored to Yofitt's specific innovations. As Yofitt explains: *'Our decision to collaborate with Accelab was driven by several key factors. First, their specialization in wellness technologies and their recognized expertise in this sector were aligned with our vision and needs, particularly in accelerating our innovations".* These findings indicate that accelerators such as EBF and Accelab focus on achieving strategic alignment between their core expertise in incubation and the acceleration of open innovations, and the specific needs of their startups with high technological innovation potential, in relation to the megatrends of the open-technology ecosystem. This strategic alignment enables the establishment of a continuous and sustainable cycle of open technology innovation.

BI & BA corporate: A focus on acceleration process of Open-technology innovation

The potential for open-technology innovation and the capacity for scalability are key criteria for accelerators when selecting startups to support. These criteria help identify projects that are capable of radically transforming the market while simultaneously stimulating existing players in their pursuit of more innovative technologies.

For Nsayblik, EBF's evaluation of their open-technology innovation potential was based on the uniqueness of the technology, the market need it addressed, and the ability to protect intellectual property. EBF assisted Nsayblik in developing more advanced features for their platform, such as real-time project management, collaboration tools, and more secure and digitized payment solutions. The Nsayblik team notes: "*Through these strategies, we have developed a secure networking platform for freelancers and clients. This platform incorporates advanced project management and communication features, such as real-time project tracking, collaborative tools, and secure payment solutions."*

Guichet.com has also benefited from the support of EBF in innovating within the field of online ticketing. They have developed a digitized and integrated system for event and ticket management, offering customized options for organizers, such as the creation of tailor-made booking forms and secure payment tools. As Guichet.com describes it: *"We have developed an integrated ticketing system that enables smooth and efficient management of events and tickets. This system provides event organizers with personalized options, such as the design of customized booking forms, secure payment tools, and real-time analytics of sales and user engagement."*Wanaut has developed immersive technologies, including the integration of augmented reality into event management. This innovation enables users to experience enriched interactions, thereby increasing engagement during events. Wanaut has also implemented advanced analytical tools to provide real-time insights into event performance. The Wanaut team explains: *"A concrete example of the technology we have developed through these strategies is our event management system with integrated augmented reality. This feature allows users to have immersive experiences during our events, enhancing interaction and engagement."*

For Yofitt, the support of Accelab has been crucial in developing cutting-edge technologies in the field of wellness. Yofitt designed an intelligent recommendation system that adjusts users' training routines in real time based on their performance and progression. They also integrated augmented reality features into their application, thereby enhancing the user experience. As Yofitt

describes: *“Thanks to Accelab’s strategies and support, we were able to develop several innovative technologies. For instance, we designed an intelligent recommendation system that adjusts users’ training routines in real time according to their performance and progression.”*

Thus, accelerators such as EBF and Accelab assess the potential of open technology innovation by focusing on startups’ capacity to develop highly disruptive and scalable technologies. They provide support not only to transform these open innovations into viable market-ready products and services but also to ensure that these innovations serve as a continuous source of reinvention, capable of adapting to internal or external changes driven by prevailing megatrends.

Open-technology innovation strategy between BI or BA and Business startups

The entrepreneur’s competence and entrepreneurial character throughout the entrepreneurial process remain essential selection criteria for accelerators, as they play a crucial role in enabling the startup to reorganize, innovate, and continuously re-innovate in response to the market’s multiple demands. Similarly, Nsayblik has greatly benefited from EBF’s expertise in the field of technology, with the latter frequently organizing networking sessions with experts and technologists. The incubator particularly values the team’s technical, technological, and managerial skills, ensuring that they possess the necessary capabilities to successfully implement their vision and effectively manage the exponential growth of open technology innovation among their entrepreneurs. Nsayblik confirmed that: *“The incubation and acceleration provided by EBF have been essential in establishing our sustained rhythm of innovation. They helped us set clear and measurable innovation objectives and to regularly review our progress. While it is relatively easy to innovate and re-innovate on one’s own, the real challenge lies in maintaining and more importantly, accelerating this open-technology innovation in a sustainable growth trajectory. That is precisely where we needed the support of EBF*.” It should be noted that although EBF is formally an incubator, the findings from the interviews indicate that it has also played the role of a startup accelerator, which represents a more advanced stage of incubation itself. Moreover, EBF has significantly contributed to accelerating open-technology innovation among startups through its networking strategy with the Moroccan startup innovation ecosystem. This has been achieved by organizing workshops, networking sessions, conferences, training programs, and mentorship activities with experts and specialists in the fields in which the startups operate.

EBF has recognized the importance of maintaining a high-quality user experience while managing the rapid and accelerated growth of Guichet.com’s open technology. The entrepreneur emphasized that: *“One of the main challenges was managing accelerated growth while ensuring a high-quality user experience. To address this challenge, we optimized our operations by adopting scalable technological solutions through EBF’s network.”*

However, Accelab assisted Wanaut in optimizing its technological platform and managing the rapid growth of traffic and transactions. The founding team of Wanaut was supported in developing key competencies and acquiring the necessary resources to navigate the challenges of rapid and sustainable growth. As Wanaut explains: *“Managing the rapid growth of our traffic and transactions has been a major challenge. To address this, we adopted a scalable cloud architecture that enables us to effectively handle the increasing data volumes.”*

Yofitt, in turn, benefited from Accelab’s personalized approach and tailored mentorship. The assessment of the team’s competencies made it possible to identify specific needs in terms of technological development and business strategy. Accelab’s support helped Yofitt strengthen its capacity to integrate technological innovations and adapt its operations to meet market demands. The Yofitt team emphasized: *“Accelab played a crucial role in establishing a sustainable pace of open technology within Yofitt. They organized regular brainstorming sessions during which our team was encouraged to explore new ideas and rapidly test new concepts”.* This therefore represents a new strategy adopted by Accelab for accelerating open technology innovation, the strategy is based on the optimization and valorization of internal resources such as brainstorming sessions, self-training, and similar initiatives.

Conclusion

To review the accelerators, adopt two main strategies. The first consists of selecting startup projects according to predefined criteria established by the incubation or acceleration structure, with the objective of ensuring the success of the need/response alignment. This involves identifying in the entrepreneur both the potential for innovation and scalability, as well as the competence and complementarity of the founding team. The second strategy is grounded in the process of accelerating open technology innovation. Each accelerator tailors its specific expertise to the needs of the startups it supports, thereby ensuring a strategic alignment that fosters sustainable and rapid growth in open technology for startups. This analysis also highlights the importance of personalized support and mentoring within the acceleration process, enabling startups to maximize their potential and establish a competitive position in the market. The results of this paper show that the EBF incubator and accelerator adopted a networking strategy with the innovation ecosystem to support their accelerated startups (through networking sessions, conferences, hackathons, etc.), whereas the Accelab accelerator pursued a strategy focused on the optimization and valorization of its internal resources (including brainstorming sessions, self-training, stress management, and experiential learning), with the aim of establishing a rapid and accelerated growth trajectory for open technology innovation.

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