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Research Article

Leveraging Lean Startup Principles: Developing And Testing Minimum Viable Products (Mvps) In New Business Ventures

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ABSTRACT

This paper examines business models as mental tools to identify cognitive bridges among digital entrepreneurs employing LSAs. Six key activities, including opportunity identification, BM hypothesis definition, and experiment design, are found to require BM heuristics in this multiple-case study of three digital firms. It also differentiates four cognitive processes: the imprinting, the process of transfer of a common language, intensity of attention, and the cognition in the frames of a science, that define the creation and usage of these heuristics. MVBMs are defined anew as the concept of complete experimenting and are introduced as the Minimum Viable Business Models. The results presented in this study offer theoretical contributions for the field of digital entrepreneurship as well as practical implications and contribute to the enhancement of knowledge concerning the way entrepreneurial cognition and action operates under resource-scarce conditions.

Keywords: Business Model Heuristics, Lean Startup, Digital Entrepreneurship, Cognitive Micro foundations]

Introduction

Entrepreneurs have not been left behind when it comes to change in approach to new business ventures this is through Lean Startup. The core concept of this methodology is the Minimum Viable Product (MVP) that is a simplified version of a product that allows the founders to introduce the business idea with the smallest amount of means. Basically, it enables the creation and testing of MVPs to quickly validate the business ideas, collect valuable feedback and use obtained information to improve a product. It places the possibility of success in an uncertain market higher while lowering the risk, and it also offers the potential for learning at a much quicker rate. New businesses may very rapidly respond, prioritize and even create products that directly meet customers' needs applying MVPs and Lean Startup.

Literature review

Integrating Lean Startup Principles with Organizational Theory for Enhanced MVP Success
According to the author Lortie *et al*. 2022, the lean startup concept has emerged in the recent past as a novel means of mitigating the threats and costs of creating new firms. This method focuses a lot of importance towards formulating and validating the minimum viable products or MVPs in the shortest time possible so as to assess the viability of the business. The Knowledge Based view of the firm which postulates that knowledge is a fundamental resource for competition, complements the lean startup culture firmly. This view is supported by the organizational learning theory which pointed out the importance of continuous learning especially in volatile environments.

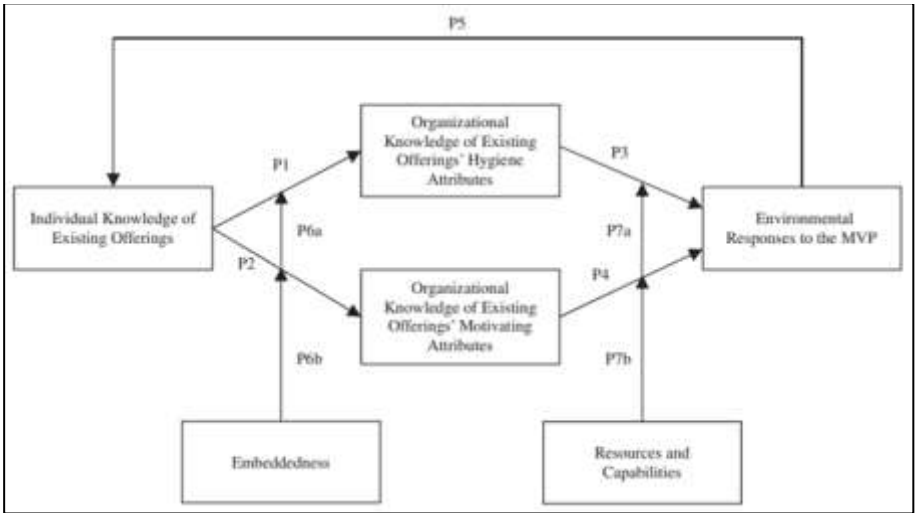

Figure 1: Effects of Individual Knowledge on Organizational Level Knowledge and Success Of MVPs
(Source: Lortie *et al.* 2022)

This learning occurs in cycles of MVP build, customer feedback, and product enhancement in an environment of lean firms. Thus, the Two-Factor Theory initially designed to measure the satisfaction with the job can be effectively used for the analysis of the customers' reactions to MVPs (Lortie *et al.* 2022). It is beneficial for the entrepreneurs to separate the drivers that create satisfaction and dissatisfaction as it enables one to manage the factors that lead to positive and negative responses to their products. It can be noted that most of the processes of managing the knowledge exchange between individuals and the organizations are traced under the concept referred to as embeddedness, which expresses the degree of social and organizational incorporation of a particular person. Team members with high integration may be able to transform personal insights to organizational knowledge better especially in the lean start up.

Lean Experimentation in Business Model Adaptation for Digital Startups

According to the author Ghezzi *et al.* 2020, a business often requires a fast adjustment of its market strategies because the markets in the digital ecosystem are dynamic and constantly evolving. , but is often challenged by resource constraints, which in this case hinders startups to achieve such adaptations and compel them to resort to unconventional techniques of validating and implementing enhancements (Ghezzi *et al.* 2020). The Lean Experimental approach is preferred as the best methodology by the digital startups to avoid these challenges. This method drawing from the lean startup strategy is highly defined by the principles of innovator's pivot, with special focus on the concept of successive minimal viable product, validated learning and the process of rapid testing.

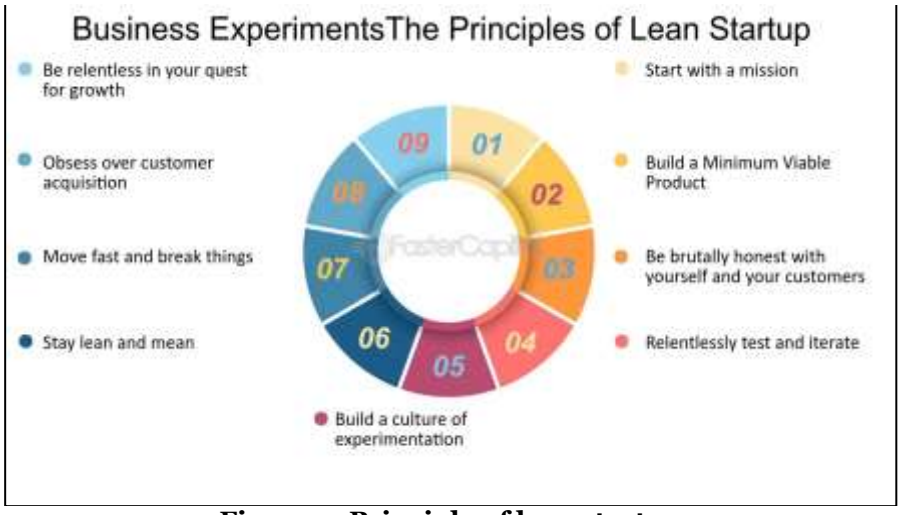

Figure 2: Principle of lean startup
(Source: https://fastercapital.com)

It costs nearly nothing to use so an entrepreneur can experiment with the fundamental aspects of their business idea and develop them or reject them based on responses from reality. Research indicates that, while approximately 75 percent of digital companies experiencing business model evolution apply lean

experimentation in some form or another, the areas and methods of how and where the framework is implemented vary. The last factor is one of the main channels distinguishing between the two groups essentially, the availability of resources appears to be a separate factor and the amount of resources offered appears to be a separate factor. The use of lean startup concepts in startups with restricted financing is usually kept to a minimum as it focuses on the component with the best items of using value-added sources in the shortest time possible. Furthermore, it will be observed that more resource-accumulated businesses are inclined toward investing in an all-rounded, slender experimental structure of the entire business. Thus, analyzing this application variation proves that Lean Startup methodology's main principles are applicable to different organizational environments and investment capacities. It also underlines the further research needed to utilize lean experimentation methods in context of specific startups' conditions and constraints.

Business Models as Cognitive Heuristics in Digital Entrepreneurship

According to the author Ghezzi, 2020, in recent years, increasing attention has been paid to the link between the logs that specify the business models (BM) and cognition in entrepreneurship. While BMs are well recognized as strategic instruments, the possibility of their use as cognitive decision-making schemes for solving the entrepreneurial challenges is still only partly explored and seemingly not fully applicable to the context of digital entrepreneurship. Namely, Lean Startup Approaches (LSAs) are rather popular in the environment characterized by limited resources for testing and selection of the business concepts. Such methods that rely on the concepts such as iterative learning and fast prototyping are perfectly suitable for the Digital Entrepreneurs (Ghezzi, 2020). In the light of the latest study, business models can be described as the thinking frames within which entrepreneurs employing LSAs make sense out of, and act upon these practices. These heuristics range from designing experiments, filtering information, searching for opportunities, to learning integration, and are all BM generated. Minimum Viable Business Models (MVBMs) are conceptual ideas considered to be a tool for designing complex customer trials striving to produce value and capture it. Thus, business owners can successfully and efficiently validate their BMs using the outlined method. Further, the type, manner as well as process of how these BM-generated heuristics are learnt, in the process of being translated from one language from another, engraved as well as employed are greatly impacted on by cognitive factors such as scientific cognition, language transfer impression, imprinting and attention intensity. They assist in moving the process of entrepreneurship to the scientific method that entails the deft instance and medicated decision-making process.

Methods

Research Design

Since this research aimed at exploring the processes by which digital entrepreneurs employ LSAs as cognitive tools, a qualitative multiple-case research design was employed. Therefore, the choice of the case study approach was mainly based on the fact that it may provide richer contextual information of complex phenomena when compared to other methodologies and seems to be well suited to elicit data related to mental processes implied in the decision-making of entrepreneurs (York, 2021). Three digital businesses that guaranteed the adequate representation of the focus of the research by engaging in the use of LSAs and integrating technical advancement in the offerings.

Data Collection

All forms of collecting data were used which included semi-structured Interviews, Participant observation and Document analysis. Business models, usage of LSAs, and decision-making processes, the latter was established by interviewing all the founding members of each startup's team in detail. Each interview conducted was videotaped for later use and it was transcribed to another hard copy during analysis (Göcke and Weninger, 2021). It was between one hour to one and a half an hour long. Particularly, in the team-meetings and production of case-studies, participant observation was exercised with the purpose to get primary insights in the actual use of business models by the entrepreneurs. As for the core of field research, the field notes were acquired in order to capture relevant facts and context.

Data Analysis

Data collected was analyzed by using Grounded theory, where emergent themes and patterns were identified from the data hence emerging from it. Applying the open coding process to the data enabled identification of categories relevant to the meanings and classifications concerning the use of business models as heuristics (Allen, 2022). The next process was axial coding, during which connections between the categories were analyzed and theoretical concepts were developed. It conducted cross-case analysis, firstly, making comparisons between all of the three Startups and identifying similarities and differences in their ways of using the business models as cognitive tools. As a consequence of this procedure, the phenomenon was comprehensible on a broader perspective.

Result

Business Models as Cognitive Lenses for LSA Implementation

The analysis of the results of the study showed that in the context of the identified business models, Start Company entrepreneurs equally and explicitly used and understood LSAs. Due to this cognitive framing, the knowledge workers were able to transform the abstract LSA rules into applicable heuristics that worked well in their context (Yoo *et al.* 2021). Thus, entrepreneurs noted that with the help of analyzing their startup with the help of the business model, it was easier for them to grasp all the complex relationships in the industry and define the necessary areas for further testing.

BM-Generated Heuristics in Entrepreneurial Activities

Thus, by having the business model, the entrepreneurs separated and interpreted wanted signals from the market to identify opportunities that matched their value proposition. The business model provided sufficient context with which hypotheses about a number of concepts relevant to startups could be derived, such as sources of income, or customers' requirements (Ghezzi and Cavallo, 2020). Through their BM, the entrepreneurs were consequently managing the immense amount of information that was relevant mainly to their value proposition. As for the methods of designing the multicast experiments that compared the core assumptions at every stage of the business model, one of the important heuristics has been introduced – Minimum Viable Business Models (MVBMs).

Cognitive Processes Shaping BM Heuristics

Four cognitive processes were discovered to have influence on when and how premises were developed and applied as BM-generated heuristics by these entrepreneurs. In a nutshell, the problem-solving skills of the entrepreneurs were formed for a long time to think in the framework of practical business models. With colleagues and with other members of the organizational structure, there is unity of language that is provided by the existence of the business model (Bortolini *et al.* 2021). The framework of the business model helped the entrepreneurs to effectively focus on essential aspects of their business owing to the limited mental capacity.

Discussion

The findings contribute to the existing body of knowledge on the concept of the strategy and cognitive perspective of entrepreneurship, specifically from a digital context's standpoint. In showing how it is done, it demonstrates how the fact that business models are used cognitively and intentionally by entrepreneurs address the problem of the lack of mediation between the theories of entrepreneurship and its reality (Solaimani *et al.* 2022). The creation of heuristics to manage the self-generated data from BM that occur because of the lack of time to plan for uncertainty and resource constraint is in line with prior studies on effectuation in entrepreneurship and bricolage. However, by establishing linkage between these heuristics and the business model framework and identifying specific tasks that are performed well by these heuristics, this research takes it forward. A new concept is Minimum Viable Business Models (MVBMs), which is a longer and more accurate approach of experimenting compared to MVP, which is centered on the product alone. Additionally, the acknowledgement of four basic cognitive processes that are involved in the formation and use of these heuristics provides gains in knowledge about the process, through which entrepreneurs adapt and develop the ways of making decisions (Mukwawaya, 2020). By cultivating business model thinking and scientific cognition, these outcomes suggest how the challenges of digital contexts can be better managed by entrepreneurs, and therefore relate to multiple important applications in the field of entrepreneurship education. It is possible to explore subsequent studies on how these mental models and heuristics evolve as the startups grow and face emerging challenges after the validation stage.

Future Directions

Following are some of the research possibilities, which the future studies can explore in this field: First, when firms are moving from the validation sub phase of early-stage BM to the growth and maturity sub phases, qualitative research could examine how heuristics generated by BM evolve. Secondly, scholars should look for ways in which relying heavily on the business model thinking can be a disadvantage, or has limitations, such as cognitive lock-in and failure to see opportunities for disruptive views that do not correspond with the current business model. Third, whether studying other industries or other cultures, comparative research could help identify how the BM heuristics are used in the different entrepreneurial environment. Fourth, the further understanding of how the team dynamics and cognitive diversity affect the creation and use of these heuristics can improve the recommendations of the appropriate composition of the start-up teams (Kundera, 2022). Fifth, studies of how BM-generated heuristics might be changed or improved through the introduction of modern technologies such as AI & ML, could offer significant information concerning how tomorrow's entrepreneurial processes might be continued. Finally, there can be significant applied implications for entrepreneurship education and support initiatives from the development and research on new interventions or instruments that enhance entrepreneurs' ability to generate and apply accurate BM heuristics.

Conclusion

Therefore, this study helps to reveal the essential role that business models act as cognitive heuristics for digital ENTs, especially when it is discussed in the context of lean startup strategies. The argument of this paper is that business owners employ their business models as mental tools to understand risks, make rational decisions, and implement effective tests. The heuristics developed in BM and the related cognitive processes that relate to them introduce invaluable knowledge on how the entrepreneurs 'work with' limited quantities in the process of innovation. Thus, this research contributes to literature on entrepreneurial cognition and decision making by developing theoretical concepts in congruence with practical implications. All these disclosures bear significant implications for incubation initiatives, startup support, entrepreneurship education, and the vocation of strategic management in rapidly evolving digital environments.

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