

# A Comparative Study on the Impact of Business Model Design & Lean Startup Approach versus Traditional Business Plan on Mobile Startups Performance

Antonio Ghezzi, Andrea Cavallaro, Andrea Rangone and Raffaello Balocco  
*Department of Management, Economics and Industrial Engineering, Politecnico di Milano,  
Via Lambruschini 4B, Milan, Italy*

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Abstract: Business Model Design (BMD) & Lean Startup (LSA) approach are two widespread practices among entrepreneurs, where many Mobile startups declare to adopt them. However, neither of the two frameworks are well rooted in the academic literature; and few studies address the issue of whether they actually outperform traditional approaches to new Mobile Startups creation. This study's aim is to assesses the contribution to performance of the combined use of BMD and LSA for two startups operating in the highly dynamic Mobile Applications Industry; performances are then compared to those achieved by two Mobile Star-ups adopting the traditional Business Plan approach. Findings reveal how the combined use of BMD and LSA outperforms the traditional BP in the cases analyzed, thus constituting a promising methodology to support Strategic Entrepreneurship.

## 1 INTRODUCTION

The process an entrepreneur faces in launching a new venture is characterized by significant complexity and uncertainty. Such uncertainty is the cause of the intrinsic high risk that the creation of a new venture embeds (Eisenmann et al., 2012); (Ries, 2011). Studies have found that millions of would-be entrepreneurs participate in new venture creation every year, although there is large variation in startup rates among countries (Amorós and Bosma, 2014). At the same time, the large numbers of startup attempts are matched by equally large numbers of failed efforts: for instance, about 75% of U.S. venture-backed startups fail, according to Harvard Business School senior lecturer Shikhar Ghosh (Blank, 2013). Nobel (Nobel, 2011) recently found that, irrespective of what entrepreneurs define as success, the failure rate increases as its definition narrows:

- whenever failure is considered in terms of asset winding up, where investors lose part or the whole investment made, the failure rate is between 30% and 40%;
- assessing failure as a lack of return on investments, the failure rate is higher and it stands

between 70% and 80%;

- finally, if failure reflects the non-achievement of the targeted goals, the rate increases up to 90/95%.

The reasons behind these poor results are various, and existing literature (Townsend, 2010) groups them in: i) a lack of legitimacy; ii) a lack of resources; iii) entrepreneur human capital; and iv) external factors such as environment/industry characteristics. Moreover, insights from the report for Canada's National Angel Capital Organization, "Understanding the Disappearance of Early-stage and Startup R&D Performing Firms", tells much about the gloomy picture surrounding early-stage startups, show that the key factors attributed for the demise of these companies were: no revenue from customers, no input from customers on R&D performed or on the product or service being developed, misreading of markets, product not needed or not simple enough for the application, poor sales and marketing decisions, wrong timing, and unaware of competitors and changing market conditions (Barber and Crelinsten, 2009). Notwithstanding the long list of mistakes that determine poor performance and high Startup mortality, the reported problems appear to fundamentally point at a paramount issue: entrepreneurial practices followed by entrepreneurs

are often unlinked with traditional strategic theory and practices. Indeed, entrepreneurs tend to craft their endeavors around an original business idea, and fully devote their effort in pursuing its operational concretization without a clear strategic orientation (Kisfalvi, 2002); in addition to this, they tend not to take stock of existing strategy analysis models, which are seldom employed in the early phases of the new venture activity (Ghezzi, 2013). Hence, strategy is mistakenly perceived as an obscure tool by many “startupper”, and as a result, the relationship between the original business idea, the new venture’s goals, the actions to achieve such goals, and the related performance, is often lost in translation (Kraus and Kauranen, 2009). The research stream on Strategic Entrepreneurship aims at tackling this issue from an essentially theoretical standpoint, in the attempt to supply entrepreneurs with top-down, formal and sound tools to approach strategy. Recently, however new bottom-up and rather practitioner-oriented approaches emerged to tentatively fill this shortcoming: in this study, we focus on two approaches which are still under investigated, due to their embryonic stage of development (Trimi and Berbegal-Mirabent, 2012) and their fuzzy definition (Zott et al., 2011), i.e. the Business Model Design (BMD) and the Lean Startup approach (LSA). The business model concept has generally referred to “architecture of a business” (Timmers, 1998) where the essence was defining how the enterprise delivers value to customers, enticing them to pay and converting the payments to profit (Teece, 2010). The Lean Startup Approach has achieved large consensus among practitioners, where many startups declared to adopt this approach. The term, coined by Eric Ries (Ries, 2011) refers to a business approach that aims to change the way that companies are built and new products are launched. In this study, we propose to investigate the potential contribution of BMD and LSA to strategic entrepreneurship’s theory and practice. We first open our work by arguing that these two practical approaches show inherent relationships with the legacy of both Strategic Management and Entrepreneurship literature streams, and could be positioned at the crossroad of the two: hence, we craft a framework to organize and frame these emerging approaches used in launching new ventures within the strategic entrepreneurship literature stream – i.e., the intersection between the entrepreneurship and strategy streams – (e.g. Hitt, 2001). Such further investigation is also in line with Audretsch et al., (2010) who state that several literature gaps exist in the field of entrepreneurship and, as specifically concerns new frontiers in entrepreneurship, an issue

(out of seven issues proposed) interesting to investigate refers to the “mechanism underlying processes of learning and innovation within and by new ventures”. Second, at an empirical level, our study aims at comparing the effectiveness of the emerging BMD and LSA approaches with that of the traditional Business Plan approach to support new Information and Communication Technology (ICT) ventures creation. By presenting and discussing four longitudinal cases of startups development in the Mobile industry, the performances achieved by two startups created combining the emerging approaches of BMD and LSA are benchmarked with the performances of the two other new firms initially developed adopting the traditional Business Plan (BP) approach. An action research setting enabled direct experience on the four cases, and the findings allow to underscore the impact of the design approach undertaken on achieved performance. Indeed, an improved understanding of the approaches used by entrepreneurs in creating new firms is critical to explaining the survival and growth of new ventures. The ultimate purpose of our work is hence to frame BMD and LSA in the broader Strategic Entrepreneurship field, and provide ICT entrepreneurs with evidences that such combined approaches may outperform the traditional BP and make for improved performance.

## 2 THEORETICAL BACKGROUND

### 2.1 Business Model Design

Research on BM design evolved from elaborating taxonomies (e.g. Rappa, 2001), to defining a theory (Osterwalder, 2004), to supporting firms’ strategy analysis (Ghezzi, 2012). When analyzing BMs, the researchers’ focus has shifted from a single firm to a network of firms, gradually transforming the BM from a monolithic entity to a multifaceted concept (Ballon, 2008), to be investigated as a combination of multiple and diverse design dimensions and interrelations. Such multifaceted evolutionary process, though beneficial to establish BM design as a research stream, burdened the theory with a lack of homogeneity (Johnson et al., 2008). In fact, several – often heterogeneous – frameworks or templates have been proposed to construct maps of BMs, to clarify the processes underlying, and then to allow considering alternative combinations of these processes (also called building blocks or parameters). While the impact of business models and their

innovation on a firm's success appears to be convincing (Cortimiglia et al., 2015), till now the construct has been only very poorly understood (Teece, 2010). Scholars, in fact, are still concerned with the theoretical foundation and definition of BM and the literature is developing largely in silos, according to the phenomena of interest of the respective researchers (Ghezzi, 2014). Nevertheless, the framework proposed by Osterwalder and Pigneur (2010) – the business model canvas - is now widely adopted and employed by practitioners, and identifies nine parameters to decompose a business model: (i) value proposition; (ii) customer segments; (iii) channels; (iv) customer interface; (v) key activities; (vi) key resources; (vii) key partners; (viii) revenue model; (ix) cost structure.

Although BMD design within the entrepreneurship field is a recent topic, it is gaining a growing attention in the literature (Trimi and Berbegal-Mirabent, 2012; Ghezzi et al., 2013; Ghezzi et al., 2015a). Performance of entrepreneurial firms is strongly conditioned by their adopted business models (Zott and Amit, 2007). However, new ventures in rapidly changing environments change their business models several times to succeed (Ries, 2011). Thus, business model design and change is especially critical to new technology-based firms (Andries and Debackere, 2007). Resulting from this fuzzy environment, many startups fail, and a large number of those that survive end up being acquired by larger companies. In addition to adopting business models to facilitate technological innovation and the management of technology, firms can view the business model itself as a subject of innovation (Mitchell and Coles, 2003). One of the main developments in business model design regards the business model canvas: such framework is widely adopted and employed both by practitioners (Osterwalder and Pigneur, 2010) and academics (e.g., see Chesbrough, 2010).

## 2.2 Lean Startup Approach

The LSA introduces two new concepts: minimum viable products (MVP) that efficiently test business model hypotheses, and pivots that change certain business model elements in response to failed hypotheses tests. As a third element, unlike other methods for managing early stage venture, the lean startup approach balances the strong direction that comes from a founder's vision with the need for redirection that follows from market feedback (Eisenmann et al., 2012).

One of the main differences between existing companies and startups lies in the business model

issue: while existing firms execute a business model, startups look for one (Blank, 2013). Such distinction is at the heart of the lean startup approach. When following this approach, an entrepreneur translates her/his vision into falsifiable business model hypotheses, and then tests those hypotheses using a series of minimum viable products (MVPs). Each MVP represents the smallest set of activities needed to disprove a hypothesis (Eisenmann et al., 2012); (Ries, 2011); (Blank, 2013).

Based on test feedback, an entrepreneur must decide whether to persevere with her proposed business model; pivot to a revised model that changes some model elements while retaining others; or simply perish, abandoning the new venture. He or she repeats this process until all of the key business model hypotheses have been validated through MVP tests. A hypothesis-driven approach helps reduce the biggest risk facing entrepreneurs: offering a product that no one wants. Many startups fail because their founders waste resources building and marketing products before they have resolved business model uncertainty. By bounding uncertainty before scaling, the hypothesis-driven approach optimizes use of a startup's scarce resources (Eisenmann et al., 2012); (Blank, 2013).

## 2.3 Business Plan

Kraus and Kauranen (Kraus and Kauranen, 2009) state that business plan (BP) plays an important linking role between entrepreneurship and strategic management. The BP is the document which describes the enterprise's strategy, i.e. content and process, thereby presenting the vision of the enterprise and how the enterprise is going to attain its vision (Honig and Karlsson, 2004). In particular, the BP can serve as the basis of the strategy itself and as its formalized documentation. The business plan typically includes a set of key documents, organized around the following sections (Abrams and Abrams, 2003):

- general description of the firm;
- general description of products/services;
- strategic plan;
- marketing plan;
- operating plan;
- human resources and organization plan;
- financial plan, and economic and financial projections.

Several strategic tools and models have been traditionally used to craft the BP. The main ones are the Abell's model for the competitive positioning (reference) and the SWOT (Strength-Weakness-

Opportunity-Threat) analysis to generate strategic alternatives. There is still no agreement in literature about the usefulness of business planning and empirical findings have been fragmented and contradictory (Brinckmann et al., 2010); some scholars (i.e. (Bhide, 2000)) argue that planning interferes with the efforts of firm founders to undertake more valuable firm. Notwithstanding such theoretical disagreement, the business plan is the document typically used by investors to evaluate funding opportunities (Burke et al., 2010).

### 3 METHODOLOGY

Since the thin archival record deposited by many startups requires entrepreneurship researchers to “get their hands dirty”, many entrepreneurship researchers – even those without relevant prior experience – may gain an understanding of practical issues through direct research involvement in new ventures. Thus, startups provide a useful laboratory for studying many of the research questions central to strategy and organization (Ireland and Webb, 2007). Taking advantage of the authors’ direct experience within two different masters courses offered in an EQUIS-accredited School of Management, a selection of four cases of Startups in the Mobile industry was made, and these cases have been analyzed in-depth, in the attempt to identify the difference from theory to practice, and from what the companies claim they do and what they actually do. The opportunity for cases identification came from the involvement in two master courses: an executive master in business administration, whose target students is represented by managers of large companies, which lasted two years and it was held in 2011 and 2012; and a newly designed master directly addressing new entrepreneurs: the first edition of the course has been launched in 2012. In the first, we took the role of tutors responsible for leading participants in the adoption of the traditional BP approach to assess either strategic investments in well-established ICT environments or original business ideas to start a new venture. In the second course, we were tutors in a newly designed master directly addressing new entrepreneurs: the master was more open to new approaches, as the business model canvas and the lean startup approach were the heart of the teaching activity, requiring startupper

to develop their startups following these approaches.

The cases analyzed were selected according to the following filters: (i) the case had to be related to an actual startup, i.e. a new ventures launched before or during the course; (ii) the case had to be focused on the Mobile Industry; and (iii) the entrepreneurs had to be willing to be led by the tutors in the actual strategic process, openly sharing data and information. The Mobile Industry was selected due to its pervasiveness, global relevance, suitability to test both the BP and the BMD-LSA approaches, and market-specific expertise from the authors.

As a result, four cases were selected, where two of them applied the traditional BP and two applied the BMD-LSA. The target firms were all Mobile startups focusing on mobile applications that were in the launching phase: this is in line with the research objectives and, according to Venkataraman (1997), the level of analysis is constituted by new enterprise itself. This allowed us to compare the results of the analysis. Therefore we had the opportunity to study and compare two different approaches used by new ventures in their very early stage of life in the dynamic context of the Mobile Industry. Table 1 reports the key data from the new ventures analyzed.

Table 1: The 4 Mobile startups analysed.

BMD + LSA APPROACH
<p><b>Startup:</b> AppyU  <b>Market Segment:</b> Couponing  <b>Description:</b> App that allows finding offers and discounts in bars and cafeterias of Milan. The user has only to download the app on his own smartphone to obtain coupons with discounts up to 40% on the price of breakfasts, lunches, happy hours or drinks.</p>
<p><b>Startup:</b> Pinevent  <b>Market Segment:</b> Event Management  <b>Description:</b> Mobile App that allows users to look for and visualize ICT Business events in Italy on their own smartphone (more than 500 workshops and conferences). It is possible to search for events through keywords, sectors, geographic area, etc). Once the user selects an event, he can see all the details, share it on social networks and insert it in the agenda.</p>
BP APPROACH
<p><b>Startup:</b> CallATaxi  <b>Market Segment:</b> Transport  <b>Description:</b> Mobile App that allows to call a taxi directly from the smartphone, in an easy and fast way. Once the taxi has been called the user can see the right position of the taxi and can know the estimated waiting time. When the user reach the final destination he can pay with the smartphone, evaluates the taxi driver and lets a comment about the travel.</p>
<p><b>Startup:</b> CryptoLAB  <b>Market Segment:</b> Security (Counterfeiting)  <b>Description:</b> An anti-counterfeiting service that enables manufacturers to reduce the phenomenon of counterfeiting and gray market for their products; it also allows the consumer to independently verify the authenticity of a product prior to purchase. The verification is performed by using a smartphone and can be done either at the store or on the web. It is a computer system service combined with a specific type of product labels.</p>



Because of the authors' direct role in the development of these startups, our research activity conforms to the tenets of action research (AR). Avison et al., (1999) define action research as an iterative process involving researchers and practitioners acting together on a particular cycle of activities, including problem diagnosis, action intervention, and reflective learning. AR is perhaps the most widely discussed collaborative research approach, and a significant amount of literature on this topic is currently available (e.g. see Baskerville and Wood-Harper, 1998).

Cuervo et al., (2007) hold that researchers who want to make a unique and worthwhile contribution to entrepreneurship research should seriously consider making the effort to study new enterprise efforts, although collecting this kind of data is far from easy. New enterprise efforts would be studied over time regardless of their organizational context and their human champion both of which may change over time.

#### 4 EMPIRICAL RESULT

As seen throughout the literature review, there is a broad spectrum of performance measures around which new ventures are compared and evaluated. Nonetheless, measuring the performance of new ventures is problematic because there is no consensus among researchers as to what constitutes entrepreneurial success (Brush and Vanderwerf, 1992). Moreover, prior studies point out that entrepreneurs have differing objectives for starting new firms (e.g., "lifestyle ventures" versus "gazelles") and that objectives may vary in importance at different stages in the entrepreneurial process and in different industries. According to Kakati (2003) most of the new venture researches have focused on financial indexes, for instance by taking ROI as a measure of new venture performance, despite the pitfalls of using ROI (i.e. the firms would not be expected to achieve break-even within the first few years and ROI is sensitive to accounting practices). Other researches focus also on market share gain - but Miller et al. (1998) hold that this measure may be problematic for pioneering ventures, as they would initially have 100% of the market, only to have this reduced as new firms entered - sales growth and so on and so forth, mainly because of being readily available, easy to measure and non-confidential. Therefore, we tried to build a "vector of performance" considering some of the parameters presented in literature that are key in the startup

development process. We consider our approach to measuring performance a viable – though possibly imperfect – solution one to a very complex problem. In sum, our set of performance measures is composed by:

1. termination of the new venture (TNV);
2. product development (PD);
3. venture organization activity (VOA);
4. equity funding (EF);
5. first customer acquisition (FCA).

Shane and Delmar (2004) define termination of the organizing effort as a decision to terminate the endeavor made by all members of the venture team, because venture teams are often quite fluid, leading a venture to proceed with only part of the group that initiated the effort. We decided to focus on TNV because, as suggested by Shane and Delmar (2004), continuation of the organizing effort is a necessary condition for all other activities in new ventures. A new venture can achieve no other performance goal (achievement of first sale, positive profits, or the acquisition of financing) if it has been terminated. Our involvement as tutors in the startups' team allowed us to know immediately whether everyone pursuing the venture has terminated, and if so, when.

We also took into account two other different aspects of new venture development used by Delmar and Shane (2003): PD, which they define as the creation of the product or service that the venture will sell; and VOA, which they define as the set of activities to establish the organization that will provide the new product or service. We measured product development as the amount of time needed to develop the first product or service delivered to the market, while we measured venture organizing as the time needed to set up those activities that establish the physical structure and organizational processes of a new firm (Bhave, 2004). The last variable takes into account whether the startup has accomplished all the different activities related to bureaucracy (e.g. registration with government and tax authorities, the obtainment of permits and licenses to operate) and to both logistic and marketing issues (e.g. purchasing of raw materials, equipment, facilities and marketing and promotion activities). Then we also took into account whether the startup has received financing from any venture capital firm or not. The credibility associated with a funding event gives a strong signal about the quality of the startup. In a market with high uncertainty, the relevance of this signal is likely to be significant in reducing the perceived uncertainty of being associated with a particular company (Davila et al., 2003). Finally, we also monitored the time passed

from the launch of first version of the product to the first customer/external user acquired. We added this variable because in the LSA customer feedback constitutes a relevant part of the methodology.

Table 2 summarizes the different startups' performances. The findings show how all the performances achieved by startups following a BMD + LSA approach were superior than those achieved (or not achieved) by those startups developed through a BP.

Table 2: The comparative analysis of the 4 startups.

Approach	Startup	VOA	TNV	PD	FCA	EF
BMD + LSA	AppyU	3,5 months (completed)	No	3 months	2 weeks	Yes (Seed)
	Pinevent	2,5 months (completed)	No	4 months	1 week	Yes (Seed)
BP	CallATaxi	9 months (completed)	No	8 months	2 months	Yes (Seed)
	CryptoLAB	1,5 year (not yet completed)	No	1,5 year (not yet completed)	No	No

Apart from the performance comparison, during the action research some other issues arose. During the whole LSA it emerged that some resources and competencies neglected by the entrepreneurial team were, instead, "core resources" (meaning that they are important in sustaining the competitive advantage of the firm) (Gezzi et al., 2015b). Nonetheless, we also noticed that the LSA fastened the "learning process" of founders, pushing them in improving/acquiring competencies and capabilities that are core in running the new Business Model.

## 5 CONCLUSION

This paper provides two main contributions to the existing knowledge. On the one hand, this study frames in the academic literature two well-known popular tools among practitioners: the Business Model and the Lean Startup Approach. Our theoretical framework show that BMD and LSA should be included in the strategic entrepreneurship literature field, since their founding elements are linked with the strategic literature and the entrepreneurship literature too. These findings represent the first step to provide a robust theorization of the two emerging concepts, to lay the basis for rigorous empirical validation. Our study offers an alternative approach to strategically drive the process of entrepreneurial action, and supports the idea that exists an "entrepreneurial method" analogous to the

scientific method (Sarasvathy and Venkataraman, 2011). Furthermore, the main theoretical contribution of the BMD and the LSA to existing theories of entrepreneurial action like Effectuation and Bricolage, is to highlight the importance of experimentation and to stress the learning aspect of the entrepreneur during the journey of starting a company. The need for a shift from simple business planning to experimentation and learning has been recently put forward by some studies (Brinckmann et al., 2010), and this paper provides practical evidences supporting this point of view. On the other hand, this paper provides also some practical implications. The main contribution lies in guiding practitioners towards new approaches – appropriately rooted in the theory - favoring the shift from the traditional approach based on Business Planning, by now obsolete in the turbulent ICT context, to the new approach constituted by a combination of BMD and LSA. In fact, Bhide (Bhide, 2000) argues that the efficacy of written business plans is context specific: it is likely to have a positive impact in more static and predictable/stable markets but less so in more uncertain markets where entrepreneurs are introducing highly innovative products/services. Moreover, the analysis we made makes us suggests that in order to develop a new venture BMD and LSA should come first; BP could be used as a second step, to refine the previous methods' outcome and better frame the business idea in the competitive landscape. This is particularly true in high turbulent environment as in the Mobile industry. Hence, the ideal process that starts with the business idea generation should then continue with the design of a business model and the application of the lean techniques. When the business idea reaches the product/market fit, the new entrepreneur could write the BP, and employ those traditional strategic models she or he too often tend to disregard. This study is not without limitations, which mainly derive from any potential observer bias in the action research activities: this is a shortcoming that burdens qualitative research, though the rigorous methodology employed (e.g. we followed all the 5 principles proposed by Davison et al., 2004) in order to conduct a rigorous action research activity) attenuates this limitation. Moreover, other limitations refer to the need to generalize findings drawn from a single industry, to the small sample size of startups analyzed and to the selection of key performance to evaluate. To conclude, our research outlines several opportunities for future research; first, it pushes to further investigate and enhance the theoretical roots of BMD and, above all, LSA, so as to further justify their positioning in the strategic entrepreneurship

research stream. Secondly, future research efforts could try to better understand the efficacy of BMD e LSA in launching new ventures, and to investigate how all the relationships between the BMD and LSA change during the very early stage of life of the Startups. Moreover, we pave the way to the investigation of whether the simultaneous application of the LSA and BMD in the early stage of a new firm can help entrepreneurs in the exploration of new opportunities. Other future research avenues should try to overcome all this study's limitations by validating findings in different contexts and analyzing larger samples for instance. Finally, according to Kraus and Kauranen (Kraus and Kauranen, 2009), one of the most promising areas for future research is the pre-startup planning stage. Strategic management of an enterprise before and during the phase of its foundation is a topic of increasing interest. This includes research on the role of the business plan in the planning process, another topic of growing academic interest.

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