

# Innovations

## Developing a Frame Work towards Effective Open Innovation in Tech Startups: Proposal Development

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**Abstract:** *Tech startups are vital entities in the business context that are contributing to the economic and social development of the country. Tech startups are a booming industry segment in Sri Lanka; hence the sector faces many economic and social issues. Quite a large number of tech startups end to fail and discontinue in their first five years of operation due to different reasons. The most prominent reason for tech startup failure is a mismatch between product and market. This issue has been captured by smart and innovative startups by identifying its failure factors at the beginning stages. Hence, this study focused on developing a framework collaboratively combining outside-in open innovation practices with potential absorptive capacity and environmental dynamism, which is leading to achieving a proper match between product and market in Sri Lankan tech startups while exploiting external collaborations.*

**Keywords:** *Environmental Dynamism, Potential Absorptive Capacity, Product market fit, Open Innovation, Tech-startups*

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### 1 Introduction

Startups can be identified as new and temporary organizations that have innovation and technology-based business models (Strielkowski, Krejci, & Cabelkova, 2015) which are highly sensitive and deal with the highest uncertainty of the environment (Salamzadeh & Dana, 2020) with the potentiality for rapid growth and scalability (Blank & Dorf, 2012).

Among several types of startups, tech startups or ICT startups which are also known as scalable startups that developed ICT/software-intensive products or services (Bajwa, Wang, Duc, & Abrahamsson, 2017) provides solution development and services such as software development, website developments and mobile application developments.

Even though, tech startups create innovative products and/or services using advanced technology, but also are known to be inserted in uncertain and risky scenarios, which experience high mortality rates (Kalyanasundaram, 2018; Santisteban & Mauricio 2017). Many studies undertaken in different contexts have proved many startups fail within first five years in operations and unfortunately, the failure rate is more than 90% even in developed countries consisting of effective eco-systems (Cantamessa, Gatteschi, Perboli, & Rosano, 2018; Kalyanasundaram, 2018; Krishna, Agrawal, & Choudhary, 2016; Marmer et al., 2012).

However, a review of the empirical literature on startup failures specifies that few studies have identified different reasons in different contexts for startup failures. According to Cantamessa et al., (2018), the four major reasons for failure are the absence or the wrong business model, lack of business development, running out of cash, and lack of product/market fit. Based on 101 postmortems of startups,

CBInsight in 2014 has come up with the top 20 reasons for startup failures. The most prominent five reasons are, no market need, running out of cash, not having the right team, getting outcompeted, and pricing/cost issues (CBInsight, 2014). In Sri Lankan context the reasons for startup failures are; failure to do market research (startups do not focus on solving a market problem) is identified as the most prominent reason for startup failure. Other than that, lack of commitment, lack of experience, spending habits insufficient business acumen, and funding issues have been identified (Sri Lanka Startup Report, 2019).

While studying Sri Lankan tech startups, the practical problem is identified; and is not related to the technology or technology-oriented, but there is a vacuum in business orientation as well as market orientation (Abeywickrama, Degamboda, & Manchanayake, 2020; Wijesinghe, Jayawardane, & Dasanayaka, 2020; Sri LankaStartup Report, 2019; De Silva et al., 2014). A study undertaken by De Silva et al. (2014) related to the ICT/BPM industry in Sri Lanka, has come up with six (6) challenges faced by the Sri Lankan IT industry. The challenges are listed as follows;

- Poor branding and positioning
- Skilled migration and brain drain to foreign nations
- Outdated policies and traditional regulatory framework and absence of flexible labour laws
- Anti-offshoring legislation introduced by the developed nations
- Increasing competition from Eastern Europe, the Philippines and the Middle East
- Lack of awareness of the offshoring industry

Moreover, a recent study undertaken in the Sri Lankan context related to techno-entrepreneurial engineers, explained the challenges faced in the startup stage and those challenges are, the lack of experience, financial issues and social issues (Wijesinghe et al., 2020).

Another study done in the Sri Lankan software industry has revealed that open innovation initiatives have not led to expected innovation performance and it emphasized the necessity of coordination, alignment of goals and management practices with partner firms for deriving better performance (Yapa, Senathiraja, & Kauranen, 2018).

However, all the above-listed challenges and issues are not related to the technology or technology orientation as mentioned earlier, but with the business and market orientation. Thus, there is a dearth of studies in business and marketing aspects in the Sri Lankan ICT/BPM industry. From a scholastic perspective, the latent issue behind the above performance gap in tech startups can be attributable to deficiencies in the potential absorptive capacity of the startups, which is a market linking and responding capacity required for effective (open) innovation in a dynamic marketplace. Hence this study attempts to synthesize empirical literature with conceptual literature to develop an empirically testable framework that relates firm-level potential absorptive capacity to open innovation success in a dynamic environment. The study contributes to the literature by extending the understanding of business and market orientations in Sri Lankan tech startups and providing a frame of reference to key stakeholders to draft policies to reduce the performance gap of mismatch between product and market fit.

## 2 Literature review

Identifying the customer requirements clearly and developing the market offering to address the market problem are key factors to be considered in any successful business. Customer orientation is referred to as the organizational capability of satisfying and understanding the needs of customers to develop a relationship that lasts for a long period (Soltani et al., 2018). As mentioned earlier, in the context of tech status it is a vital prerequisite of identifying market requirements to match the product and market need to decrease the failure rate while achieving a sustainable competitive advantage.

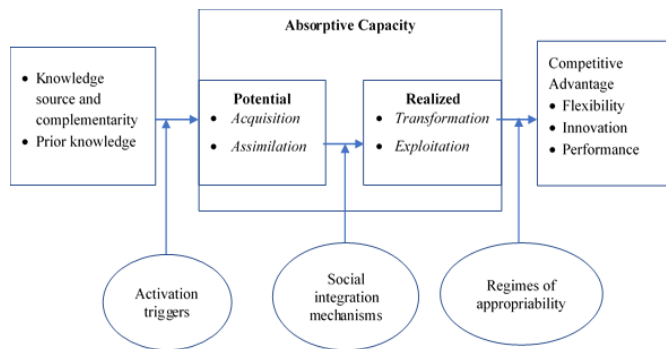
Innovations are a critical aspect of almost every organization in the world to survive with have a competitive edge over the others. Innovative products and services that can address market problems effectively will lead to acquiring new customers and ensure the retention of current customers. Based on

how the innovation is developed, there are two types open innovation and closed innovation (Chesbrough, 2004).

According to Chesbrough, open innovation was originally referred to as “a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology” (Chesbrough, 2004, p.23). Recently the term was again defined as “a distributed innovation process that relies on purposively managed knowledge flows across organizational boundaries, using pecuniary and nonpecuniary mechanisms in line with the organization’s business model to guide and motivate knowledge sharing” (Chesbrough & Bogers, 2014, p.12). Based on the literature three types of open innovation have been identified namely, the outside-in type of open innovation, the inside-out type of open innovation and the coupled type of open innovation (Chesbrough & Bogers, 2014). The outside-in type of open innovation involves opening up the firm’s innovation processes to many kinds of outside inputs and contributions; whereas the inside-out type of open innovation needs firms to allow unused and under-utilized ideas/assets to go outside the firm for other external organizations to be used in their businesses and business models. The coupled type of open innovation involves combining both inside-out and outside-in innovations, which can collaboratively develop and commercialize an innovation with two or more partners who purposively manage common knowledge flows across the firm boundaries through joint invention and commercialization activities (Chesbrough & Bogers, 2014). Considering these three types of open innovations, the tech startups in Sri Lanka can practice the outside-in type of open innovation to address the issue related to product and market fit; because when the startups are in their early stage (ideation stage) the tech-startup may not have the capacity to undertake their research and developments to find out the available opportunities in the business environment. Hence, in this study, it is argued that the best mechanism for tech startups to identify the market requirement is implementing an outside-in type of open innovation.

As mentioned earlier outside-in type of open innovation opens up the firms' innovation process to different kinds of inputs and contributions (Chesbrough & Bogers, 2014) which receives many benefits and advantages to the firm. When firms link with the external environmental contributions the organization needs to grab the available external knowledge into the firm.

To grab external knowledge for the organization the ability to acquire, assimilate, transform and exploitation of external knowledge should be there. That ability is known as absorptive capacity. In a seminal article, Cohen and Levinthal (1990) defined absorptive capacity as the firm’s ability to recognize, assimilate and apply valuable, new and external information which is vital for a firm’s innovation capabilities. Even though in contemporary innovation management literature open innovation and absorptive capacity are two popular concepts, the systematic connection between the two concepts is limitedly explored (Vanhaverbeke, Van de Vrande, & Cloudt, 2008). Zahra and George's contribution in 2002, to the field of absorptive capacity by introducing a framework that comprises two levels as potential and realized absorptive capacity. The potential absorptive capacity enables the firm’s accessibility to external knowledge, whereas realized absorptive capacity emphasizes on firm’s capacity to leverage and transformation of knowledge into innovations (Fosfuri & Tribo, 2008). Further split those two levels into four steps acquisition, assimilation, transformation and exploitation. However, this framework has been welcomed as well as criticized by scholars by comparing it to the original model introduced by Cohen and Levinthal (Rungi & Kiisk, 2020).



**Fig. 1. Model of Absorptive Capacity by Zahra and George (2002)**

Further, the marketing-related literature has confirmed that there is a positive moderating effect of absorptive capacity on market orientation where, the high capacity of firms to identify, absorb, and assimilate relevant market information and knowledge will lead to offer innovative solutions to the market (Najafi-Tavani, Sharifi, & Najafi-Tavani, 2016).

However, most of the studies in the literature have considered absorptive capacity as a combination of both potential absorptive capacity and realized absorptive capacity, but few studies have addressed these two levels separately and measured their impact individually (Fosfuri & Tribo, 2008). Hence in this current study, the receptivity of the external knowledge floor (potential absorptive capacity) and its impact on outside-in open innovation will be conceptualized to achieve a proper product market fit as an outcome while considering the environmental dynamism.

The existing literature has indicated the performance of a firm is influenced by environmental conditions. Environmental dynamism refers to the rate of change and the degree of variability in the environment (Musawa & Ahmed, 2019). The capability developments and innovativeness are also influenced by environmental conditions such as market and technology turbulence, competitive intercity and globalization (Martinez-Conesa, Soto-Acosta, & Carayannis, 2017).

### 3 Aim of the study

The research aim is to develop a conceptual framework towards solving the practical gap of poor product-market fit by adapting to outside-in open innovation practices while identifying the effects of potential absorptive capacity and environmental dynamism.

Objectives of the research are,

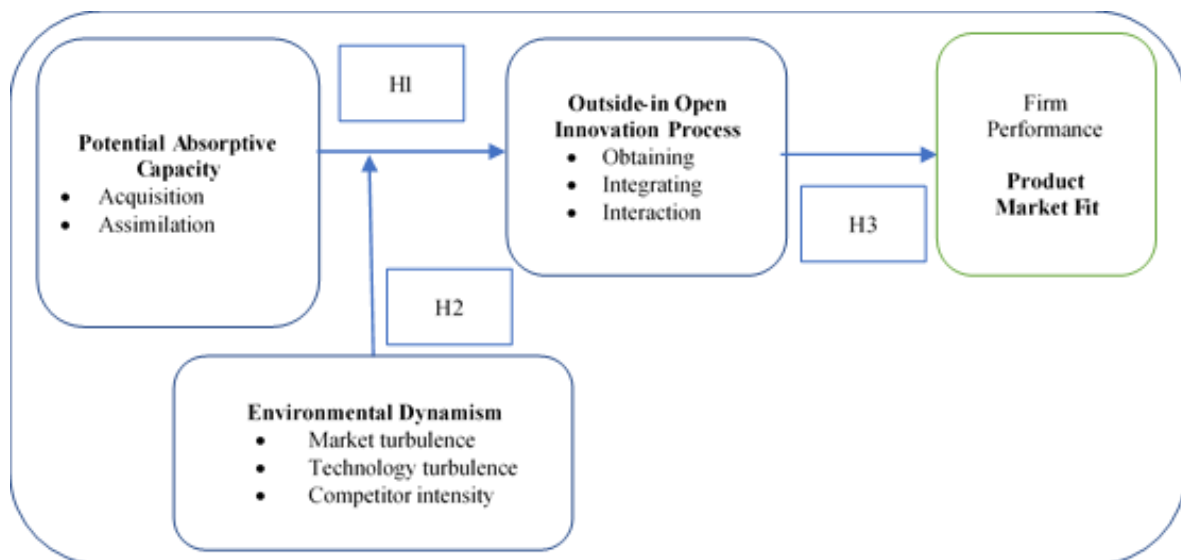
1. To analyze the impact of potential absorptive capacity on outside-in open innovation process in Sri Lankan tech startups
2. To identify the effect of environmental dynamism on potential absorptive capacity and outside-in open innovation process in Sri Lankan tech startups
3. To derive a robust model to enhance the outside-in open innovation process to achieve product-market fit with tech startups in a developing context

### 4 Conceptual framework of the outside-in open innovation process and its assumptions

Based on the above theoretical stance in literature, this study develops its intellectual puzzle as, in a startup context, many startups fail within the first five years of operations and unfortunately, the failure rate is as high as 90%. The most prominent reason for startup failure is identified as the failure to solve a market problem which is in other words, the mismatch between customer expectation and market offering. Hence, it is an essential requirement in knowledge exploration that can contribute to addressing this performance issue in tech startups by contributing studies with business and market orientation. Concerning literature, open innovation is a widely considered concept in the tech world which argues that organizations need to use internal and external ideas and paths to market to advance the technology.

Hence, this study is expected to take the first step in exploring the avenues of using this open innovation perspective to achieve product and market fit in tech startups. Further, the existing literature facilitates the developed perspective of the current study by directing attention to ways of identifying and gaining external knowledge. Thus, this study identified potential absorptive capacity as a prerequisite of open innovation which can positively impact open innovation practices. Also, in a highly dynamic environment, it cannot eliminate the effects of environmental dynamism on these variables. Hence, the study considered the effects of environmental dynamism as a moderator. Finally, as an outcome of the study, the product market fit in tech startups will be achieved.

Based on analysis of scientific literature the conceptual framework of the study has been developed and demonstrated in Fig.2. Which illustrates empirically testable propositions in a tech-startup context in Sri Lanka.



**Fig. 2. Conceptual Framework of the study**

Source: Synthesis of empirical and conceptual studies

In this framework, the independent variable is identified as the potential absorptive capacity consisting of the acquisition and assimilation of external customer knowledge. The dependent variable is the outside-in open innovation process-related capabilities which are involved with obtaining, integrating and interacting with customer knowledge (Jokubaskiene & Vaitkiene, 2017). Environmental dynamism which consists of market turbulence, technology turbulence and competitor intensity is the moderator variable of the framework. The product market fit is the outcome of the framework which comes under the firm's performance.

### 5 Propositions of the study

Potential absorptive capacity ensures the receptivity of external knowledge related to customers and the market through acquisition and assimilation (Fosfuri & Tribo, 2008). The level of potential absorptive capacity of the firm will impact the effectiveness of the outside-in open innovation practices (Jokubaskiene & Vaitkiene, 2017) which leads to achieving better product market fit. Poor performance in the acquisition and assimilation of customer knowledge will hinder the firm's ability to develop proper product market fit. Hence it is proposed that there is a positive relationship between potential absorptive capacity and outside-in open innovation activities as potential absorptive capacity

generates outside-in market linking capacities. To assess this assumption the first proposition of the study has developed.

H1: Potential absorptive capacity positively impacts outside-in open innovation practices in Sri Lankan tech startups

Based on The environmental dynamism effects of market turbulence, technology turbulence and competitor intensity (Martinez-Conesa, Soto-Acosta, & Carayannis, 2017) moderates the impact of potential absorptive capacity on outside-in open innovation process. This moderating effect may be positive or negative because environmental dynamism is related to the identification of both opportunities and threats (Musawa & Ahmed, 2019). Hence the second proposition of the study has been developed as non-directional.

H2: Environmental dynamism moderates the impact of potential absorptive capacity on outside-in open innovation practices in Sri Lankan tech startups

The outside-in open innovation activities will enhance the firm's performance (Inauen & Schenker-Wicki, 2011) by achieving proper product market fit which indirectly contributing to the survival of the tech startups. The effectiveness in obtaining, integrating and interacting customer and market-related knowledge with innovativeness, is leading the firm to achieve a better product-market fit which is a part of the firm's performance (Jokubaskiene & Vaitkiene, 2017). It is assumed that the outside-in open innovation positively contribute to achieving product market fit due to its inherent capacity to respond to market needs. Hence the final proposition of the study has been developed as;

H3: Outside-in open innovation practices positively contribute to achieving proper product market fit in Sri Lankan tech startups

## 6 Conclusion and future works

Remaining in the business without failures is a primary goal of every organization in the business world. However, it is not possible for every organization, but with proper alignment with organizational resources and capabilities to have a dynamic capability will lead to achieving sustainable growth with a competitive advantage. Open innovation is one of the dynamic capabilities that can lead to better performance of the organizations while achieving a sustainable competitive advantage.

However, this research aims to develop a conceptual framework that can contribute to achieving a proper product-market fit with the perspective of an open innovation context while considering the effects of potential absorptive capacity. The primary step of combining open innovation with customer orientation to achieve product-market fit in Sri Lankan tech startups will add value to existing literature while expanding the stakeholders, understanding of possible ways of solving business and market issues related to developing context.

Even though the model has been developed by synthesizing both empirical and conceptual literature, the model testing is yet to be completed. The scholars in future will be able to test this model and find out new ways of achieving product market fit while contributing to extending the current understanding. Further to operationalize and validate the conceptual model, there is a need to develop better measurement tools for potential absorptive capacity, outside-in open innovation process and product

market fit-in with special reference to tech startups in the Sri Lankan context. This can be made possible by undertaking both qualitative and quantitative inquiries in future.

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