

LIFECYCLE MODEL FOR MANAGEMENT OF DIGITAL ENTREPRENEURSHIP: A FRAMEWORK FOR MANAGING THE PROGRESSION OF STARTUPS TO SCALEUP

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ABSTRACT

The Digital Entrepreneurship is changing the methods, mode, platform and artefacts of entrepreneurship. Researchers and policy makers are emphatic about the need of this new breed entrepreneurs, at the same time the process how a digital start-up becomes a scaleup is least understood. Though digital entrepreneurship is gathering momentum, but no clear guideline or framework is creating confusion and large-scale failure. Despite its significance, studies on Digital Entrepreneurship are limited and the concept is largely under-theorized. The novelty, complexity and invisibility of digital process and transformative potent of digital technology as well as commercial value of digital innovation have created digital entrepreneurship a secretive competitive landscape. Conversely incomplete understanding and absence of any formal model of digital entrepreneurship has intuited the necessity of one such model for systematic management of entrepreneurship. This paper is an attempt to develop a framework for understanding the complexities, unpredictability and probabilistic nature of the activities of various phases of digital entrepreneurship. Lifecycle model provides a guideline for the researchers to visualize the desirable outcomes of each phase and figure out what may go wrong in each phase. This lifecycle model will certainly help the researchers and practitioners not only to visualise the process, but also to monitor and manage the digital entrepreneurship process and develop befitting action plans. With clear understanding of Life Cycle model of digital entrepreneurship, start-ups will be able to organize their actions for accomplishment of their desired outcomes at each stage of their entrepreneurial journey. Researchers would be able to develop their research plans to find out why so many digital start-ups fail to be scaleup and who fails at what stage and why? Who succeeded, when, where and how?

Keywords: *Digital Entrepreneurship, Digital Ecosystems, Process Innovation, Orchestration, Value Creation*

INTRODUCTION

The revolution that has drawn the attention of the intellectual community of developed, developing and underdeveloped world alike is Digital Entrepreneurship. The new-found technology empowered entrepreneurs who are disrupting and forcing century old organisations and entrepreneurs to revisit their ways and process of doing things and business (Downes & Nunes, 2013). It is the early dawn of fourth industrial revolution of digital entrepreneurial revolution, a fusion of digital technology, human ingenuity and business acumen (Schwab, 2017). These new breed digital organizations are technology driven, lean and agile and hungry for breaking new grounds. To survive and thrive in this digital business world, one must unlearn and relearn the tools and techniques of digital entrepreneurship or be prepared to perish.

LITERATURE REVIEW

Entrepreneurship is a process of launching and running a new business and winning the confidence of target customers. Digital entrepreneurship is developing digital product, service or solution for global digital customers. The size of global digital customers' base has crossed four billion Mark (Internet World Stats, 2017). This unified ever growing global digital platform has created a hotbed for digital entrepreneurship. The technology base of digital entrepreneurship has lured many techno-savvy youths to develop new products, services and solutions for the global digital customers (European Commission, 2015).

The digitalization of business process, ease-of-use, precise-order-execution capability, rapid processing, remote sensing, and remote/distant operating ability of digital processes are some of the unique capabilities of

Information and Communication Technology (ICT) having empowered digital entrepreneurs to redesign, revamp and reengineer the workflows of century-old businesses into agile business processes and transforming fatty and monolithic organizations into lean, intelligent and agile organizations. The agility and transformative potent of digital technology have elevated competitive edge of digital enterprises to new heights, which in effect has made digital entrepreneurship a hotbed of innovation and research, giving wings to the offspring of innovation, ingenuity and entrepreneurialism (Manyika *et al.*, 2013; Rai, 2018).

The new breed digital entrepreneurs are inventing new platforms, technologies, processes and services, as well as ground-breaking business models, and opening as-yet unknown markets. Together they are fostering innovation, developing, enabling ecosystems, which facilitate development of new digital products and services, creating jobs and driving economic growth. The vibrant digital entrepreneurial ecosystems, inspiring many aspiring digital entrepreneurs, start-ups, to join the ferry of digital entrepreneurial landscape (European Commission, 2015).

Digital entrepreneurs are known for its disruptive capability (Downes & Nunes, 2013). The harnessing transformative and formative power of digital technology for attaining a sustainable competitive advantage is the biggest challenge of all digital entrepreneurs. Despite amazing success, digital entrepreneurship is still an innovative craft rather than a disciplined branch of engineering or science. The crafty base of entrepreneurialism and innovation being the foundation of digital entrepreneurship and pivoting and retrofitting with customers' requirements and market-conditions being the necessary precondition of entrepreneurship. The process of digital entrepreneurship is like building many unknown bridges and solving the puzzles for seizing the wonder fruit called success. The ubiquitous digital platform and intelligent digital tools have unified the fragmented market places into a market-space where entrepreneurs and individuals are logging in and working together, fostering collaboration, and reducing the cost of new ventures (Zhao & Collier, 2016).

The invisibility of digital process, transformative design thinking, and ability of digital entrepreneurs has created a digital entrepreneurship revolution, which is difficult and complex, but possible. Research shows that though many aspire to prosper, but only very start-ups see the light of success. The failure rates are as high as 90% (Blank, 2013; Griffith, 2014; Hoque, 2015).

The high failure rate raises three fundamental research questions: (1) why intellectuals believe that disruptive innovation can truly transform India's digital ecosystem (Rai, 2018), (2) why the failure rates of digital entrepreneurship is so high and (3) what can be done to reduce the risks of failures. The answer of the first question is obvious: one successful digital entrepreneur can transform the world of business. Secondly, no one can answer the third question without finding the causes of failures. But certain things are very clear at this point: (1) Innovation is a must for entrepreneurship – be it product, process, platform or business model, (2) our knowledge of digital entrepreneurship process is incomplete, (3) potent and scopes of digital entrepreneurship are enormous, (4) digital entrepreneurship revolution is unstoppable, and (4) absence of standard roadmap or framework for research, aspiring entrepreneurs are using the age-old trial and error method.

There is no digital enterprise which has come into existence without insights, compassion and strong conviction and regression. Digital entrepreneurship is the process of entrepreneurial metamorphosis by which start-ups become scale-ups. To understand how digital start-ups evolve and transform as successful digital enterprise, who fails and why, one needs to figure out the process and review each 'Key-Activity' (KA) of 'Digital Entrepreneurship Process' (DEP). Literature review reveals that digital entrepreneurship is a prime research area. Worldwide researchers and academicians are trying to unlock the keys of success. The problem is everyone is trying to do it in their own way. There is no common framework available as of date.

Definition of Digital Entrepreneurship

The absence of detailed characterisation of the lifecycle is the root of many confusion and failures of digital entrepreneurship. Hill and Levenhagen, 1995 discussed about the mental model of entrepreneur. Giones & Brem, 2017 discussed about the three different categories of technology driven entrepreneurship ventures: (1) Technology Entrepreneurship, (2) Digital Technology Entrepreneurship and (3) Digital Entrepreneurship. Each category is serving a distinct segment of the customer and is characteristically different. Technology entrepreneurs are engaged in the development of new technological solutions of existing problems. Digital technology entrepreneurs are engaged in the development of hardware devices embed with digital sensing, signalling and triggering firmware, and finally the digital ventures and entrepreneurs who are engaged in the development and using digital solutions (applications popularly known

as apps) which run on digital platform/devices for connecting with their customers and users for doing business.

Similarly, Nambisan *et al.*, 2017 identified four common characteristics of digital innovation process namely: (1) dynamic problem–solution design pairing – the digital solution must address the problem which are dynamic and remain fuzzy in the beginning; secondly, it must address aspiration and imaginations of the target customers groups termed as (2) socio-cognitive sense-making, the third element is about the deep understanding of the innovator about the capabilities and constraints of the digital technology termed as (3) technology affordances and constraints and finally the planning and coordination of the elements of a situation to produce a desired effect, especially in a way that attempts to avoid notice or attention to maintain business secrecy termed as (4) orchestration (Nambisan *et al.*, 2017).

All the above lead to one conclusion that digital entrepreneurship is an endeavor of radical innovation of processes for products or services development and delivery or combination of both and finding customers for developed products and services. Digital entrepreneurship is the development of digital applications and solutions for its global digital customers, uses common ubiquitous information and communication technology (ICT) and other digital devices as infrastructural platform (Nambisan, 2016; Giones & Brem, 2017). The focus of digital entrepreneurship is to develop services for its customers and the actual service operations which are controlled by backend digital solution software. Service could be with or without a product or combination of products and services (Giones & Brem, 2017). Thus, digital entrepreneurship is the development of digitized (data driven) software solutions (applications) for the customers of connected world and use the application (App) as an enabler of a service or combination of many services that the customers are willing to pay for.

The definition of digital entrepreneurship raises two vital prerequisites of digital entrepreneurship: (1) development of innovative service enabling software solutions for customers and (2) discovering the customers who would be willing to pay for the service. This means the development of innovative service enabling software solution(s) and discovering enough number of buyers for the developed service. This presumes that digital entrepreneur knows what service customers want and the entrepreneur can develop the solution as well as the capability to deliver the service at

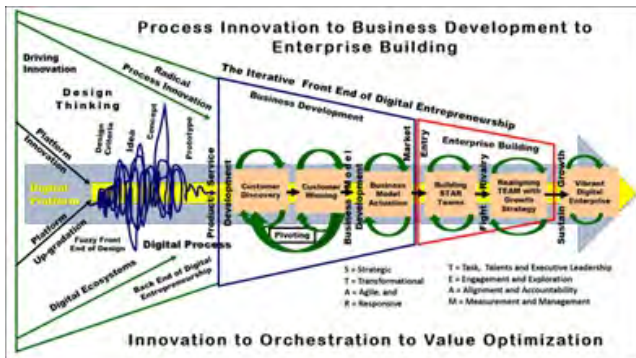
a price that large number of customers are willing to pay for. This is a colossal assumption. Matching entrepreneurs' vision with customers' pocket are a real challenge. Thus, management of digital innovation which has high commercial value to its users as well as all the stakeholder of the service chain is a very complex process. Commercial potential of digital innovation lies on its secrecy. Concurrently, absence of clear understanding of the task and challenges of digital entrepreneurship is one of the causes why many aspiring start-ups fail to see the light of success.

Finally, entrepreneurship is the enterprise building, taking financial risks in the hope of profit. The success of building new digital enterprise resides on the correctness of its business model, execution strategy, service marketing strategy and revenue collection strategy and its ability to sustain the market competition. Many start-ups fail to scale up and die prematurely.

Research shows that nine out of ten Start-ups fail to see the light of success (Alphr, 2017). This is alarming and indicates that difficulties of digital start-ups are many folded. All start-ups are new and young with very little financial strength. The solutions or services they propose are new. The customers whom they wish to sell their proposed products or services are also new. The market of the start-ups wishes to penetrate could be new or substitution of an old system or service. Question is how to market new service to new market by financially weak start-up service providers? How to navigate through this uncharted and unfamiliar terrain without a compass or a binocular or a roadmap?

Despite the difficulties, the digital technology is one of most powerful and creative tools. The digital entrepreneurship is considered as the critical pillar of economic growth, job creation and innovation. Nevertheless, digital entrepreneurship is not only a craft, but a new way of thinking and doing business. The domain is full of confusion, secrecy, optimism and excitements, where everything is a possibility. Absence of a clear framework or roadmap adds difficulties to visualisation and navigation for the budding entrepreneurs and necessitated development one such sketch, which portrays the roadmap of how a start-up eventually transformed to a scale-up. This sketch, as depicted in figure 1, is termed as Lifecycle Model of Digital Entrepreneurship. This model puts the bits and pitches of the endeavour called journey of digital entrepreneurship into a frame. The model, as shown in figure 1, will help the digital entrepreneurship researchers to visualise and to locate sources of

Figure 1: Lifecycle Model of Digital Entrepreneurship



Source: Articulated by S.K. Majumdar, 2018

Lifecycle of Digital Entrepreneurship

Figure 1 demonstrates that digital entrepreneurship is a three-phased process. The three distinct phases of Digital Entrepreneurship lifecycle are: (1) Process Innovation, (2) Business Development and (3) Enterprise Building. The key responsibilities of each area (KRA) are innovation, orchestration and value-optimization respectively. Secondly, the players of digital entrepreneurship namely the Start-ups, Scaleups, Customers and Developers and Support-Service Providers (Digital Ecosystems) are citizens of digital world. They all operate, communicate and transact their business through global digital technology platform. The digital platform and connectivity are prerequisite and pivotal for development and delivery of digital services.

Digital platform is a common thread that connects, customers, users and developers and digital service providers. A start-up becomes a scaleup, when all the KRA and key activities of each phase are completed successfully. The analogy of these three phases is comparable with characteristics of 'Seed', 'Soil' and 'Support'. Phase 1 is like 'Seed'. Phase 2 is the 'Soil' and Phase 3 is the 'Sustainability'. If the 'Seed' that is 'process innovation' is flawed. It will not germinate and will bound to fail to find any taker (customers). If the right service is delivered to right customers, they will buy the product/service. Finally, start-ups will fail to ride the ladder of success and sustain its operations, if they fail to add value to their customers or unable to develop effective strategy for customers value optimization to survive and thrive and face the global competition. Many start-ups face premature deaths due to lack of clear understanding, support and mismanagement.

Phase 1: Process Innovation

It is evident that all successful digital enterprise starts with an idea. It follows the principles of 'Design

Thinking' and idea get transpired as innovative service delivery process and hence forth termed as services process innovation. It is fuzzy and cluttered in the beginning and slowly gets perfected with several rounds of iteration and prototyping. It is interesting to note that the design thinking process booms around the digital platform and surrounded by platform and process innovations that is happening in the neighbourhood, which is called digital ecosystem. This digital ecosystem has significant influence on the product or service innovation. It follows the theory of sparks. One spark or discovery provides clue, inspiration and stamina to others.

This initial stage in the digital entrepreneur's life cycle is filled with lot of excitement in running the start-up from elated enthusiasm to fear and uncertainty. Once a business idea is tested and it is ready to go, it's time to make it official and launch the respective start-up. The preliminary stage is pitching the picture into practise from idea to building with available skill and knowledge of programming, web or application building. And in a digital enterprise while one may not be crystal clear on how s/he is going to get it done, there is a natural drive to start something that doesn't exist and keeping it with innovation which does not exist. It is what that matters to uplift the business idea and practise.

Phase 2: Business Development

After the successful process innovation and launch new company, next step finding customers for the proposed services and products that the new venture would like to offer to its customers or clients. Business development is difficult because the 'need' information (what the customer wants) resides with the customer, and the 'solution' information (how to satisfy those needs) lies with the service provider. This stage is the critical testimony of customers' acceptance attaining offer-market-fit. There can be any business without buyers or takers of your service. Innovators or start-ups have assumptions about the needs and preferences, but business run on actuals not on assumptions and suppositions. Products and services need to be attuned with the requirements, preferences and choices of the customers. Responsibility is on the entrepreneur to collect the need of the information through various means, including market research and information gathered from the field. Customers and real users' feedbacks about their experience of service are critical inputs to ratify, rectify and reengineer the service delivery process and refine and retrofit the offerings called pivoting. This process continues till a perfect

match is found when service creates customer's delight. No delighted customers, no growth of revenue will lead to eventual death of the company and ventures.

Finally, developing strategy to reach out the target customers in the market place in a cost-effective way. Going out from the nest to market place, visiting and meeting customers and clients understanding their needs and constrains and tailoring products and services and converting probable customers into delighted customers. The focus of this phase is to develop as many as loyal customers possible with limited cash and to enhance customers' base - a strategy for rapid market penetration.

Phase 3: Enterprise Building

The task of this phase is to develop strategy and to expand and create value for all the stakeholders of the enterprise. A break through innovation and invention of business process development strategy to accomplish SMART (Specific, Measurable, Agreed-Upon and Realistic and Time Bound) goals, but remain lean and nimble to serve large number of customers.

Questions need to address at this phase are many. How to reach the customers who are really interested in the service/product? How to create unforgettable customer experience which encompasses every aspect of a company's offering - the quality of customer care, of course, service features, eases of use, and reliability? How to configure what customers value the most? How to construct on such business model that creates win-win synergy across all stakeholders of the venture? Over and above, new customers also don't fully understand their needs until they try out prototypes to explore exactly what does, and doesn't, work (referred to as 'learning by doing').

Finally, wining customers' confidence, scaling-up operations as well as building capacity for reaching out, delivering service and earning profits are conscientious and continuous learning process. At this stage development of befitting business model and service chain is considered the most critical pillar of success. Research is also required to uncover what business model is fit for what type of digital enterprises and why? How to increase the operational activities, without increasing manpower requirements for financial resources? It is known that for survival and growth, start-ups need to lookout for source of funding and support. And many start-ups fail to scaleup at this stage. Many even give-up and sale their stakes to their big brothers.

This is the make or break stage. The one who can upturn the market pressure and manage to create superior

customers' experience and keep the cost of operations under control and makes the venture as commercially profitable will most likely emerge as a winner in due course of time and emerge as a scaleup. Being aware of the problem and consequences well in advance make it easy for taking the right corrective actions. The lifecycle model for digital entrepreneurship is certainly a roadmap for visualization of the tasks and efforts required to avoid the risks of failures.

CONCLUSION

The success stories are often publicised for marketing reasons and attracting many enthusiasts to join the ferry. Conversely, the process of digital entrepreneurial success often kept in safe custody for economic reasons and increasing curiosity among entrepreneurial researchers. The journey digital entrepreneurship is a process of mitigating risk of entrepreneurship and harbouring the tiny and ambitious start-ups to be a mega scaleup. The passage is uncertain and risky, but not impossible. Many have broken the glass ceiling and become iconic digital service providers. These brave souls often taken this journey with great conviction and determination knowing difficulties and extreme uncertainties involved. However, one cannot plan a journey, without a roadmap. This Lifecycle Model shows the roadmap provide the clues what actions are required and called for each stage of their journey.

This paper is an attempt to figure out what are known about digital entrepreneurship, what are not known and finally what are the research issues of digital entrepreneurship in each phases of the digital entrepreneurship development. This paper proposes a framework for digital entrepreneurship research which provides direction and pathway for digital entrepreneurship research and might save time and energy of many researchers in this domain.

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