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Role of Digital Platforms in Entrepreneurial Processes: The Resource Enabling Perspective of Startups in Pakistan

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Abstract. The recent infusion of digital platforms into different aspects of innovation and entrepreneurship has supported digital entrepreneurship; however, the altered entrepreneurial processes are yet to be explored. This chapter aims to explore the role of digital platforms as external enablers in the entrepreneurial processes. It focuses on digital platform-based startups of Pakistan and draws on entrepreneurial bricolage theory to understand the enabling external resources. The authors followed multiple qualitative case study approach and collected data through semi-structured interviews from six startups operating solely on digital platforms, 1) XYLEXA, 2) Toycycle, 3) PaakHealth, 4) DadaJee.com, 5) Qurbani App and 6) PriceOye. The findings show that entrepreneurial process is a continuous process. Digital platforms have made entrepreneurial processes less bounded i.e., the products and services keep on evolving even after they have been endorsed to the end user. Moreover, platform-based startups having limited resources can pass through the entire entrepreneurial process by combining available resources efficiently and effectively. Entrepreneurial bricolage helps as a catalyst in successfully developing and exploiting the opportunity with existing resources.

Keywords: Digital Platforms, Entrepreneurial Processes, Digital Entrepreneurship, Entrepreneurial Bricolage Theory, External Enablers.

1 Introduction

The entrepreneurial literature has considerably paid attention to the entrepreneurial processes, the discovery and exploitation of entrepreneurial opportunities and the role of concerned individuals [Shane & Venkataraman, 2000; Srinivasan, & Venkataraman, 2017]. A key emphasis has been on understanding the nature and sources of uncertainty that underlie entrepreneurial pursuits and the ways by which entrepreneurial actions unfold during such uncertainty [McKelvie et al., 2011 & Nambisan, 2016]. However,

the recent infusion of digital platforms into different facets of innovation and entrepreneurship has transformed the nature of uncertainty inherent in the entrepreneurial processes and the ways of dealing with such uncertainty [McKelvie, 2011; Srinivisan & Venkataraman, 2017]. It attracts the scholars' attention towards an emerging research direction at the intersection of digital platforms and entrepreneurship i.e., digital entrepreneurship, which considers digital platforms and their distinctive features in influencing entrepreneurial pursuits. The digital platforms are enabling numerous entrepreneurial opportunities that are breeding a new generation of startups [Du et al., 2017]. Digital platforms have not only shaped the entrepreneurial processes (opportunity generation, opportunity development and opportunity exploitation) but have also brought changes in innovation, competences, control, financing, institutions and ecosystems. Digital entrepreneurship includes transforming existing businesses or new ventures with the help of digital technologies which then serve as a catalyst for social and economic development. It is viewed as a vital pillar for development in the digital economy [Shen et al., 2015].

Businesses operating on digital platforms are quite different from the traditional businesses in terms of building trust, governance, resources and entrepreneurial processes. The study explores this through the theoretical lens of entrepreneurial bricolage which explains how entrepreneurship can be done through minimal resources [Baker & Nelson, 2005; Garud, 2003; Phillips & Tracey, 2007; William et al., 2011; Guo, 2016; Steininger, 2018]. Entrepreneurial bricolage can be a feasible path for platform-based startups or SMEs, having limited resources, to help in facilitation of entrepreneurial processes.

Even though, a considerable number of entrepreneurs and businesses are using digital platforms to tap the opportunities, research is still at nascent stage [Gregoire & Shepherd, 2012; Shen et al., 2015]. This knowledge gap in understanding the novel usage of digital platforms by entrepreneurs has been highlighted in several review articles [Kiss et al., 2012; Mainela et al., 2014; Shepherd et al., 2014; Shen et al., 2015]. Briel et al. [2018] also emphasized that the role of digital platforms in shaping the entrepreneurial opportunities, decisions, actions and processes has largely been neglected in the existing literature. Furthermore, the scholars have acknowledged the need to bring more discipline-specific theories into the interdisciplinary research stream of Information Systems and Entrepreneurship [Steininger, 2018]. Thus, the authors' choice of theory of entrepreneurial bricolage to sensitize this research can enable the next stage of investigations on the topic. Since many digital platform-based startups have started operating in Pakistan and various SMEs are also shifting their businesses on platforms, the authors found an interesting context to understand the characteristics of digital platforms and how they play a crucial role in shaping the entrepreneurial processes.

1.1 Purpose and Objectives

The research explores the role of digital platforms as facilitators of various resources for startups in the entire process of entrepreneurship. It also highlights the resource challenges that platform-based startups face in the execution and implementation of business ideas. As consequence, potential implications of this research for startups operating on digital platforms are discussed. The research focuses on the following research question:

‘How do digital platforms act as external enablers in the entrepreneurial processes?’

To find answers to this, the authors have conducted multiple qualitative case studies. The authors selected six platform-based startups incubating in the National Science and Technology Park (NSTP) Islamabad, Pakistan: 1) Toycycle, 2) XYLEXA, 3) Paak Health, 4) PriceOye, 5) Qurbani App and 6) DadaJee.com.

2 Literature Review

2.1 Digital Platforms

Digital platforms provide an infrastructure to users (producers and consumers) to carry out a wide range of activities, thus resulting in the formation of entire ecosystems for creation and capturing of value [Kenney & Zysman, 2015]. They are a distinct type of information technology artefact with distinct properties and are characterized as a sociotechnical grouping which includes the technical elements of software and hardware as well as the organizational processes and principles [Koskinen et al., 2021; Reuver et al. 2017]. They are a shared and common set of services and architecture that provides help in hosting complementary offerings. For instance, iOS platform of Apple and Android platform of Google allow apps to run on their respective smartphones [Nambisan, 2016]. The success of digital platforms is based on the ecosystem in which the platform is embedded. The digital platforms share three basic features: 1) technologically mediated, 2) enabling interaction between user groups, and 3) allowing user groups to perform tasks [Koskinen et al., 2021; Cusumano et al., 2019; de Reuver et al., 2018].

Digital platforms help new startups to expand their specialization while offsetting their production, marketing, and distribution abilities [Nambisan, 2016]. They can serve to be infrastructure, marketplace and ecosystems at the same time i.e., Facebook and Google are digital platforms which provide social media interaction and search but at the same time, they also serve to be the platforms on which other platforms can be built. Amazon, e-Bay and Etsy are some of the platforms that are existing as marketplace. These diverse digital platforms are contributing to reorganizing of markets and value generation [Kenney & Zysman, 2015]. They have flourished as engines of innovation for other firms to build complementary products and services in the ecosystems like

PCs, video games, smartphones and newer webs orchestrated by Facebook, YouTube, Twitter etc. Thus, success of such digital platforms is also dependent on important roles of complementary innovators [Boudreau & Lakhani, 2009; Srinivasan & Venkatraman, 2017]. Digital platforms can be made customizable, which are shared by many companies within same or different industry and can also take the form of business community platforms, which are personalized for usage by all the members of a particular business community [Steinfeld et al., 2011; Markus & Loebbecke, 2013].

Modular systems have led to the development of platform architectures that partition the industry ecosystem into a stable platform and a complementary set of modules that are encouraged to diverge and grow [Tiwana et al., 2010; Srinivasan & Venkatraman, 2017]. Increased modularity of digital systems has released an extensive wave of entrepreneurial firms that innovate and launch modules (of compatible applications) to align with specific platform architectures. In digital platform settings, there is a strong interdependence between entrepreneurial firms that launch specific modules and platform firms for whom the modules are launched. Platform firms spend substantial resources to attract third-party developers to their platforms. In order to get greater support from third-party complementors, platform firms attempt to attract a significant number of users to their platforms and, in the process, build a higher installed base which creates enticements for entrepreneurs to introduce more complementary modules [Armstrong, 2006; Evans & Schmalensee, 2008; Srinivasan & Venkatraman, 2017]. Digital platforms having large user base is more valued by entrepreneurs as they offer the biggest potential market for their complementary products [Venkatraman & Lee, 2004; Srinivasan & Venkatraman, 2017]. They create indirect network effects [Cennamo & Santalo, 2013; McIntyre & Srinivasan, 2017; Srinivasan & Venkatraman, 2017] which is a foundation of competition in digital platform settings. An entrepreneur's choice to support the platform is greatly influenced by the network effects for the platform. The presence of network effects and installed base advantages are vital elements of success in platform industries and often lead to the introduction of new platforms and new competitors [Venkatraman & Lee, 2004; Srinivasan & Venkatraman, 2017].

Digital platforms have added various new functionalities which has changed the overall environment, thus increasing competition and reforming the traditional organizational strategies and processes [Shen et al., 2015]. Since there is rapid pace of technology transformation in digital platforms and intense rivalry, the ability to distinguish one's offerings and rapid adaptation to technological change becomes necessary for success and survival [Srinivasan & Venkatraman, 2017]. This has led to new ways of communicating and collaborating with stakeholders, orchestrating resources and designing goods and services [Markus and Loebbecke, 2013; Shen et al., 2015]. They have restructured various parts of the global economy by altering organizational processes, resetting barriers to entry, introducing more open communication and new ways of creating and capturing value [Kenney & Zysman, 2015]. Resultantly, the entrepreneurial processes have been reshaped.

2.2 Entrepreneurial Processes

The entrepreneurship process is an activity which processes the opportunities. It goes through the process of opportunity generation (creation and discovery), opportunity development and opportunity exploitation by attaining, assembling and deploying resources with the objective to transform an opportunity into a viable venture and thus, achieve success [see Fig. 1]. So, it becomes important to understand the nature of opportunities and how they enter and move up the entire entrepreneurial process in order to achieve success. There have been recent arguments in literature by theorists for the significance of opportunity as an explanatory concept [Shane, 2000; Jeff et al., 2011].

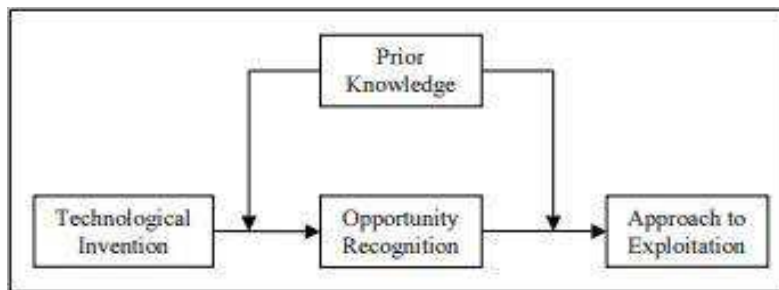


Fig. 1. The Entrepreneurial Process [Jeff et al., 2011]

Entrepreneurial opportunities are situations in which new products, services and markets are introduced through new means and ends [Shane, 2000; Jeff et al., 2011]. As depicted in Figure 2, Shane [2000] has argued that the entrepreneurial process begins with entrepreneurial opportunities which are discovered by an entrepreneur on the basis of prior knowledge acquired through education, work experiences and personal events, rather than through active search. Prior knowledge allows an entrepreneur to use technology in different markets, serve them in different ways and cater to different problems by providing solutions. It also helps in exploitation of opportunity by selecting markets and catering to customer needs and concerns.

However, some scholars are of the view that opportunities exist prior to the entrepreneurial process, while some argue that opportunities are recognized or discovered by entrepreneurs to start the process of entrepreneurship. When an entrepreneur displays behaviors like recognizing, scanning, searching, discovering or constructing, it leads to the emergence of opportunity generation. The entrepreneurial process moves from opportunity generation to opportunity development when a decision is made by the entrepreneur to commit time and effort to the opportunity so that it can be turned into a viable venture. The development stage includes engaging entrepreneurs in internal search of their web of 'knowledge corridors' for information that is applicable to that particular opportunity as well as scanning surrounding environment for available resources which can provide aid in the exploitation of the opportunity. Entrepreneurs

require a catalyst for easy facilitation in their progression from opportunity generation to opportunity development. This role of catalyst can be best served by bricolage as it allows applying prior knowledge and orchestrating available resources which can greatly shape the development of an opportunity and help an entrepreneur to progress. As the development stage progresses, bricolage helps in strategy formation and allows entrepreneurs to see novel resources which can be combined and applied immediately to a particular situation on hand and move the venture to the exploitation phase. Having prior knowledge of markets and customer needs and problems is crucial for the exploitation stage. Inventories of existing resources is another important link between the development and exploitation stage as it provides an entrepreneur with tangible means to prepare their developed opportunities for exploitation [Jeff et al., 2011].

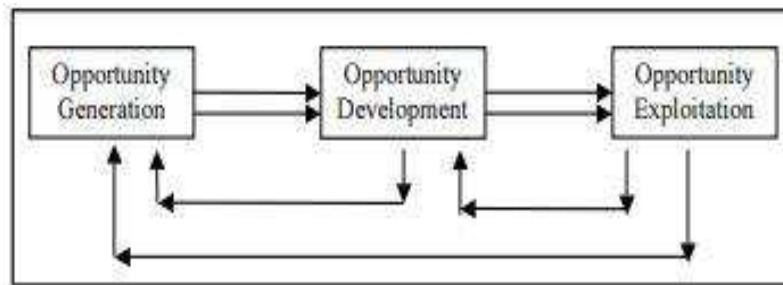


Fig. 2. Shane's [2000] Conceptual Model of Entrepreneurial Process

Previous studies on innovation and entrepreneurship as well as the present theories on product life cycle, architectural innovation and product development process have assumed constant and discrete boundaries for ideas relating to new product or service that underlie an entrepreneurial opportunity [Davidsson, 2015; Short et al., 2010; Nambisan, 2016]. However, infusion of digital technologies has made these boundaries more permeable as the scope, attributes and value of product or service keep evolving even after the idea has been endorsed. For instance, Tesla has introduced various new functions and features in its cars even after they have been endorsed to the market, simply by modifying digital artifacts or components. With digital technologies and platforms, entrepreneurial processes have also become less bounded mainly in terms of their temporal arrangement as they allow product ideas and business models to be formed, endorsed, amended and restructured rapidly e.g., 3D printing [Ries, 2011; Nambisan, 2016]. The scalability of digital platforms (e.g., cloud computing and mobile networking) i.e., the capability to promptly increase performance at low cost and with ease, also causes variations in entrepreneurial activities. For instance, Airbnb started with its initial focus on meetings and events for which hotel space was required. Later, it catered to the demand for affordable accommodation which the hotels were unable to meet thus, rapidly scaling up its services enabled by cloud computing services. Thus, digital technologies enable a greater level of fluidity and variability into entrepreneurial processes. These changes in entrepreneurial processes enabled by digital platforms lead to

change in behaviors and actions of entrepreneurs in the digital arena. Digitalization of entrepreneurial processes has also helped in breaking down the boundaries between various phases along with bringing greater levels of unpredictability and nonlinearity into how they fold [Nambisan, 2016].

With traditional models and frameworks on entrepreneurship assuming fixed and stable boundaries for an entrepreneurial opportunity, a more evolving stream in entrepreneurship research presents alternate views regarding opportunity creation and enactment that reflects fluid boundaries for entrepreneurial processes. For instance, the perspective of ‘opportunity creation’ is of the view that opportunities are emergent, and the entire creation process is evolutionary [Garud, 2003; Nambisan, 2016]. Likewise, the ‘effectuation’ perspective suggests that the entrepreneur continuously re-evaluates all the available means and shape the offering [Nambisan, 2016; Saravathy & Dew, 2005]. These perspectives indicate that there are fluid boundaries with respect to entrepreneurial processes.

Thus, it is concluded that alternative concepts and theories are necessary for integrating new ways of evaluation of entrepreneurial success and inform on all those factors that are linked with progression of entrepreneurial processes. Digital platforms can play a major role in shaping such liminal entrepreneurial processes [Nambisan, 2016].

2.3 Entrepreneurial Bricolage Theory

The concept of bricolage was introduced by Levi-Strauss (1967) as “making do with whatever is at hand” which remained undeveloped until it was revisited by Nelson and Baker [2003] in the context of entrepreneurship. They created the “theory of entrepreneurial bricolage” and introduced it as a type of resource that allows entrepreneurs to endure or even create robust and growing firms despite scarce resources [Tindiwensi et al., 2020]. The theory of entrepreneurial bricolage originated from the discipline of anthropology [Yu et al., 2018] explaining how entrepreneurs can find their way using intuition and minimal resources. This theory can help illuminate the dynamic business model development processes of founders with scarce resources [Baker & Nelson, 2005; Steininger, 2018]. It is concerned with the application of unique combination of resources at hand to new problems and opportunities [Baker & Nelson, 2005; Yu et al., 2018]. In other words, entrepreneurs can build available resources in an innovative manner into new products or services rather than merely accepting their current potential [Baker & Nelson 2005; Yu et al., 2018]. The theory involves extensive decision-making and combines thoughts and actions [Fan et al., 2019]. The theory of entrepreneurial bricolage has three important features. The first feature involves action and active engagement with the problem to assess whether an effective outcome can be generated from what is available at hand. The second is combining and orchestrating resources in an innovative manner for new applications rather than only using them for

purposes for which they were originally intended or used. The third is using available resources rather than looking for new resources [Yu et al., 2018].

Most of the existing research on entrepreneurial bricolage theory has been done in the context of SMEs where resource scarcity is a common issue. SMEs are generally very resilient, flexible and creative but their limited network and scarce resources pose to be a great challenge for them. They have many unrecognized and under-utilized resources [DiDomenico et al., 2010]. With the help of this theory, SMEs can discover many new prospects by taking advantage of these unrecognized and under-utilized resources and overcoming difficulties in resource acquisition [Phillips & Tracey 2007; Guo et al. 2016; Yu et al., 2018]. They can leverage bricolage to transform limitations and constraints into opportunities, resolve catastrophes and lift boundaries [Hsiao et al., 2014; Hsiao, Ou & Su, 2017; Hsiao, Ou & Wu, 2017; Fan et al., 2019]. Since SMEs generally need to make quick decisions, execution to find the right resources and combining them to solve their prevailing problems is necessary [Baker and Nelson, 2005; Hsiao, Ou, and Wu, 2017, Fan et al., 2019]. Entrepreneurial bricolage combines both resource-based theory and dynamic capabilities theory to describe the effective arrangement of resources. Entrepreneurial bricolage theory also complements with the resource-based view (RBV). RBV is of the view that a firm can achieve competitive advantage if it possesses resources that are rare, distinctive, and not easily imitated by competitors. However, it may not be readily applicable in the context of SMEs as it is quite difficult for startup SMEs to acquire novel strategic resources in open market. Thus, entrepreneurial bricolage complements RBV by stating that apart from searching for external strategic resources, SMEs can take benefit from existing under-utilized resources by combining them in unique ways to achieve competitive advantage [Yu et al., 2018].

Based on the nature of resources, entrepreneurial bricolage has been classified into three types: input bricolage, market bricolage and institutional bricolage [Baker & Nelson, 2005; Desa & Basu 2013, Yu et al., 2018]. (1) Input bricolage applies combinations of physical (e.g., materials) and human (e.g., labor and skillset) resources in an innovative manner and apply them to new problems and opportunities. Due to the disadvantage of being new and small, it becomes expensive for SMEs to seek and acquire new and costly resources from stakeholders. This is where input bricolage allows combining available resources which can prove to be beneficial for providing supporting infrastructure and less expensive labor. This also lowers operational, management and marketing costs. Input bricolage also increases operational efficiency when startups have very limited financial resources or have to react instantaneously to the demands of their customers. It helps platform-based startups in recombining available resources, creating unanticipated products and improving sales performance by broadening the distribution channels, providing infinite shelf space and targeting new audience [Garud & Karnoe, 2003; Yu et al., 2018]. It also assists platform-based startups in expanding niche markets and creating new market demand. (2) Market bricolage transforms existing network of entrepreneurs (customers, friends, suppliers and competitors) to create

new customers from the market in which rivals operate. Existing networks are resources at hand for entrepreneurs and successful entrepreneurs are those who fully utilize their existing networks to create new markets. In platform businesses, many customers begin as or become friends. Suppliers become customers and vice versa. Such shifts and expansion of roles deepens the understanding of customer needs and receiving feedback from them which allows iterating products at a low cost. Market bricolage enables digital platform-based startups to broaden their product and service combinations at low cost through economies of scale as they are often limited with storage capacity and small amount of available funds which has a negative impact on market expansion. It also helps platform-based startups in developing trust and committed relationships between business partners. Customers formed through market bricolage are more likely to try new products and services, thus leading to repeated purchases [Baker & Nelson, 2005; Garud & Karnoe, 2003; Yu et al., 2018]. (3) Institutional bricolage involves working around symbolic principles, rules and norms to bring about an institutional change. There are three pillars of an institution i.e., regulative, normative and cognitive. Institutional bricolage comprises of two stages. The first is to socially reconstruct the available resources which is possible only by being unlocked from existing practices of using certain type of resources. The second stage involves normalizing any institutional deviance in order to set up new institutions. There is no intention violation of existing policies and rules on behalf of the entrepreneur. Rather, platform-based startups are an emerging phenomenon so existing standards and regulations do not prove to be sufficient for them. Institutional bricolage enhances the acceptability of novel products by forming new institutions, rather than fitting into new ones [Desa & Basu, 2013; Baker et al., 2013; Yu et al., 2018].

3 Research Methodology

The authors adopted a qualitative multiple case study approach to investigate the role of digital platforms in entrepreneurial processes of platform-based startups in Pakistan as it is context-based research [Gustafsson, 2017]. Considering the early stage of establishment of the startups, multiple case study approach was more suitable to develop an in-depth understanding of the phenomena than a single case and to explore the answers of 'how' questions for theory building. The evidence created from a multiple case study is strong and reliable and similarities and contrasts can be made. Moreover, this approach creates a more convincing theory when the suggestions are intensely grounded in several empirical evidence, thus allowing for a wider exploration of our research question and theoretical evolution [Saunders et al., 2016].

The authors selected six digital platform-based startups 'Toycycle', 'XYLEXA', 'PaakHealth', 'Qurbani App', 'DadaJee.com' and 'PriceOye' incubating in Pakistan's National Science and Technology Park (NSTP). NSTP aims for stimulating innovation-led economic growth of the country and the region and supporting emerging local

startups and SMEs that are seeking to develop and export diverse technology-based products and services.

(1) Toycycle is an online platform for buying and selling of preowned items including baby gear (strollers, highchairs, bouncers and carriers), clothes and toys (games, puzzles, electronic toys and wooden toys). It provides full-service consignment where toys and baby gear are picked from the owner's place, sorted out and sold on the platform. Once the items are sold, the owner gets paid.

(2) XYLEXA is an online platform for provision of diagnostic services to caregivers using AI and image processing techniques. The platform serves as a decision support system for radiologists by providing medical image diagnosis and disease and is also involved in R&D for timely diagnosis of cancer.

(3) PaakHealth is an online platform for the provision of services related to setting up appointments with doctors, hospitals, home delivery of prescribed medicines ordered through their app and emergency portal for finding blood donors.

(4) Qurbani App is an online marketplace that facilitates the buying and selling of animals by connecting farmers, mandi (market) owners, traders and vets on a single platform. Their services include Sadqah, Aqiqa and Ijtimae Qurbani as well as developing drones for the surveillance of livestock.

(5) DadaJee.com is an online B2B platform for selling a wide range of toys (cars, dolls, helicopters etc.) in all materials.

(6) PriceOye is an e-commerce platform for price comparison and purchase of electronics products online. It aims in finding authentic, latest and lowest prices product by catering to Pakistan's 210 million consumers with a business model similar to China's JD.com.

In order to maximize the flexibility of this research study, data collection and analysis occurred simultaneously across 2 phases. The authors also established various mechanisms to ensure reliability and validity of our findings [See Table 1]. Phase 1 began in October 2020 when the manager of NSTP provided support for obtaining access to digital platform-based startups at NSTP. However, this phase was an introductory phase focused on creating linkages with the digital startups and finalizing our research sample. The next phase (phase 2) began in March 2021 in which the interviews with the startups' founders were conducted. All the six startups were at the post-incubation stage. The authors stopped aiming for more startups after the interviews started to repeat themselves and failed to unveil more themes.

Table 1. Mechanisms to Ensure Reliability and Validity

Mechanisms to Ensure Reliability	Mechanisms to Ensure Validity
<ul style="list-style-type: none"> ✓ Ensured statement from one respondent is supported by another respondent. ✓ Studied Pakistan's innovation landscape and entrepreneurial ecosystem in order to contextualize the findings. 	<ul style="list-style-type: none"> ✓ Ensured that our study was supported by both interview data and existing literature.

The primary data was collected through informal chats and semi-structured interviews with founders, co-founders and employees of all the startups. Thirteen semi-structured interviews were conducted from founders (8 interviews – all males), co-founders (3 interviews – 2 males and 1 female) and employees (2 interviews – both males) of the startups. Regarding interview procedures, all interviews started with open-ended questions such as “What does your startup do?” and “How did you come up with this platform-based idea?” Later, the interviews moved on to those questions that were very focused and specific to our research question e.g., how they reshaped their products and services once they had been introduced to the end user. For resource enabling perspective, our interview questions were focused on what technological, financial and social network resource challenges were encountered and how were they overcome. The interviews were analyzed in real-time. While the informants were busy answering the initiated question, the authors jotted down main points of the informant's response, interpreted it, identified themes and then redirected questions around those themes.

All interviews were recorded with the permission and transcribed later. Three interviews were in Urdu language had to be translated to English language while some interviews were completely conducted in English. The transcriptions and translations were thoroughly gone through several times in order to ensure their validity. The transcriptions were read multiple times for coding and thematic analysis. During the process, the authors compared the interview data and prior literature to ensure that the study is supported by both interview data and existing literature. When a new theme emerged but data relevant to that theme was insufficient, a follow-up interview took place. This iteration between data collection and follow-up interviews lasted about 4 months, until the findings reached theoretical saturation, at which point the newly collected data failed to reveal new or contradictory themes. The concepts of ICT and entrepreneurial bricolage theory helped in making sense of the data. The themes were finalized after extensive discussion within the team.

4 Findings

This section summarizes the research findings in three themes to explain the role of digital platforms as resource enabler in entrepreneurial processes.

4.1 Input Bricolage: Combining Internal and External Resources

Building a platform-based startup is challenging in Pakistan. The digital landscape of Pakistan is still in the developing phase which leads to technological and its acceptance issues due to inadequate know-how of using technology. Apart from this, startups also face the issue of resource scarcity due to limited resources in the beginning. But maximum utilization of available internal and external resources helps them in easy facilitation throughout the entire entrepreneurial process.

Majority of the respondent startups started with a subjectivist perspective. They discovered and created opportunity through their personal knowledge rather than through active search. They completely utilized their internal resources like skills, experience, education, personal events and knowledge base for market selection and identifying customers' problems along with categorizing and evaluating information received from the environment. This also helped them in identifying the use of technology in different markets, serving a particular market in different ways and providing solutions to new and different problems. Improvised resources were orchestrated for novel usage using just-in-time strategy in order to reduce costs. Only two startups followed an objectivist perspective by tapping unexplored opportunities and gaps which did not have close linkage with their knowledge base. So, they had to adapt their knowledge and resources according to them. As explained by one respondent with a subjectivist perspective:

'Market research was very critical in the start as we had to get it right to let our customers buy from us. However, I have been in this industry for about 16 years, so I am already familiar with the market and I addressing potential customer voices and concerns' [R 3, XYLEXA Co-founder].

External resources were also acquired by startups from external stakeholders and recombined for use. Those external resources included technological and financial resources. Financial resource constraints were a huge challenge in the beginning for most of the startups as they had developed viable prototypes but lacked the required resources to turn it into a tangible product ready for commercialization. The financial resource challenges were mainly overcome by financial bootstrapping, financial rounds and funding received from accelerator programs. These accelerator programs were willing to provide funding for new and 'out of the box' ideas in the country and since platform concept is an emerging phenomenon in developing countries like Pakistan, these startups were easily provided with adequate funding. 'We started with bootstrapping in the beginning. Now since we are growing, we have shifted our focus on financial rounds' [R 6, Qurbani App Founder].

Another respondent also articulated this: 'We raised two pre-seed rounds for this financial challenge. As a result, now we are close to our break-even' [R 4, Toycycle Founder].

Technological resource challenge was another big issue in the development of the platform. Hiring appropriate developers and passing through the procedure of domain

registration was not an easy task. Moreover, the target user base of these startups was not tech savvy, so it was a challenge in providing them with adequate training to operate the apps. Language barrier was overcome by offering the feature of Urdu language on the platform.

‘When we started our platform, we faced technological resource issues related to domain and hosting registration, hiring skilled developers and contacting software houses for provision of services. After that, we shifted to WhatsApp business in which our website got blocked as we did not read technological terms and conditions thoroughly. So, after this experience, we had to start all over again which increased our cost’ [R 12, DadaJee.com Founder].

All these internal (knowledge base and skills) and external (financial and technological) resources were a necessity at the opportunity generation stage. While moving forward towards the development stage, internal search of knowledge corridors and environmental scanning was also important. Potential strategic alliances, personal contacts, partnerships and joint ventures were needed to obtain the required R&D, manufacturing and marketing capabilities and other related support and to gain quick access to vital markets in which the startups had little or no experience.

‘We did partnerships with mobile payment and telecommunications companies to get access to easy payments and with one non-profit organization for distribution of our products on our platform’ [R 7, Qurbani App Founder].

Another respondent also highlighted this:

‘We did joint ventures to get hosting and technological support’ [R 13, DadaJee.com Co-founder].

Due to their newness and smallness, it was very expensive for startups to seek and acquire resources from their stakeholders. But with the startups operating on third-party digital platforms, friends and family resources came in handy to lower the operational costs by bringing in supportive infrastructure, less expensive labor and flexibility.

‘We brought in consultants who were relevant in areas of Artificial Intelligence (AI) and Machine Learning to come in and help the team at different stages where they get stuck. They were expensive resources, but we were able to negotiate a very good package with them so that they can provide guidance to the team’ [R 2, XYLEXA Co-founder].

The involvement of family and friends allowed these digital startups to explore leveraging resources at hand and to increase the probability of creating new market demand as quality and participation level of social network resource allows emerging startups to make full use of the resources at hand. However, it was important to retain the labor and every effort was made in order to retain them. As one respondent mentioned:

‘In order to retain our employees, we offered them trading, a good working environment, the interesting product that we were making and the cutting-edge technology that we are using. We took care of our employees and gave them a chance to learn and grow

and not make empty promises to them. We are sitting in the same office, working on the product and funding. So, they have seen the progress themselves and they are committed to what we are doing' [R 1, XYLEXA Founder].

4.2 Market Bricolage: Enhancing Customer Base and Building Trust

Market bricolage served as a catalyst in developing and exploiting opportunities. Function of the entire business network was changed; non-business relationships were changed into business relationships and startups created new markets and new customers by transforming their existing network of entrepreneurs i.e., customers, friends, suppliers and competitors. Customers became friends, suppliers became customers and vice versa.

'We did partnerships with relevant suppliers and startups to enhance our customer base' [R 5, Toycycle Employee].

'We created a new market by making sure that we have enough customers who would be our referential customers who helped us grow and expand our system in Pakistan and globally' [R2, XYLEXA Co-founder].

Obtaining large user base was a challenge because advancement in digital technologies in Pakistan is still at an early stage, either because of adequate technological knowledge or high costs. The startups initially started with referential customers but when it came to enhancing customer base, the target market was hardly tech savvy. They did not have much know-how in operating the apps and they were resistant to change. Trainings had to be provided to them so that they can operate the app. Moreover, it was ensured that the platform is user friendly and cheap in order to attract more customers. Word-of-mouth also played a major role in attracting new user base.

'Not a single hospital in Pakistan is using Computer Aided Diagnosis (CAD) system. It is not that they do not know about it. It is just that they cannot afford it. So, we had to make it very comparative in terms of price and entry where they do not have to invest any dollars in capital investment. There is no expense, and they only have to pay for what they use. So, we are creating a new market by making sure that we have enough customers who would be our referential customers and that will help us grow and expand our system in the hospitals of Pakistan and globally' [R 2, XYLEXA Co-founder].

Another respondent also reported:

'Only 5 to 7% of our user base was educated. So, we had to offer local language on our platform and make it user-friendly along with providing trainings to operate app and instilling privacy and sense of security in our customers to retain and expand our network' [R 7, Qurbani App Founder].

Such shifts and expansion of roles to transform the network facilitated in establishing multiplex ties which deepen the understanding of customer needs and concerns and allowed the platforms to iterate the products at lower costs. New products were iterated after receiving feedback from end users. As platforms are virtual and geographically

dispersed, it becomes convenient to receive feedback from customers regarding the product. Moreover, the network formed via market bricolage further helps iterate the products at lower cost. Through digital platforms, it was easier to shape the offerings (i.e., the products and services) even after they had been introduced to the end users simply by modifying digital artifacts or components. As customer requirements change with time, entrepreneurship process becomes ongoing and continuous. This greatly helped in retaining customers and attracting new ones. One respondent mentioned:

‘We generally go through a product management process. We have built a base product; we have requirements coming in from customers whether they are related to user experience or new functionality. We go through a standard release process. We prioritize them and implement them’ [R 2, XYLEXA Co-founder].

Other respondents also commented:

‘We keep our eyes on whether our old product design is up to date and working properly, if we can improve our conversion and customer acquisition’ [R 4, Toycycle Founder].

‘We modify our offerings everyday through continuous improvement. What is not worthy is shelved’ [R 8, PriceOye Founder].

These emerging digital startups also faced low level of trust and governance issues as well as less committed relationships between customers and business partners because reputation and trust building take a lot of time and plays a crucial role at both commercial and social levels. Particularly in the context of digital startups, it was very important to establish trust and good reputation among customers as consumer behavior and purchase decisions were relying greatly on electronic word of mouth. Since the startups had referential customers in the beginning and friends who were early adopters, this immensely helped them in obtaining active transaction records of products with many favorable and positive reviews to their profiles. Moreover, their transformed network formed via market bricolage also voluntarily purchased new products and services, thus leading to repeated purchases. Another trust building mechanism included products and services going through an entire process of trial and error and receiving feedback from customers. Based on this, startups went from concept to proof of concept and the Minimum Viable Product (MVP) was released in the market. The needs and concerns of the customers were received, and those customer feedbacks were incorporated in the beta product.

‘At this stage, it was very important to build trust. Since I had already been in the industry for 16 years, so our customers were all referral customers. This helped us in building trust among them comparatively easily’ [R 3, XYLEXA Co-founder].

Another respondent also demonstrated:

‘We developed trust among users through communication, word of mouth and mind reading. We also developed an effective helpline and feedback mechanism which facilitated both sides of our platform. But overall, communication was the key element in instilling trust among customers’ [R 6, Qurbani App Founder].

4.3 Institutional Bricolage: Institutional Orders and Institutional Transformation

Institutional bricolage helped the startups in socially reconstructing the available resources by deferring from existing practices of using certain types of resources. Since digital platforms are an emerging phenomenon in Pakistan, existing business standards and regulations were not fully sufficient in guiding the startups and supportive institutions were not strong and efficient.

‘We had our first startup in the US because the current market and existing business regulations were not enough in Pakistan. But as the platform concept is growing locally, more business rules and regulations are available now which were sufficient for us this time’ [R 9, PriceOye Founder].

Legitimacy to existing structures and outcomes was more focused on stability. So, normalization of institutional deviance was necessary for re-purposed resource combinations and deployment practices to bring change and form new institutions. Startups did not conform to cultural myths and symbols because it promotes the public legitimacy necessary for organizational startup but deviates them in the development of goals and actions that may not be their core technical mission. Considering the institutional orders, the cultural and behavioral values differ with respect to religion, family, the bureaucratic state, the capitalist market, democracy and community. However, it could not be stated which norms were more salient than others because the startups were more centered in one or more of the institutional orders than others.

PriceOye blended the market and corporation. The founders observed that the traditional e-commerce models like Daraz do not cater to all the gaps in the market. Their research showed this demographic of Pakistan having the fastest growing middle-class population who would be very inclined towards an idea of comparing prices of different products and purchasing them at an affordable rate. Their research also showed the demographics of Pakistan and India are similar, so they went to India and later to China to learn about their ecosystem and have a knowledge of their markets and corporations. From there, they implemented this idea which was similar to Indonesian startup ecosystem. Thus, they transposed and blended practices from the market and corporate management to create new ways to set e-commerce standards that focused on outcomes and purchasing decisions of customers.

Similarly, Toycycle also blended the market and corporation. It was observed by the founder that traditional marketplaces like Daraz and e-Bay do not offer full-service consignment. Since the houses were very compact in the US and the babies outgrew from the baby gear very quickly, it was troublesome to store the baby gear in the house. So, he came up with the idea of full-service consignment where the item was picked from the houses and sold on the platform. For this, he blended practices from the market and corporation after observing and studying the US startups which were working on the same idea.

DadaJee.com blended family, market and corporation. The founder was working as a corporate employee in his family's trading business which focused only on local markets. In this changing era, he recognized the need to make it digitized in order to target a wider set of user base. For this, he began with collecting investment and approaching accelerator programs but could not receive funding from them as they were only interested in funding 'out of the box' idea. So, what he needed was a blend of family capitalism with market and corporate management.

Qurbani App blended religion, community and corporation. With the past corporate experience and practices, the founder focused on executing the idea which was committed to community values and ideology and sources of legitimacy of importance of faith in the society.

PaakHealth segregated family and blended market and profession. The founder did not follow the traditional family values but rather went for the idea in which he excelled. He wanted to change the traditional mindset of his family and people in his area who only believed in visiting local hakims (herbal medicine practitioners) for any kind of treatment. He shifted from family capitalism to market and personal capitalism and from status in household to status in market and profession. He shifted his sources of legitimacy from unconditional loyalty to personal expertise.

This led to better positioning to garner resources by creating new and reconfiguring institutions. Institutional bricolage helped the startups in implementing innovative approaches to employ available resources. Individualized and customized services were made available to the end users and open source was used to build components and add new functionalities. These platform-based startups have become pioneers in their area by introducing novel products in the market. As a result, the perception of people has changed to some extent. They are adopting new technology-based products. The startups have also experienced first-mover advantage.

5 Discussion & Conclusion

The study seeks to make contribution to research and practice in digital entrepreneurship. It offers novel insights into digital entrepreneurship literature by exploring role of digital platforms as facilitators of various resources for startups.

The answer to the research question – “How digital platforms act as external enablers in entrepreneurial processes?” has been examined with the help of entrepreneurial bricolage theory. Digital platforms serve to be infrastructure, marketplace and ecosystems at the same time [Kenney & Zysman, 2015]. They help in continual updating of entrepreneurial processes. Our findings concur with the literature that digital platforms create fluid boundaries of the entire entrepreneurial process as the products and services keep getting modified even after they have been introduced in the market and to the end

user. This is done through modification in digital artifacts or components [Nambisan, 2016].

The limited resources are an important challenge that almost all small startups face. They have the required skillset, social network and creativity but are unable to have access to costly new resources [Domenico et al., 2010]. Having enough finances to turn a viable prototype into a tangible product is a challenge for which funding from incubation and accelerator programs is needed. Combining available resources (internal and external), indulging in partnerships and seeking help from the limited social network can help in operationalization, improving sales performance and efficiency and creating customers. Moreover, normalizing institutional deviance rather than legitimacy to existing structures and outcomes should also take place. Technological challenges are also common in Pakistan where technology is still in its nascent stage. It is somewhat challenging to enhance platform user base in Pakistan as customers are at times less familiar with the technology either because it is expensive or due to less adequate technological knowledge. Making the technology comparative in terms of price point and entry and allowing the customers to pay only for what they use can help platform-based startups in overcoming technological resource challenges throughout the entrepreneurial process.

Startups in developing countries like Pakistan are more inclined towards operating on digital platforms as it enables entrepreneurship even in resource constraint environment. Scarce resources are a huge challenge and people in developing countries tend to have technology acceptance issues. However, combining available resources in an effective manner and taking help from existing network of family and friends can help in operationalizing the startups. Moreover, digital platforms charging customers only for what they use becomes a major solution to cater to the technology acceptance issues and enhancing user base. New business standards and regulations are also coming in place to facilitate the operationalization of platform-based startups.

In this chapter, the authors attempt to bring the attention of IS scholars towards exploring the interaction of digital platforms and entrepreneurial processes. It is the right time to focus on digital entrepreneurship as the entire world is moving towards digitization. In developing countries, startups and small enterprises can catalyze the economic and social development. This initial level research identifies the need of future research to unpack the various stages of entrepreneurial process from input, market and institutional resources facilitated by digital platforms in developed and developing countries. These theoretical and practical insights will not only contribute into emerging literature of digital entrepreneurship but will also assist in flourishing the entrepreneurial ecosystems in developing countries where resources are scarce.

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