Exploring the role of Web 2.0 in Digital Entrepreneurship

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Abstract

Digital entrepreneurship is the fastest growing contemporary form of entrepreneurship spurring the practice of pursuing new venture opportunities presented by new media and Information and Communication Technologies. One of the major emerging technologies that offers tremendous potential to digital entrepreneurs for creating and delivering value chain activities is Web 2.0. It primarily is a technology paradigm that has changed the status of internet from passive read-only websites and proprietary applications to an active platform that attracts highly interactive group based initiatives. Web 2.0 based platforms provide cost effective mechanisms for carrying out the major digital business functions ranging from information sharing to co-creating with customers. Despite the growing popularity of digital technology based new ventures, the extant literature is not sufficient to thoroughly understand the enabling role of Web 2.0 in them. The paper is an attempt to bridge this gap and delineate the ways in which Web 2.0 can be leveraged by digital entrepreneurs to realise some of the important venture objectives. The paper provides a theoretical elaboration of the major digital venture activities and the corresponding Web 2.0 platforms and the enabling technologies that provide added value to these activities.

Keywords Digital Entrepreneurship, Web 2.0, Value creation, Digital Technology

Introduction

Entrepreneurship has long been debated as the primary forum for promoting innovation and the prominent vehicle of economic development, thereby, considered as a national priority by countries all over the world (Ohanu, 2018; Yaghoubi Farani et al., 2017). In recent decades the emergence of Net Economy has radically changed the structure of societies and the context, management and usage of information, communication and transactions has changed (Kollmann, 2006). This Economy is characterised by four technological innovations: Telecommunication, Information Technology, Media Technology and Entertainment, the so-called TIME market (Kollmann, 2006). These innovations are changing the rules of the game where "Knowledge and Information" has become an important strategic resource (Carrier et al., 2004). Such a shift has compelled many firms to review and revise their traditional protocols of doing business and take into cognizance the paramount importance of technology tools to carry out business transactions (Malone & Laubacher, 1998). The rules have not changed only

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for the incumbents but also for those who aspire to start their ventures in the Net Economy. The forum of these available technologies has led to many possibilities of developing innovative business concepts (Kollmann, 2006).

One such concept which is the focus of this research is Digital Entrepreneurship that is starting ventures in the Net Economy embracing the digital technology space, ranging from having a virtual value chain to website as an support mechanism to the existing business (Kollmann, 2006). Digital entrepreneurship has led to collapsing boundaries between firms, suppliers, customers and competitors and flexible approaches to deliver business have been developed (Amor, 2000). Since 'Information' is the central theme in Net economy, Digital entrepreneurs have to critically assess how information is gathered, synthesised, utilized and disseminated across customers, employees and supplier networks (Gundry & Kickul, 2006). This form of entrepreneurship has paved way to many aspiring entrepreneurs who aim to innovate and exploit opportunities generated by the development of new Information Technologies (Carrier et al., 2004). At the same time a new set of core business values have emerged in this subcategory of entrepreneurship that differentiates digital entrepreneurs from others including continual innovation, experimentation and rapid change (Gundry & Kickul, 2006). The concept of creating value and conducting business operations differs significantly in a digital venture. The creation of electronic value chain, digital sales, digital marketing, digital delivery, dealing with digital goods and services are the areas where the entrepreneur needs competence (Kollmann, 2006;Hull, Hung, Hair, Perotti, & DeMartino, 2007).

Corresponding to this view of continuous information exchange and collaboration with various stakeholders many studies done on e-commerce/ e-entrepreneurship/ cyberentreprenuership/ digital entrepreneurship have spelled out the importance of networking and social communities in these ventures (Matlay & Martin, 2009;Carrier, Raymond, & Eltaief, 2004a; Jelonek, 2015; Vijayaraman & Bhatia, 2002).In one of such studies, e-networking has been considered as a critical success factor (Sebora et al., 2009). Even before the emergence of Digital Entrepreneurship as a field of study, networking has been considered to be a success factor since ages. In number of studies the impact of networks and networking capabilities of entrepreneurs has been shown to be an important success factor (Birley,1985; Aldrich & Zimer, 1986; Witt,2004; Elfring and Hulsink, 2003;Ramachandran & Ray, 2006). These studies proposed that it is not only about the resource pool but the survival and growth of start- ups are highly dependent upon the networks being developed. From the network perspective of entrepreneurship the paradigm that best explains entrepreneurial networking and collaborating activities is web 2.0. The network approach of entrepreneurship postulates that diversified networks play a critical role in the success of start-ups. In the present study the network approach is proposed to be operationalized through Web 2.0 technologies. Web 2.0, as coined by Tim O'Reilly, is a web based networked platform that spans across all connected devices (Reilly, 2007). This web paradigm has brought in various community based initiatives e.g., collaborative advertising, file sharing, user generated content. The use of this technology by entrepreneurs has been studied in a number of contexts (Indrupati and Henari,2012;Lahuerta & Mun, 2014; Kim, Lee, & Lee, 2011; Harrigan & Miles, 2015;Constantinides, 2008; Jones, 2010; Nakara, Benmoussa, & Jaouen, 2012;Harris & Rae, 2009; Blinn, Lindermann, Nuettgens, & Blinn, 2009;Wirtz, Schilke, & Ullrich, 2010;Adebanjo & Michaelides,

2010). Each of these studies show an increasing proliferation of web 2.0 applications in the entrepreneurial landscape.

In this background, the paper explores the role of web 2.0 for the entrepreneurs whose main business activities are carried out through Information and Communication Technologies (ICTs). The present study has been organised as follows: First, the relevant streams of literature identified for the study are discussed and thereafter, the potential use of Web 2.0 in digital businesses is discussed.

Theoretical background

From Entrepreneurship to Digital Entrepreneurship

Entrepreneurship as a field of study has been viewed through numerous theoretical lenses. Stevenson (1985) viewed entrepreneurship from 'opportunity' lens which was further refined for conceptual clarity. There are varying conceptualizations of this lens including; situations where new goods/services/ideas can be introduced (Farr-Wharton & Brunetto, 2007), process view consisting of need identification, under used resources and striving a fit between the identified need and the resources (Hansen et al., 2005) and Shane and Venkataraman view establishing opportunities as existing facts (Shane & Venkataraman, 2000) that need someone to discover them (Sserwanga et al., 2014). Another conceptualization of entrepreneurship is that of Schumpeter that directly corresponds to digital entrepreneurship. As per Schumpeter, entrepreneurship is a source of creative destruction where entrepreneurs may destroy existing industries in the pursuit of creating new ones (Schumpeter, 1934). Internet, World Wide Web, Social media and the related technologies have generated new business models, refashioned ways of communication and remodelled entire industries (Davidson & Vaat, 2010;Dutot & Horne, 2015).

Digital entrepreneurship is a sub category of entrepreneurship which entails 'the pursuit of opportunities based on the use of digital media and other information and communication technologies' and in which some or all of the entrepreneurial activities that are physical in traditional ventures has been digitized (Hull et al., 2007). As pointed out by Nambisan this specialist branch of entrepreneurship leads to democratisation of the entrepreneurial phenomena with less spatial and temporal impediments providing ever increasing product and service opportunities (Nambisan, 2016). Additionally Hull et al. highlighted the broad horizon over which digital business models can span across as the important business functions including "products, distribution, and the workplace" can be configured in digital forms in an entrepreneurial venture (Hull et al., 2007). As per them, digital entrepreneurship can be classified into mild, moderate and extreme type. In mild version, the role of digital technology is supplementary to existing physical presence. In moderate type, various value chain activities are completely digitized but not all of them. While extreme category is a pure digital venture where the product/service itself is digital one. Esmaeeli (2011) developed a typology of digitalization of a company. The degree to which a company is digitized can be manifested in 1) the digital nature of goods & services, 2) the digital distribution potential of a good or service, 3) the potential digital interactions with key external stakeholders within the value chain, and 4) the digital potential of virtual internal activities associated with a firms operation. To that end digital entrepreneurship involves creation of a new venture based on

digital goods or services, digital distribution, a digital workplace, a digital marketplace, or some combination of these (Esmaeeli, 2011; Hafezieh et al., 2011).

In addition, Giones and Brem (2017) advocated a technology centric view by considering "Technology as an input factor" by listing "new products and services based on the internet; services running only in the cloud; using big data or artificial intelligence" as potential types of digital entrepreneurship. Davidson and Vaast theorize digital entrepreneurship entailing three types of opportunities being carried out simultaneously namely Business, Knowledge and Institutional Entrepreneurship (Davidson & Vaat, 2010). Besides these studies, various other studies have addressed the space of digital contexts including digitalization of key business processes (Dutot & Horne, 2015), sharing economy (Richter et al., 2017), gaming industry (Ojala, 2016). An important point to note here is that digital entrepreneurship has been addressed by varying definitions and terminology. For the present study we adopt the working definition for digital entrepreneurship by Davidson and Vaast as; "the practice of pursuing new venture opportunities presented by new media and internet technologies". The term encompasses myriad opportunities generated by Information and Communication technology including world wide web , social media smartphones and artificial intelligence (Ngoasong, 2017) for carrying out business activities and functions, such as production, marketing, distribution and stakeholder management (Hair et al., 2012).

Web 2.0

Web 2.0 is a phenomena that changed the web paradigm from a business centered to a user centered model (Kim et al., 2011). The term was initially coined by Tim O' Reilly and comprises a revolution in the computer industry that changed the role of a user from being merely a content consumer to an active participant (Reilly, 2007). Before the advent of this network paradigm, internet was characterised by read-only websites and proprietary applications (Kim et al., 2011), which meant internet content to be either read or listened. But now with Web 2.0, Web is a platform that attracts highly interactive group based initiatives including collaborative advertising, P2P file sharing, user-generated content, and social bookmarks (Reilly, 2007; Kim et al., 2011). The exact technologies and tools that encompass Web 2.0 is not detailed out precisely as Tim O'Reilly in his initial attempts to define Web 2.0 characterised it as a Web a paradigm that does not have a hard boundary (Reilly, 2007). Various researchers have attempted to categorize the major application types that largely explain Web 2.0.

Kim et al outline the major Web 2.0 applications including social networking sites, blogs, folksonomies, and wikis (Kim et al., 2011). *Social Networking Sites* (SNS) use web-based technologies that let individuals to develop transaction or friendship connections to share their resources with other members. These SNS have their own unique types and cater to diverse groups including business users e.g. LinkedIn. *Blogs* are online journals marked by a peculiarity that readers can comment on each entry being posted, thereby, making it a potential application of Web 2.0. Blogs are generally short and command frequent updates and can serve multitude of purposes including customer relationship management tools. Twitter is the most popular blogging technology thriving on the principles of Web 2.0. *Folksonomy/Tagging* is described as the process of attaching labels to Websites, images, Videos or any type of digital object. This metadata about digital objects makes finding information in online space

more easy and accurate. Some of the popular tagging sites include del.icio.us – a social bookmarking system and Flickr – a photo publishing/sharing site. *Wikis* are online platforms that allow individuals to venture into collaborative publication. Individuals can contribute to an online discussion and through revisions the document becomes more trustworthy. Wikipedia, is the most popular collaborative publishing application where any member can contribute and edit content.

Constantinides & Fountain define it as 'A collection of open-source, interactive and user controlled online applications expanding the experiences, knowledge and market power of the users as participants in business and social processes. Web 2.0 applications support the creation of informal users' networks facilitating the flow of ideas and knowledge by allowing the efficient generation, dissemination, sharing and editing/ refining of informational content'. They provide a five set categorization of Web 2.0; Blogs, Social Networks, Content Communities, Bulletin Boards and Content Aggregators (Constantinides, 2008). They also detailed out three major principles beholding the paradigm of Web 2.0. First, Web 2.0 applications are based on open source software and based on SaaS i.e. Software as a Service. Second, application development is continuous as users are active participants. This generates collective intelligence making the service/application more advanced. Third, its service-oriented nature paves way for low-volume goods/services for reaching small individual consumers. This means it has heralded a shift from mass market to individual consumers.

Web 2.0 in Organisations

The potential use of Web 2.0 by large (Mcafee, 2006) as well as small (Kim et al., 2011; Constantinides, 2008) organizations is thoroughly discussed in the extant literature. MacAfee coined the termed 'enterprise 2.0' to connote those organisations that are harnessing the power of Web 2.0 applications to support knowledge work across the enterprise. He used the acronym SLATES that encompasses components of 'Enterprise 2.0' technologies. *Search* is the first enabling technology that makes any information tool functional and valuable. *Links* make information retrieval non-trivial and only the best information is harnessed through linking of pages. *Authoring* tools within an organisation help to make intranet work of many and continuously updated. *Tags* help to make knowledge work more organised as employees can keep track of their most referred pages either on internet or intranet. *Extensions* make searching on the web more user oriented as the preferences of users are taken into cognizance while they are taken to the sites that match their pattern of searching. *Signals* provide alerts when new content of interest appears thereby saving the time of a knowledge worker from a full-time job of searching for new contents. With respect to measurable benefits Mckinsey did a global survey of organizations and found Web 2.0 usage linked with greater market share and higher margins (Bughin & Chui, 2010). They measured the organisation impact of Web 2.0 by less hierarchical information flows, collaboration across organisational silos, decisions made at the lower end of the hierarchy and the like. A recent research report in MIT Sloan Management Review details out the changing role of Key Performance Indicators (KPIs) (Schrage & Kiron, 2018). The study has clearly pointed out the centrality of customer orientation as a critical dimension to consider. Many executives in the same survey pointed out that the key performance indicators have to be seen from the customers' perspective. One of these executives mentioned as to how brand advocacy was a critical factor and further that a KPI around Net Promoter

Score (NPS) would be more appropriate. This suggests how critical success factors are moving towards user generated content which is the backbone of web 2.0 platforms.

Moving from large to small organisations Kim et al developed a conceptual framework to explain the potential use of web 2.0 in SMEs. They discussed the role of web 2.0 within organisations, with customers and suppliers. Furthermore the usage ranged from information sharing to collaboration. Constantinides explored the role of web 2.0 in small enterprises and delineated its use into two categories; Active and Passive way. Active way refers to Web 2.0 as a marketing tool used in public relations and customer influence tool. Passive way refers to the use of Web 2.0 as an intelligence tool to capture the wisdom of crowds (Kim et al., 2011). It is important to note that majority of the studies pertain to large corporations as these organisations have the necessary e-commerce competence and ICT infrastructure to benefit from such technologies. The space pertaining to small organizations is yet to be filled with good research.

Digital Entrepreneurship and Web 2.0 Interface

In line with the working definition of digital entrepreneurship that has been adopted for this paper, Web 2.0 is a critical technology paradigm to be considered while creating a digital venture. This is one of the most important new media that offers tremendous benefits to the entrepreneurs who face numerous challenges ranging from insufficient finance to lack of competence and workforce to remain competitive. Drawing upon the streams of literature discussed above, we now discuss how Web 2.0 facilitates the major value creation activities of these digital entrepreneurs. Table I provides an overview of the enabling role of Web 2.0 in the creation and delivery of major activities by entrepreneurs in digital society. We now discuss these concepts in detail;

1. Creation of a Digital User Profile: It refers to the creation of a public profile that lets entrepreneurs draft, edit, and share information, about themselves or their ventures, that serves as a communication device (Smith et al., 2017). These profiles empower entrepreneurs to share personal information (identity, values, and interests) and venture information (vision, mission, core values, and product/service offerings). All this information enables entrepreneurs to develop online social contacts which in turn increase the rate at which further contacts are developed. This achieves one of the fundamental objectives pertaining to entrepreneurs in general that is, Visibility. With the presence of Social Networking Sites (SNS) digital entrepreneurs can achieve high market visibility to compete on a global platform (Hair et al., 2012). In addition to gaining market visibility through online communities and positive word of mouth, both friendship and transaction networks accrue to these entrepreneurs, which in turn help gain more market visibility.

Web 2.0 Application	Activity	Enabling Technology	Benefits
	Table II. Web 2.0 Applications in Digital Entrepreneurship		
Digital profile Building	Creation of a public profile by the entrepreneur to communicate information about entrepreneurs and their ventures	Social Networking sites (SNS)	High Visibility, Social Ties, Transaction Ties
Digital Prospecting	Finding a large customer base through networking in an online market space.	SNS, online communities	Awareness, Consideration, Reduced marketing costs.
Positioning	Creating an image of the venture in the social market space with a clear value proposition.	Social networking sites , blogs, online communities	Targeted Marketing, Market niches
Brand Building	From awareness to conversion to loyalty to word of mouth, using multiple platforms to build the brand.	SNS, Blogs Online Communities	Referrals, Word of mouth, sales
Customization	Using customer feedback and direct customization by building one to one relationship with the customer	Blogs, communities, you tube	Customer satisfaction, customer loyalty, higher margins
Networking	Being available round the clock. Soliciting feedback and pitching service improvement, product development.	Social networking sites, blogs, Bulletin boards	Customer trust, Increased acceptance of product changes
Collaboration	New product development, service improvement in active collaboration with customers.	SNS, Video sharing, online communities	Successful new product development, increased customer engagement, customer loyalty, higher margins

2. Digital prospecting: It refers to process of searching and qualifying for the most eligible customers for a product/service offering in a digital context. With the SNS affordances of Visibility (ability to make all network connections visible to the network owner or others), Association (ability to know that a network connection exists) and Transversability (ability to navigate to and through your own and others' networks) digital entrepreneurs can get access to a wide audience surpassing temporal and

spatial boundaries (Nambisan, 2016). With these affordances digital entrepreneurs can view the whole networks they have developed to gain more strategic insights. They can draw clear inferences from who is posting where so that they build up a community of like-minded users. Moreover with Searchability (ability to efficiently search all manner of SNS content) and Irretrievability (ability to scan vast networks to capture specific information) affordance, connection finding becomes a less tedious task. Entrepreneurs can choose those contacts that they find more beneficial to the venture, thereby, making the task of prospecting more rigorous. Additionally, connection prompting help to grow their network at a very low cost by providing suggestive digital contacts that entrepreneur can use to expand the reach of their offering.

3. Positioning: It is the act of designing the company's offering and image to occupy a distinctive place in the mind of the target market (Kotler & Keller, 2016). It is worthy to mention here the conceptualization of positioning by AI Ries and Jack Trout. They view positioning as, "*Positioning starts with a product. A piece of merchandise, a service, a company, an institution or even a person. But positioning is not what you do to a product. Positioning is what you do to the mind of the prospect. That is, you position the product in the mind of the prospect*"(Aaker, 2004).The essence of this definition lies in moving the customer in favour of an organizations product/service offering. We refer to this as Customer Influence. With Web 2.0 entrepreneurs can use variety of customer influence tools. This require entrepreneurs to identify the specific Web 2.0 platforms such as blogs, online communities, discussion forums so that users can review, discuss, comment and recommend the use of products/services. This enables cost effective access to target markets and facilitate advertising in selected blogs and communities (Constantinides, 2008). In addition to this social media influencers can help in building trust and promotion of websites (McAdam et al., 2018). These influencers have millions of followers and can act as opinion leaders and help position the market offering over a wide audience base.

4. Brand Building: This occupies the most substantive benefit that an entrepreneur can achieve from Web 2.0 platforms. This benefit does not accrue only to those digital entrepreneurs who develop their own applications e.g. gaming but only those who develop online retail brands. This task is a step wise process that starts from brand awareness and ends with spreading positive word of mouth and customers becoming advocates of company's products. With the SNS affordance of interoperability, the information of products/services can be viewed across multiple digital platforms. Entrepreneurs can manage the unique image of their product/service across multiple Web 2.0 platforms. Besides this, Web 2.0 also helps in brand name recognition, perceived brand quality and development of strong mental and emotional associations which are important attributes of brand equity (Aaker, 2004). Brand name recognition occurs when within both association and transaction type social networks and the product/service in question are well understood. With Reviewability affordance, the participants of the network can check for the consistency in entrepreneur's posts across varied platforms (Smith et al., 2017). This will enhance their perceptions of product quality. And with strong social interactivity within Web 2.0 platforms, participants can get emotionally connected to the brand in question. All these dimensions can facilitate entrepreneurs brand building efforts in digital context.

5. Networking: Digital Entrepreneurs can engage Web 2.0 across three distinct spaces; Employees, Customers and Suppliers (Kim et al., 2011). This type of engagement aids employee relations, customer relations and partner relations respectively. With Web 2.0 they can manage internal communication through company newsletters and online groups of employees. This will facilitate employee to employee communications and help in knowledge dissemination. The results include employee empowerment, loyalty and improved information quality (Kim et al., 2011). Web 2.0 platforms can also help in the development of transaction networks where different partners can share their problems, new ideas and other venture related issues (Smith et al., 2017). This will improve the relationships with major suppliers and can in turn increase productivity. The third type of engagement pertains to Customer Relationship Management, which deals with Public Relations and Direct Marketing (Constantinides, 2008). Digital entrepreneurs with the help of customer-accessible online platforms (Communities, blogs) can in an effective way share information with the customers. These cost effective mechanisms help to maintain digital relations with customers through the affordance of social interactivity (Smith et al., 2017). They can keep track of personal customer information like birthdays, anniversaries and upcoming events to send relationship maintenance gestures within the digital networks they develop. This will lock-in the customers and through their positive word of mouth bring more customers. Through these network effects entrepreneurs will find a good chance of acceptance of new products and service improvements.

6. Customization: Entrepreneurs can actively utilize Web 2.0 for personalizing the web experience that customers can have with the digital venture (Constantinides, 2008). Web 2.0 provides them with the most important ingredient of customization i.e. User Generated Content (UGC) (Reilly, 2007). This creative content from participants in the digital networks can be harnessed from online communities; feedbacks related to posts, comments on blogs published. Entrepreneurs can introduce revisions with respect to products/services/ websites based on how participants in a digital network respond to a particular online discussion held. Through blogs customers can be invited to comment on them and through video sharing applications such as you tube, more fine grained reviews can be solicited. All this will enhance the total experience that a customer has with the entrepreneur.

7. Collaboration: This is the most active form of engagement that an entrepreneur can have with Web 2.0 (Kim et al., 2011; Constantinides, 2008). They can again collaborate with employees, suppliers and customers. They can generate employee content for project management and collaborate with suppliers to reduce transaction costs and work out supply chain problems. With customers, they can co-create in major product innovations (Constantinides, 2008). Customer creativity can be captured and utilized through web 2.0 applications. Customers can act as crowdsourcees and can benefit the entrepreneur in varying activities including marketing, sales, product development and logistics (Kim et al., 2011).

Conclusion

The present paper ventured into the space of Digital Entrepreneurship which is the fastest growing contemporary form of entrepreneurship. Together with this, Web 2.0 as a technology paradigm is opening up new possibilities for the creation of a digital venture. Web 2.0 as a new media can present new functionalities to these digital enterprises. Based on the extensive literature on Digital Entrepreneurship and Web 2.0, we delineated some of these functionalities that can facilitate the creation

and delivery of value chain activities in a digital venture. These range from creation of a digital identity to Co-creating with customers. Web 2.0 with its plethora of applications including social networking, blogs, content communities, and folksonomies is taking digital entrepreneurship to a new level. With web 2.0, entrepreneurs can reach a very wide audience and gain visibility which is not possible through any platform. Together with this they get relief from time and spatial boundaries which make their presence ubiquitous. Interestingly, the marketing parameters of building awareness, consideration, and loyalty are achieved in a cost effective as well speedy manner. As customers today are found in social market space, it makes connection finding more easy compared to traditional means. Digital entrepreneurs accrue social capital in online networks which that broadens and deepens their networks. Furthermore, it is not only the customer space that digital entrepreneurs can benefit from. Web 2.0 can enable their employee as well as supplier spaces. This will lead to effective Employee Relationship Management, Supplier Relationship Management as well as Customer Relationship Management.

This study is conclusive of the fact that Web 2.0 is indispensable for successful digital business venturing. This technology is pervasive in all dimensions of a digital venture be that creating awareness to developing a digital offer. Since, information is the critical element in any digital venture, Web 2.0 finds its way into digital entrepreneurship by providing the necessary mechanisms through which this information flows. It is interesting to note that the information flows in multiple directions; from a digital venture to its customers, form customers to the venture, between customers, across digital ventures. These information flows capture the oil of Web 2.0 technology that is, User Generated Content.

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