VIRTUAL ENTREPRENEURSHIP: EXPLICATING THE ANTECEDENTS OF FIRM

PERFORMANCE

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Prior research has examined entrepreneurial businesses spatially located in the physical or offline context; however, recent radical information and technological breakthroughs allow entrepreneurs to launch their businesses completely online. The growth of the online business industry has been phenomenal. Predictions for worldwide online sales estimate it to reach $2 trillion in 2016.

Virtual entrepreneurship refers to the pursuit and exploitation of opportunities via virtual platforms. Web 2.0 cybermediaries offer web-based platforms that function similarly to traditional intermediaries in a virtual setting and minimize barriers to entry for virtual entrepreneurial firms. The use of such cybermediaries with increasing success suggests an implicit shift in the dominant logic that typically underpins the functioning of entrepreneurial firms operating in the physical world. In this relatively uncharted territory, marked by a focus on profit, cooperation, collaboration and community, three ideal-type institutional logics i.e. Market, Corporation and Community, blend together. It is posited that a Virtual Entrepreneurial Logic guides the norms, behaviors, and practices of entrepreneurial firms operating via these virtual platforms. This raises the question whether the blending of three ideal-type logics leads to the existence of different antecedents of performance.

A business model antecedent addressing the economic dimension, a community antecedent addressing the community dimension and a co-creation antecedent addressing the collaborative dimension of the Virtual Entrepreneurial Logic were therefore empirically

examined in this study. Thus, three research questions were investigated to explicate the antecedents.

Primary data from 1396 virtual entrepreneurial firms was collected (business model antecedent n=366, community antecedent n=732 and co-creation antecedent n= 298) to test the proposed hypotheses. Results provided support for the three antecedents.

This study makes important theoretical and practical contributions to understanding the domain of virtual entrepreneurship from a blended logics perspective. Using the theoretical lens provided by institutional logics helps shed light on the pivotal role played by cybermediary platforms in the Web 2.0 context. The primary role of synergistic effects, cooperative behavior, and collaboration have important implications for virtual entrepreneurship. Findings also contribute to other related streams in entrepreneurship such as microenterprises. The study offers theoretical extensions of prior work on co-creation to virtual small entrepreneurial ventures. From a practical standpoint, insights can help entrepreneurs to better understand and leverage performance drivers in virtual contexts in general and on cybermediary platforms in particular.

ACKNOWLEDGEMENTS

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CHAPTER 1

INTRODUCTION

The field of entrepreneurship has come a long way due to the efforts of scholars who called for a stronger, distinct discipline that had well-defined boundaries, as a field of research (Bygrave and Churchill, 1989; Landstrom, 1999; Shane 2012). In their seminal work, Shane and Venkataraman (2000), laid out a framework and specified the three overarching questions in the field of entrepreneurship concerning opportunities, the people who exploit these opportunities and the process of exploitation thereof i.e. "(1) why, when, and how opportunities for the creation of goods and services come into existence; (2) why, when, and how some people and not others discover and exploit these opportunities, and (3) why, when, and how different modes of action are used to exploit entrepreneurial opportunities" (pg., 218).

Entrepreneurship has been described as being comprised of intentional, goal-oriented behaviors and actions that are an outcome of the entrepreneur's ability to identify a kernel of opportunity (Görling and Rehn, 2008). Hence entrepreneurship takes place when opportunity meets enterprising individuals (Shane and Venkataraman, 2000). There is also increasing recognition that need-based entrepreneurship or those driven by self-employment goals, are also part of the domain of entrepreneurship (Spencer and Gómez, 2004). The multidimensional definition of entrepreneurship as a domain of study encompasses its different aspects- it is defined as one where sources of opportunity, processes of discovery, evaluation and exploitation of opportunity and individuals engaging in the process, are all subjects of study (Shane and Venkataraman, 2000). Irrespective of the type of entrepreneurship taking place, it is recognized as being the

engine that is driving forward economic development across the globe (Minniti and Lévesque, 2008).

Contextual Factors in Entrepreneurship

Entrepreneurship should be understood within the context of social systems and the historical time period (Baumol, 1996; Steyaert and Katz, 2004). Context can be understood as referring to the "circumstances, conditions, situations, or environments that are external to the respective phenomenon and enable or constrain it" (Welter, 2011). The context in which entrepreneurship takes place has been constantly evolving and is dynamic in nature. Initial studies looked at entrepreneurship retrospectively by recognizing that existing businesses were once entrepreneurial and that entrepreneurs are harbingers of change (Schumpeter, 1934). This initial work by Schumpeter with its exposition on disruptive innovation set the stage for studying the entrepreneurial process as a context driving innovation (Van de Ven, 1986).

Later studies focused on entrepreneurship within existing companies termed intrapreneurship (Kuratko, Montagno, and Hornsby, 1990) and there were efforts to examine entrepreneurship across different parts of the world, supported by different institutions and country-specific entrepreneurship (El Harbi and Anderson, 2010; Salimath and Cullen, 2010). Thus, while there are many different contextual connotations within which previous entrepreneurial studies fall, there is one contextual factor that was common- the focus was on entrepreneurial enterprises that existed in the physical world i.e. they had physical locations, provided goods or services in or through those locations and interacted with their customers via these locations.

However with the significant developments in information and communication technologies, the connectivity provided by the growth of broadband and websites numbering in millions, there has been a significant shift in the physical context of entrepreneurship. Entrepreneurship can and does take place in the offline as well as the online worlds. Rapid development and applications in connectivity technologies, hardware and software have resulted in a seismic shift, with entrepreneurship existing wholly or partially in the virtual world (Seitz, Razzouk and Takaoka, 2005; Kiskis, 2011; Davis, Spohrer and Maglio (2011).

When the emphasis of research was on entrepreneurial firms that engaged in disruptive innovation to make significant in-roads into the existing business landscape (Schumpeter, 1934), the capital-intensive nature of such entrepreneurship was implicit. Even the early dotcom companies quickly escalated in scale (Kuckertz and Wagner, 2010) indicating that larger and resource rich firms were in a better position to exploit the opportunity of the online world. However, the passage of time, affordability, extensive diffusion of the internet and easy access thereto, has significantly and positively affected small businesses and microenterprises, making their online business success a real possibility (Faltin, 1999). Though small and new firms were more likely to fail due to liabilities associated with size and newness in the offline world, in contrast, operating in the virtual world gave them a stronger foothold than they would otherwise have had (Morse, Fowler and Lawrence, 2007).

For all new ventures, barriers to entry have a significant role to play as they impact venture creation, decision-making, and performance of new ventures (Robinson and McDougall, 2001; Hitt, Ireland, Camp and Sexton, 2001). Being faced with barriers for entry can be daunting for

any business but it is particularly destructive for small businesses and microenterprises (Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2002). For a typical small or micro-entrepreneurial firm, access to resources, economies of scale, start-up capital and difficulty in reaching out to the right market segment, are just some of the many entry barriers that make starting up a business, a challenge (Porter, 2008). Developments in information and communication technologies and the internet have helped reduce costs and mitigate some of the barriers to entry (Martin and Matlay, 2003; Martin, 2004) making virtual entrepreneurship a feasible alternative for would-be entrepreneurs (Millman, Wong, Li and Matlay, 2009).

Technological breakthroughs and the growth of cyberspace are thus causing new virtual enterprises to become independent from physical factors by increasing communication ease and access and reducing entry barriers (Ponder, 2010). Traditional, physical entrepreneurial ventures have concerns such as high-end locations, warehousing, how to display racks and designing customer-friendly stores (Kotler, 2002; Chaffey, Ellis-Chadwick, Mayer and Johnston, 2009). These issues have no impact on virtual entrepreneurial firms that exist completely online. The "advantage" that physical businesses had over their cyber/online counterparts when it came to trusted financial transactions has also lost value as safety in online transactions has become the norm (Kotler and Armstrong, 2013). Large overhead costs for the start-up phase and sunk costs due to inability to get out of contracts in the event of failure are a bigger issue for physical businesses. In comparison, virtual enterprises have lower overhead, mostly comprised of internet access costs which allow them to be lean startups. Exits are also less problematic for virtual firms, allowing them to exit quickly and start afresh without the usual socio-economic burdens (Kiskis, 2011). Another significant issue impacting physical enterprises is the lack of proximity

to remote areas causing severe problems in reaching out to their consumers. These disadvantages however are not an issue for virtual enterprises as accessibility from and to peripheral or remote locations is not a concern (Thierstein and Wilhelm, 2001). Thus many issues that plague typical, physical businesses are either insignificant or not as significant when it comes to virtual enterprises.

The issue of context helps establish the boundary conditions and assumptions for studying entrepreneurship. The study of brick and mortar businesses would assume the presence of a physical business with its related boundary conditions and applicable issues (Johns, 2006; Kiskis, 2011). The relevance of considering context in studies pertaining to entrepreneurship has been established in existing literature. Scholars have pointed out that there is a tendency to overestimate individual-level or personal factors while underestimating the influence of external factors when it comes to entrepreneurial studies (Low and MacMillan, 1988; Gartner, 1995).

To understand any economic behavior it is important to discuss its context-historical, institutional, temporal, social or spatial- so as to better understand it (Welter, 2011). This makes context a particularly relevant issue as the entrepreneurship concept, process, opportunity recognition, the individuals' engaging in virtual entrepreneurship, the issues and thus the research questions facing scholars and practitioners are not the same as they would be for traditional entrepreneurship taking place in the physical/offline context. Additionally, the traditional application of theories and frameworks may have to be adapted for the virtual context so as to gain further insight (Amit and Zott, 2001; Whetten 1989).

Virtual Context of Entrepreneurship

The virtual context as an arena for the pursuit of entrepreneurship has developed out of sweeping developments in information and communication technologies, ease of information flows, and low cost access to technological tools. It has led to rapid and radical changes in the opportunities for entrepreneurs, the methods to exploit those opportunities and ways in which to launch those businesses (Roberts, 2001). There are a great many new opportunities and new markets made available to virtual entrepreneurs who can focus their energies on social or asocial online ventures, entertainment or shopping related businesses, service-based or product-related enterprises or some combination of these different options- the possibilities are endless (Gradinaru, 2011). Entrepreneurs are no longer as restricted by their geographical location as physical businesses would restrict them and more often than not, can use the virtual sphere to be a "global business" from the outset (Shneor, 2012). Recognizing an opportunity, yet being restricted in pursuit thereof by a lack of capital to set up a physical presence, is an issue that virtual entrepreneurs do not have to contend with due to low start-up costs and ease in launching their venture (Prisciotta and Weber, 2005).

As compared to traditional physical businesses, virtual entrepreneurial firms can leverage their reduced costs, high connectivity and ability to improve on existing products by applying technological improvements, so as to create and capture value (Duening, Hisrich and Lechter, 2009). Virtual enterprises are better connected to their customers and can use their interactions to augment their relationships with consumers to share more pertinent information, stay connected with them, build loyalty and engage them in repeat transactions (Chaffey et al., 2009). Network effects, flexibility and speed in information processing and community support are additional

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aspects which aid virtual entrepreneurial firms to achieve greater success (Barringer and Ireland, 2009; Ponder, 2010).

The terms "e-entrepreneurship" and "online entrepreneurship" have been used interchangeably in extant literature to refer to virtual entrepreneurship. Zutshi, Zutshi and Sohal (2006, p.63) define those engaging in virtual entrepreneurship as any "person or an organization principally using the Internet to strategically and competitively achieve vision, business goals and objectives"

The predominant focus in entrepreneurial research, as discussed above, is geared towards exploring and understanding entrepreneurship in the physical context i.e. the physical world as compared to the online context (Shane, 2012; Davidsson, 2006; Praag and Ophem, 1995; Matlay, 2004). This picture however has begun to change since the rise of the internet has offered additional environments for the practice of entrepreneurship. With both consumers and businesses embracing the online business environment with gusto, scholars have also begun to examine this relatively new online business environment, from an entrepreneurial lens. This has led to many new research avenues most prominent of which are studies looking at e-entrepreneurial education, studies that look at propensity towards e-entrepreneurship and those that examine the operations of e-businesses (Azmat and Zutshi, 2012a, 2012b; Amit and Zott, 2001; Cassia and Minola, 2012; Creed and Zutshi, 2013). The research on online entrepreneurial ventures has generally been explored from a technological or a marketing view point with occasional furloughs into online team interactions. Interestingly, there has not been much attention on understanding the performance of virtual entrepreneurial firms that operate wholly online, and without a physical firm presence.

Online Business and Cybermediaries

Online business in general, has experienced phenomenal growth. By 2016, it is expected that online sales will cross $2 trillion while continuing this exponential growth in the foreseeable future. This growth is global in nature- the 2016 estimates for the retail segment show China to be a frontrunner with $714 billion in sales and the US being overtaken with its estimated $395 billion in sales[1]. Major retailers and big brands are not the only businesses benefitting from this meteoric rise of online sales. Small businesses and microenterprises have also been active players in the online environments. Microenterprises refer to owner-managed businesses operating on small scale, ranging in size from zero-employee enterprises to those that may have a few additional paid employees besides the owner (Schreiner and Woller, 2003; Morse et al, 2007).

One additional important development in the online environment is the presence of cybermediaries. Cybermediaries are web-based platforms performing functions similar to traditional intermediaries. However they are adapted for a virtual setting in addition to fulfilling new kinds of intermediation functions (Del Aguila-Obra and Padilla-Melendez, 2006). Microenterprises can quickly and without much skill or resources establish their business online by using cybermediaries to setup their virtual enterprise via a pre-existing platform.

Businesses that choose to use cybermediaries find that any remaining barriers to entry tend to quickly fade away. Cybermediaries are able to blur the lines between competitors, buyers, and suppliers by connecting them all in real time via their virtual platform. The benefits that ensue to

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[1] Report from Statista.com from October 2015.

entrepreneurs are significant. New entrants in the online world have the opportunity to set-up their business within a matter of minutes, can reach people all over the world and can often do so at very low costs, with low investments and minimal risks (Millman, Li, Matlay, and Wong, 2010; Hracs, Jakob and Hauge, 2013).

Microenterprises employ significant portions of the labor force in both developed and developing countries- in developed countries as a source of innovation and a source for new venture creation, and in developing economies as a source for poverty alleviation -thus impacting individual income as well as national economies (Lee and Yang, 2013). By reducing the barriers of entry for small firms and microenterprises, cybermediaries are playing an important role in the growth of virtual entrepreneurship at this scale of operation (Luckman, 2013). Liabilities of newness (Freeman, Carroll and Hannan, 1983) or the liabilities of smallness (Bruderl and Schussler (1990) often impact new businesses and while information and communication technology (ICT) improvements and the internet help reduce these, cybermediaries play a unique role in almost eliminating this issues. Using established cybermediaries that are well-known, legitimized and have established networks, resources and customer bases, allows small and microenterprises avoid the liabilities of newness and smallness that plague such businesses (Freeman et al., 1983; Shapiro and Varian, 1999). This access to resources, pre-established customer bases and networks can substitute for the lack of experience and size while also neutralizing the impact of other exigent forces which could negatively impact smaller virtual enterprises. For instance cybermediaries provide easy access to peers in the same industry who are likely to have context-specific knowledge and resources and additionally as existing users of the platform they could aid would-be entrepreneurs in the setting-up and operating of the

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business (Kuhn and Galloway, 2015). Small, physical business have to navigate the labyrinth of issues that face all physical businesses in addition to dealing with the problems associated with their size and their age but the use of cybermediaries provides such businesses an avenue to launch, without succumbing to these threats to their existence.

Cybermediaries thus offer easy to use portals for multiple e-entrepreneurs to launch their start-up ventures with minimal effort. Notable Web 2.0 cybermediaries are Etsy, StoreEnvy and Kickstarter in the United States, DaWanda in Germany and InOnIt in India, though several others also exist worldwide. Other cybermediaries that are more in line with Web 1.0 and Web 1.5 versions and perform more limited functions are Amazon.com and Ebay.com. These different Web versions are explained in the next section in more detail.

Despite starting relatively recently in the mid-2000s, the volume of business carried out through these portals is phenomenal in transactions and dollar amounts. As of October 2015, Kickstarter has successfully funded projects with $1.75 billion, and DaWanda has sold over 4.3 million products. Etsy had $895 million sales in 2012, their 2013 sales crossed the $1 billion mark in October 2013, much earlier than their December deadline for the year's projections and in 2014 their sales crossed $1.9 billion. Their provision of this novel platform where the barriers of entry are minimal and the potential endless makes them a fascinating area of investigation and helps to better understand virtual entrepreneurship.

Virtual Businesses and Web 2.0

Online ventures tend to take on two main types; the first being the "brick and click" businesses- these are businesses which add an additional online component to their pre-existing, traditional brick-and-mortar/physical businesses. Well-known retailers such as JCPenney or BestBuy were "brick and mortar" or physical businesses at first and then added an online component for their customers. At the other end of the spectrum are "pure-plays" which are completely online businesses (such as Netflix) which provide all of their services online. Though pure-plays may have a physical presence to support their online ventures, they do not have physical stores for customers (Amit and Zott, 2001).

With brick and click businesses being more common, such as Macys.com or Walmart.com, many studies of online businesses examine the online components of such businesses (Choi and Valikangas, 2001; Meyer, 2000; Gulati and Garino, 2000; Steinfield, Adelaar, and Lai, 2002; Avery, Steenburgh, Deighton, and Caravella, 2012). Discussions around pure-plays tend to typically include either service providers such as Paypal (Gentier, 2012) or Netflix (Read and Robertson, 2009) or when they choose to examine non-service businesses, the focus has been on the powerful players in the business world such as Amazon (Kumar, Eidem and Perdomo, 2012). However, even within the fascinating sphere of pure-plays, further segmentation is possible but these firms have been largely ignored i.e. new and small entrepreneurial firms and microenterprises utilizing cybermediaries for their new ventures. On par with online behemoths like Amazon, microenterprises can also reach out to consumers all across the world through their virtual enterprises, easily set-up and made possible by cybermediaries.

The ubiquitous and non-traditional nature of virtual entrepreneurial ventures thus provides an interesting context. The days when massive investments were needed for setting-up an online enterprise are long gone. Instead we find that there are considerable opportunities for entrepreneurs to utilize the virtual domain and conduct e-business in these new environments with minimal investment or online expertise (Ovaskainen and Tinnila, 2011).

The earlier incarnation of the World Wide Web, which was tagged with the retronym of "Web 1.0" focused on users as being passive consumers of content- there was information to be read, you could use e-shops and e-marketplaces and even make electronic payments (Kollman and Krell, 2011). In today's Web 2.0 world users can do all that and so much more, because the focus now is on e-community characterized by interaction and communication (Cormode and Krishnamurthy, 2008). Cybermediaries leverage the seamless interconnections and boundary-blurring aspects of Web 2.0 to connect their sellers, buyers, potential buyers all through a single network.

The extant literature frequently looks at the community-based nature of Web 2.0 tools as evidenced by online social networking sites such as Facebook (Kayri and Cakir, 2010), Twitter (Gruzd, Wellman, and Takhteyev, 2011), collaborative information sharing portals like Wikipedia (Pentzold, 2010; Baytiyeh and Pfaffman, 2010) or open source software development (Kayri and Cakir, 2010) but a gap exists when it comes to cybermediaries that combine the social community aspects of Web 2.0 with e-commerce. Surprisingly, while the research on predominantly or completely virtual entrepreneurial firms is limited, even lesser is known, if one considers virtual enterprises that are using cybermediary platforms in the Web 2.0 world.

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Consequently, there is need to examine the different factors that drive firm performance for virtual enterprises that operate via cybermediaries.

Institutional Logics of Web 2.0 virtual businesses

An off-shoot of neo-institutional theory (Greenwood, Raynard, Kodeih, Micelotta, Lounsbury, 2011), the work on institutional logics, provides theoretical insights on why virtual entrepreneurial firms today are different than their brick and mortar counterparts. Institutional Logic is essentially an institutional template- it is comprised of the shared understanding of the goals of the field and what practices, behaviors and norms are to be utilized in the pursuit of those goals (Battilana, Leca, Boxenbaum, 2009). Institutional Logics provide a clear and defined set of values, assumptions and parameters of actions that can be considered rational, necessary and meaningful when carried out by organizations (Pahnke, Katila and Eisenhardt, 2015). Current research on institutional logics essentially looks at the construction of institutions and institutional fields and how actors and the environment affect the sustainability, alteration or discontinuance of different alternate institutional logics (Cornelissen and Werner, 2014). When the existing institutional logics render firms unable to respond to the institutional demands, one or more actors will knowingly or unwittingly, change the institutional logics (Thornton, Ocasio and Lounsbury, 2012; Besharov and Smith, 2014).

The current institutional field logics that could typically apply to physical and for-profit businesses are not applicable in the same way for virtual businesses that use Web 2.0 cybermediaries. The Web 2.0 incarnation of the internet focuses now on the virtual community characterized by greater connections, interactions and communication (Cormode and

Krishnamurthy, 2008). Thus, a new set of logics are necessary to understand the functioning of businesses in this particular context as this emphasis on the multiple facets of profit, collaboration and community need more than a single dominant logic (Battilana and Dorado, 2010). Thornton, Ocasio and Lounsbury (2012) outline seven ideal-type logics at the societal level and discuss how these can be adapted and changed to produce recombined logics that may fit the newer organizations or new institutional fields better. The institutional field in the context of this study is the virtual domain of entrepreneurial firms. In chapter two, which alternate logics will be applicable in this institutional context and how this recombination of ideal-types takes place, is discussed in detail.

Thus, it is can be seen, that it is not just the sheer volume of transactions being carried out by these websites, the revenue generated and the consumers they reach that make virtual entrepreneurial firms interesting targets for research. What makes them far more fascinating is a) the new context for entrepreneurship they offer b) the new challenges and new advantages for the entrepreneur and c) the new institutional logics of the Web 2.0 internet era that have caused the shift in the way the entrepreneurial process works (Kiskis, 2011).

An extensive empirical examination of virtual enterprises has not been done previously. This could be attributed to the challenge in gathering data on virtual enterprises (Amit and Zott, 2001). The number of entrepreneurs turning to cybermediaries is increasing and indicates a growing trend in entrepreneurship. Understanding what drives firm performance in this setting would offer theoretical insight for researchers into this relatively new context as well as have

practical implications for entrepreneurs who are considering the virtual route for their entrepreneurial enterprise and enable them to maximize their desired outcomes.

Research Question

Virtual entrepreneurship thus, refers to the pursuit and exploitation of opportunities via virtual platforms. As cybermediaries make the process of launching new ventures simple and efficient, they effectively negate the barriers of entry. The antecedents and logics that affect performance of virtual entrepreneurial firms may not be relevant for non-virtual firms. In this context multiple logics reflecting cooperative, collaborative and economic aspects may co-exist. It was therefore proposed that different antecedents would drive performance in this specific institutional context.

The overarching research goal for this dissertation was to explicate the antecedents of performance in virtual entrepreneurship.

Thus the following research questions were addressed:

(1) Does a business model drive the performance of virtual enterprises operating via cybermediary platforms?

(2) Does a virtual sense of community drive the performance of virtual enterprises operating via cybermediary platforms?

(3) Does a co-creational model drive the performance of virtual enterprises operating via cybermediary platforms?

Theoretical Models

It is proposed that multiple institutional logics recombine to form a single applicable institutional logic for the new institutional field comprising virtual entrepreneurial firms on Web 2.0 cybermediary platforms (Thornton et al., 2012). While this is elaborated in the next chapter, it is important at this stage to note that the recombined logic addresses three highly salient features of these virtual businesses- their economic side, their community nature and their collaborative feature. Thus the recombined logic addressing these seemingly disparate alternate logics, guides the explication of the different antecedents applicable in the new institutional context. These antecedents applicable in the virtual domain are the precursors to firm performance. In line with the recombined institutional logic applicable to this institutional context, three distinct models are proposed. The theoretical and conceptual development is discussed in greater detail in Chapter 2, but a brief explanation of the three theoretical models is provided below.

An economic rationale is first applied by using the theory on business models (Zott, Amit and Massa, 2011; Afuah, 2004; Amit and Zott, 2001) In particular, aspects of Schumpeterian innovation (Schumpeter, 1934/1942), network theory (Dubini and Aldrich, 1991; Powell, Koput, Smith-Doerr, and Owen-Smith, 1999), information processing theory (Norton, 2004; McGaffey and Christy, 1975), and the literature on product lines (Kotler, 2002; Kotler and Armstrong, 2013) are used as complimentary theories to explicate the core elements or parts of the business model. These are termed value drivers by Amit and Zott (2001) and comprise the business model for virtual entrepreneurial firms. It must be noted that many factors which would have been typically considered in the business model of physical firms, such as value propositions, revenue model, market opportunity and competitive environment are not relevant for cybermediary-based

online businesses. This is because when firms use a common cybermediary, the playing field is leveled on those factors The use of the economic rationale helps answer the first research - question i.e. Does a business model drive the performance of virtual enterprises operating via cybermediary platforms? As shown in Figure 1, it is expected that the full business model for virtual entrepreneurial firms comprised of all four components or value drivers, namely, innovative business practices, network membership, information processing capability and product portfolio complexity will impact firm performance as will the four value drivers independently.

Figure 1
Business Model and Performance in Virtual Enterprises
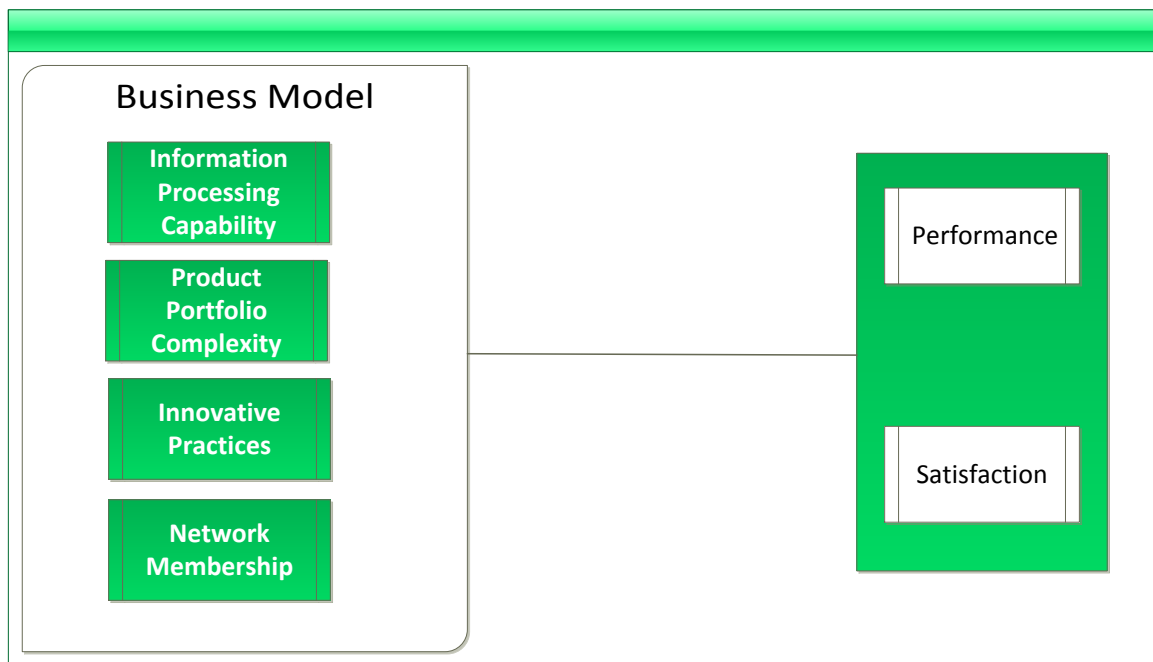
In the second theoretical model, a sense of virtual community rationale is applied which has its roots in the theory on psychological sense of community (Sarason, 1974). In particular, the literatures on sense of virtual community (Blanchard, 2007), virtual word of mouth (Kozinets, 1999), online social capital and e-community support (Williams, 2006) are used to develop a model to answer the second research question: Does a virtual sense of community drive the performance of virtual enterprises operating via cybermediary platforms? In the model below, it is anticipated that a virtual sense of community experienced by entrepreneurial firms operating via cybermediary platforms will lead to firms engaging in e-community support and virtual word of mouth. It is expected that such behavior results in an accumulation of social capital which impacts firm performance.

Figure 2
Sense of Community and Performance in Virtual Enterprises
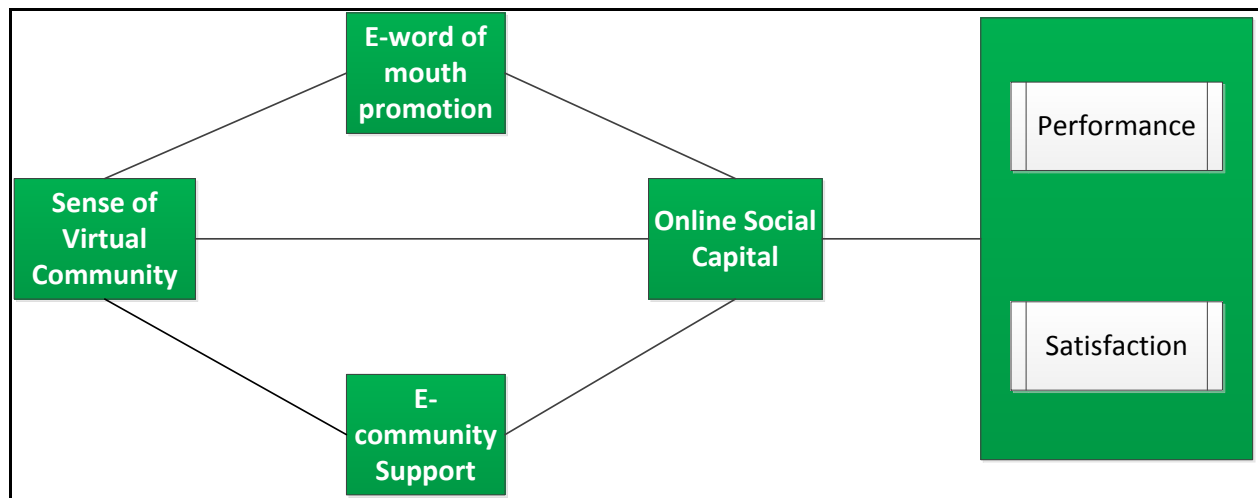
In the world of business, Porter's (1987) work regarding the five competitive forces that shape strategy, is regarded as seminal and enduring. However, as bricks and clicks which are neither completely online nor solely comprised of physical stores, began to become more commonplace,

the five forces framework needed some adjustments (Porter, 2001). With the advent of new organizational forms such as online ventures and the growth of virtual entrepreneurship, traditional frameworks such as Porter's, need even further exploration as to their applicability in these changing contexts. This is but one instance, albeit a significant one, where virtual entrepreneurial firms diverge from traditional expectations. There is thus, a need to examine their similarity and differences from traditional businesses.

Cybermediaries, through the ease of communication and socially interactive nature of Web 2.0, also allow virtual entrepreneurial firms operating via their platform, the ability to stay connected with their consumers, competitors, or just general users of the portal which provides them with the opportunity to co-create value for future buyers. Many online businesses such as ICICI bank, ING insurance, Apple and UPS have focused on using the interactive nature of Web 2.0 to co-create value, to some degree, with their customers (Prahalad and Krishnan, 2008). The potential for co-creation is even higher for such virtual entrepreneurial firms who are not yet mature enough to have issues such as core rigidities that restrict them (Leonard-Barton, 1992). Yet the role of co-creation as a factor impacting firm performance of virtual entrepreneurial firms remains under-researched.

For the third model, therefore, a co-creation rationale is applied using the model originally proposed by Prahalad and Ramaswamy (2004). In particular the four building blocks of co-creation dialogue, access, risk analysis and transparency (DART) will be applied in the virtual context to help answer the third research question- does a co-creational model explain firm performance of virtual enterprises operating via a cybermediary platform? In the model

represented by figure 3 below, it is expected that the component elements of co-creation will influence firm performance individually and collectively.

Figure 3
Co-creation and Performance in Virtual Enterprises
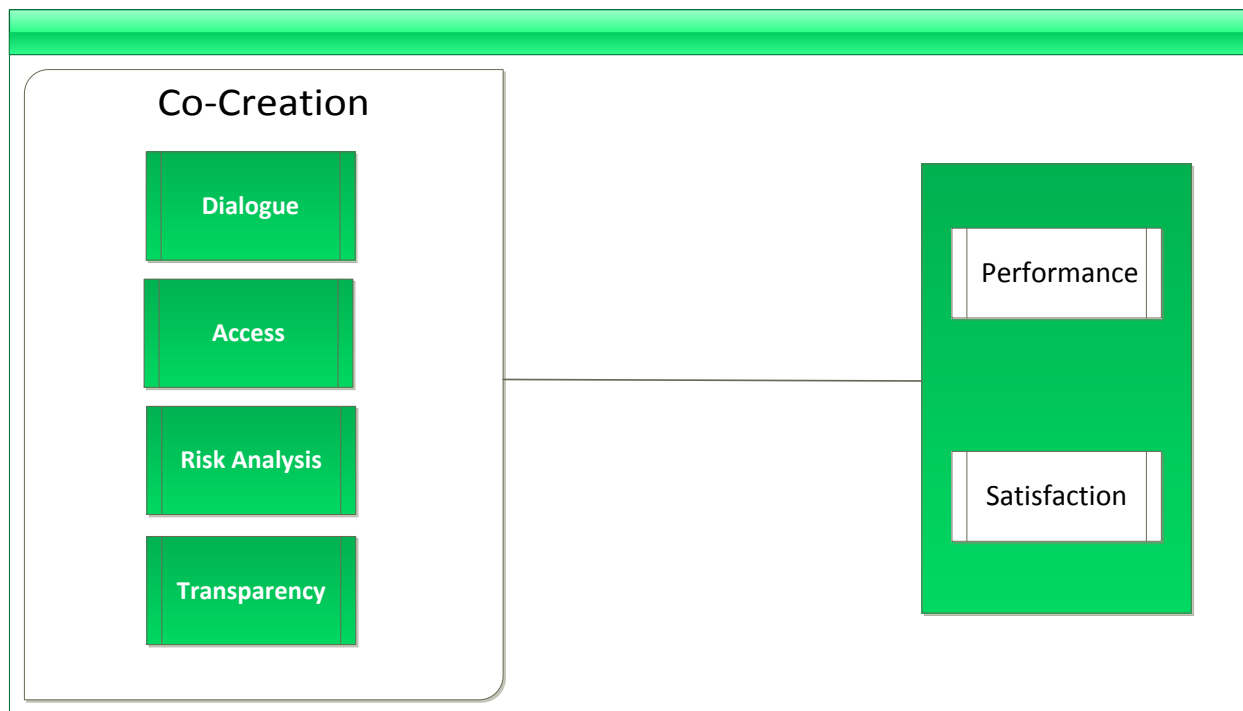
Contribution

This study seeks to make both theoretical and practical contributions by providing insight into the relatively new domain of virtual entrepreneurship. Specifically, the focus is virtual entrepreneurial firms that operate via Web 2.0 cybermediaries. With the dearth of quantitative empirical explorations on e-business in general and virtual entrepreneurship via cybermediary platforms in particular (Amit and Zott, 2001; Ovaskainen and Tinnila, 2011), this study makes a significant contribution.

A second contribution is the focus on microenterprises. By shining the spotlight on small, predominantly virtual microenterprises, this study adds to the sphere of knowledge pertaining to microenterprise research (Morse et. al, 2007). A third contribution stems from theoretically examining the societal level ideal-types of institutional logics (Thornton et al., 2012) to identify how the Market, Community and Corporate Logics blend together to form a new alternate logic that is applicable to virtual entrepreneurial businesses on Web 2.0 cybermediaries

A fourth contribution stems from empirically testing multiple models and its theoretical implications. Namely, (1) an economic-rationale-based business model approach which extends the business model literature to virtual entrepreneurial firms using cybermediaries (Zott et al., 2011), (2) a community-based model that extends the application of sense of virtual community to such enterprises (Blanchard, 2007) and finally (3) a co-creation model which has also not been empirically tested on virtual entrepreneurial firms so far (Prahalad and Ramaswamy, 2004; Pluijm, 2010).

From a pedagogical standpoint, it could help inform entrepreneurship-related classes by better understanding how multiple logics change the way the entrepreneurial process works in the virtual environment (Creed and Zutshi, 2013). The study would also have utility from a practical perspective, as aspiring entrepreneurs could benefit from the insights to improve performance of their virtual enterprises.

Glossary of Key Terms

      A brief description of the key terms used throughout the dissertation is provided below.

      Virtual Enterprise is defined as a completely/almost completely virtually embedded entrepreneurial venture which is often an owner-operated business endeavor that uses the Internet to strategically and competitively achieve its vision, business goals and objectives (Zutshi, et al., 2006; Langer, Orwick, and Kays, 1999; Morse et al., 2007).

      E-entrepreneurship is defined as any "person or an organization principally using the Internet to strategically and competitively achieve vision, business goals and objectives." (Zutshi et al., 2006, p.63).

      Cybermediaries are defined as entities offering virtual platforms that perform some aspects of the traditional role of intermediaries as adapted for a virtual setting in addition to new kinds of intermediation functions (Del Aguila-Obra and Padilla-Melendez, 2006)

      *Microenterprise*s are defined as businesses that operate on a small scale and range in size from owner-operated businesses which are zero-employee enterprises to those that may have a few additional paid employees in addition to the owner (McQueen and Daud, 2013).

      Value drivers in the virtual domain are sources of value creation that augment the total value created by an e-business (Amit and Zott, 2001).

      Information Processing relates to "the gathering of data, the transformation of data into information, and the communication and storage of information in the organization" (Egelhoff, 1991; pg. 343)

      Network membership in the online domain has been defined as "inter-organizational linkages that are initiated and maintained through electronic technologies and that provide

distinctive solutions to the same problems with exchange relationships that are addressed by socially embedded ties" (Fowler, Lawrence, and Morse, 2004 pg. 648).

Innovative Practices are critical sources of competitive advantage support operational, tactical and strategic tasks of businesses (Kollman and Krell, 2011; Blumentritt and Danis, 2006).

Product Portfolio Complexity essentially encapsulates the assortment of products offered, involves filling and stretching of product lines as there are more items added to the present range of products as well as extensions beyond the present range (Kotler and Armstrong, 2013).

Business models are defined as "a system of interdependent activities that transcends the focal firm and spans its boundaries" (Zott and Amit, 2010; pg.216). They emphasize a systemic, holistic approach to understanding how firms do business and capture value (Zott et al., 2011).

Sense of virtual community is defined as "members' feelings of membership, identity, belonging, and attachment to a group that interacts primarily through electronic communication" (Blanchard, 2007; pg. 827).

E-Word of mouth is defined as "the informal information transfer between different parties via electronic applications" (Wirtz, Schilke and Ullrich, 2010; pg. 277).

E-community support refers to e-based economic transactions carried out by members of a virtual community (Rothaermel and Sugiyama, 2001).

Online social capital is a resource that is accumulated the usage of which creates more of the same though what is being used and created are the personal relationships and the ensuing benefits that arise from the same (Williams, 2006).

Co-creation of value is defined as "an interactive process, involving at least two willing resource integrating actors, which are engaged in specific form(s) of mutually beneficial

collaboration, resulting in value creation for those actors," (Frow, Payne and Storbacka, 2011; pg. 1).

DART is an acronym for the co-creation of value model proposed by Prahalad and Ramaswamy, (2004) comprised of the four building blocks of Dialogue, Access, Risk-benefits/ risk assessment and Transparency.

Institutional Logics perspective is a "metatheoretical framework for analyzing the interrelationships among institutions, individuals and organizations" in the larger social systems (Thornton, Ocasio and Lounsbury, 2012: pg.1).

Institutional Field is one where "organizations face the same regulations and environmental conditions" Quirke (2013; pg.1678).

Dialogue helps establish interactive relationships between firms and customers and implies the ability to interact, be deeply engaged and be willing and able to act on the part of both customers and businesses. *(Prahalad and Ramaswamy, 2004)*

Access emphasizes how customers get empowered through the business-provided access to different things needed to facilitate co-creation such as access to knowledge, tools, information or experience.

Risk assessment emphasizes how customers, who become part of the co-creation of value process, would increasingly seek out more information about the product, and would understand and analyze the risks involved (Prahalad and Ramaswamy, 2004).

Transparency refers to maintaining the symmetry and ease in the availability of information during the interactions between the firm and the customers (Prahalad and Ramaswamy, 2004).

Summary

This dissertation is laid out in five chapters. This first chapter introduced the topic, the background for the research, the research questions, theoretical models and a glossary of key terms. This is followed by Chapter 2 where a thorough review of the literature, three theoretical models and the related hypotheses are presented.

In Chapter 3, the methodology used for the study is discussed including details about the pilot and main study. In Chapter 4 the results of the main study and relevant post-hoc analyses are presented.

In the fifth and final chapter, a discussion of the results is followed by implications for theory and practice as well as limitations and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

In the following chapter, the extant literature relevant to this study is discussed followed by the development of hypotheses and a discussion of the research models. This section has been organized as follows- the virtual/online context is described followed by a discussion of entrepreneurship in the virtual context and virtual enterprises. As many virtual entrepreneurial firms are also micro-enterprises that operate via cybermediary platforms, the next section focuses on a discussion of these topics. Thereafter, the literature related to each model and their hypotheses are discussed sequentially.

In the discussion on the first antecedent i.e. the economic model, the four value drivers examined in this study-information processing capability, network membership, innovative practices, and product portfolio complexity are first discussed. This is followed by a review of the significance of business models. Thereafter, the topic areas relevant to the community-based model are described by first looking at virtual communities in general and then at the sense of virtual community literature, online community behaviors (e-word of mouth and e-community support) and online social capital. The co-creation model is then delved into by examining the topic area in general and the building blocks of co-creation i.e. dialogue, access, risk assessment and transparency, in particular.

Context of the Study

The online or virtual environment is one marked by continuous improvements and exponential technological evolution making information and communication technology (ICT) ever more accessible and affordable for people everywhere in the world (Ovaskainen and Tinnila, 2011). Globalization, resource limits and economic changes around the world, make this availability of affordable ICT, an opportunity that entrepreneurs should not ignore. Many entrepreneurs do choose to operate some portion of their businesses online- they could however now launch and operate their businesses completely virtually (Davis et al., 2011). Entrepreneurs with the vision, ability and inclination, could, even with limited resources, embrace the use of technology and the virtual environment (Mousa and Wales, 2012).

Entrepreneurship and the Virtual Domain

Scholarly examinations are often limited to the physical environments in which opportunities and entrepreneurs exist. This is surprising given the rapid and somewhat destructive rise of virtual environments and the Net economy. This study takes a closer look at understanding what drives firm performance among virtual entrepreneurial firms particularly those operating via Web 2.0 cybermediaries.

Shane and Venkataraman (2000, pg.217) state that "entrepreneurship is concerned with the discovery and exploitation of profitable opportunities" which takes place when individuals converge on rewarding opportunities. The domain of entrepreneurship has been defined in terms of opportunities and the set of individuals who discover, evaluate and exploit them (Shane and Venkataraman, 2000). Blackburn and Kovalainen (2009) make the case that entrepreneurship, in

particular where it concerns novel areas and smaller businesses, is still a rich area for researchers to continue their work. These novel areas include those that are conceptually underdeveloped with low consensus on constructs. Virtual entrepreneurship offers such a novel area and needs further investigation.

Virtual enterprises

Online ventures tend to take on two main forms; the first being firms that add a supplementary online component to their traditional brick-and-mortar/physical businesses, commonly known as "brick and click" businesses and the other being "pure-plays" which are completely online businesses. Discussions around pure-plays tend to typically include current powerful players in the business world such as Amazon, Netflix, or Facebook. However, as stated previously, within this interesting segment of pure-plays, further segmentation is possible i.e. new entrepreneurial firms that exploit the novel opportunities in virtual environments by using cybermediaries to operate their new ventures.

Following prior scholars, the term virtual enterprise is used to indicate a completely/almost completely virtually embedded entrepreneurial venture (Morse et al., 2007) which is often an owner-operated business endeavor that uses the Internet to strategically and competitively achieve its vision, business goals and objectives (Zutshi, et al, 2006; Langer, et al., 1999). The terms "e-entrepreneurship" and "online entrepreneurship" have also been used in the past with reference to virtual entrepreneurship. Zutshi and colleagues (2006, p.63) define those engaging in virtual entrepreneurship as any "person or an organization principally using the Internet to strategically and competitively achieve vision, business goals and objectives" while Richards,

Busch and Bilgin (2010) define it as that which "uses cutting edge technological tools to exploit the creative energies of enterprising personalities in an effort to seek competitive advantages at the global level." (p. 287).

Tracing the start of the digital revolution and the advent of the "new" or "net" economy is difficult as it is still currently unfolding and cannot be described as having reached its pinnacle. In addition, the significant "collapses" such as the dotcom bust, make it difficult to trace the true start of the digital revolution (Matlay, 2004). Nevertheless, some of the earliest works can be traced to the 1980s. Many of the first studies related to the online domain, initially talked about computer networks, the "DARPA internet" and its many possibilities (Postel, 1981; Hinden, and Sheltzer, 1982; Hinden, Haverty and Sheltzer, 1983). Subsequent studies looked at educational applications as well as early explorations of online databases, information and catalogs made available by businesses (Reid, 1992; Segev, Wan and Beam, 1995; Harasim, 1993). Starting around the mid-1990s, the research regarding online or e-businesses hit its stride with studies ranging from those discussing websites' impact on customers (Liu, Arnett, Capella, and Beatty, 1997; Bell and Tang, 1998), online trust in e-businesses (Hoffman, Novak, and Peralta, 1999; Wilson, 1997), and e-commerce business strategies (Applegate, Holsapple, Kalakota, Radermacher, and Whinston, 1996; Rous, 1999) among others.

Following this, online or virtual entrepreneurship, began to grab the attention of scholars as they began to witness it all around them and some of the early studies focusing on online entrepreneurship were seen towards the end of the twentieth century (Deeds and Decarolis, 1999; Heitzman, 1999). Studies in the early 2000s began to highlight the global benefits to online or

virtual entrepreneurship adoption (Michaelson, 2000) and the potential it held for young entrepreneurs (Cornell, 2001). In the latter half of the decade, the emphasis was on educating potential virtual entrepreneurs (Kirk and Belovics, 2006; Bourne and Moore, 2005), who the virtual entrepreneurs were (Ma and Wang, 2006; Li, 2007; Grundey, and Sarvutytė, 2007) and the possibilities for small businesses to be predominantly virtual or online as compared to big business which were adding virtual components to their business (DeVries, 2007; Joyner, 2007; Katz and Green, 2007). Frameworks for online entrepreneurship (Dheeriya, 2009) as well as reviews (Morgan-Thomas, Jones, and Ji, 2009) began to appear as online/ virtual/ e-entrepreneurship became a more mainstream area of study.

At the start of the current decade, sub-domains began to appear in this area of study, with some of the most popular areas of study being e-entrepreneurial education (Marovich and Stanaityte, 2010; Vázquez, Lanero, Gutiérrez, García, Alves, and Georgiev, 2010; Creed and Zutshi, 2013; Welsh, and Dragusin, 2013), the e-entrepreneur (Asghari and Gedeon, 2010; Jingbao, 2011; Wahee and Bhardwaj, 2011; Mihalcea, Mitan, Vițelar, 2012) and e-entrepreneurial firms and their internal processes (Amit and Zott, 2001; Shneor, 2012; Zhao and Yu, 2012; Thai and Turkina, 2013).

Yet there is little empirical research involving virtual entrepreneurship and the utilization of virtual platforms. The extant literature focuses on entrepreneurship in general or elements of e-commerce but rarely considers a combination of these domains. The commonly studied aspects of online entrepreneurship are brick and click businesses i.e. simply an extension to regular, pre-existing businesses, which is not truly entrepreneurial in nature; however the other manifestation

of online entrepreneurship i.e. the online-based business venture, uses online technologies as an enabler of the new venture (Kiskis 2011). Many brick and mortar stores may find themselves sidelined by online ventures in the future. While these economic impacts will only be proved or disproved in the future there is nonetheless a significant shift in the entrepreneurial equilibrium (Matlay and Westhead, 2005).

Micro-enterprises

Businesses that operate on a small scale and range in size from owner-operated businesses which are zero-employee enterprises to those that may have a few additional paid employees in addition to the owner, are usually defined as micro-enterprises (McQueen and Daud, 2013; Schreiner and Woller, 2003). The term "microbusiness" was originally used by Brockhaus (1982) with reference to such businesses and Dollinger (1984 p. 351) states that they provide "almost laboratory conditions…for the study of strategic management…have a simple goal structure…a direct chain of command between formulation and implementation… and most populous form of business organization in this society."

As noted earlier, the term virtual enterprise is used in this study, to mean a completely/almost completely virtually embedded entrepreneurial venture (Morse et al., 2007) which is often an owner-operated business endeavor that uses the Internet strategically and competitively so as to achieve its vision, business goals and objectives (Zutshi et al,, 2006; Langer, et al. 1999). This definition is restated so as to highlight the focus of this study which is on start-up or nascent stage ventures that are not yet mature and with a mean age usually less than 8 years (Morse et al. 2007); these are primarily based online, often completely so, and are operated by the owner or a

very small group of people. Specifically, virtual enterprises launched on a virtual platform which acts as a "cybermediary" between the entrepreneur and customers are examined in this study.

Cybermediaries

As Porter (2001) points out, the internet has had a revolutionary impact on the business world – it leads to the creation of new industries, eliminates or reconfigures others and impacts all aspects of business from customers to suppliers. The traditional role of intermediaries (Del Aguila-Obra and Padilla-Melendez, 2006) is identified as including (1) the aggregation of supply and demand, (2) integration of the needs of buyers and sellers, (3) facilitation of market processes, (4) provision of infrastructure and/or trust, and (5) the collection, organization and evaluation of information. This traditional role of intermediaries has begun to evolve and new intermediaries termed "cybermediaries" perform different kinds of intermediation functions and variations of existing ones such as price management, transaction processing and coordination, stocks management, quality guarantees and monitoring (Spulber, 1996; Del Aguila-Obra and Padilla-Melendez, 2006; Bakos, 1997). There are large investments and substantial operating costs to set up cybermediaries which in turn allow smaller businesses to use their platforms to set-up storefronts hosted on these platforms (Brunn, Jensen and Skovgaard, 2002). While they provide many and varied functions, a major function of such cybermediaries is to make available an online marketplace where online business can be conducted (Jallat and Capek, 2001; Brunn et al, 2002). These inter-organizational systems are known by other terms such as electronic markets, consortium marketplaces and e-marketplaces but the definitions and functions attributed to these different terms vary. These systems have been around since the late 1990s and have been constantly evolving into what cybermediaries look like today with the blurred boundaries among

users, easy accessibility for smaller and newer businesses along with increased interaction among users. Companies such as Ebay, Amazon, Etsy, DaWanda, etc. act as cybermediaries – these virtual platforms allow interactions between "sellers" and "buyers", provide them with a platform to coordinate their ventures, and essentially allow for smoother transaction processing and coordination. Even within such cybermediaries there is a great deal of variation. The first of these sources of variation comes from the version of the internet they use i.e. whether it is Web 1.0, 1.5 or 2.0. Etsy, DaWanda, Kickstarter and Quirky are Web 2.0 cybermediaries. Further distinction is possible even within those that use the Web 2.0 internet version. For example, while both Etsy and DaWanda are marketplaces, Quirky allows for open collaboration on new products, while Kickstarter allows crowd-funding for new products with contributors also being early adopters of products in some cases.

Institutional Logics and Virtual Entrepreneurship:

As stated in the previous chapter, three distinct antecedents are explicated to examine what drives the performance of entrepreneurial firms in the virtual context. The institutional logics governing the operation of virtual enterprises using cybermediary platforms in the Web 2.0 context are distinct from the typical institutional logics of non-virtual contexts. Thus, the theoretical lens provided by institutional logics helps shed light on the pivotal role played by cybermediaries in the Web 2.0 context

Thornton, Ocasio and Lounsbury (2012, pg.1) discuss the importance of the institutional logics perspective as a "metatheoretical framework for analyzing the interrelationships among institutions, individuals and organizations" in the larger social systems. Organizations have to

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often deal with institutional complexity that springs from the reality of operating in the existing social systems. The guidelines to respond to such complexity are provided by institutional logics which are essentially principles for "how to interpret organizational reality, what constitutes appropriate behavior and how to succeed" (Thornton, 2004; pg.70; Greenwood et al., 2011). They are thus a means for individuals and organizations to respond to the world at large by using certain socially constructed ideas, principles, practices, assumptions and values to guide them in their interactions in social systems (Thornton and Ocasio, 2008).

Friedland and Alford's seminal work (1991), laid the groundwork for the institutional logics perspective by questioning certain aspects of neo-institutional theory. This was followed by the works of Haveman and Rao (1997), Thornton and Ocasio (1999), Rao, Moni and Durand (2003) and Glynn and Lounsbury (2005) among others leading it to become a central approach in the sociology and organizational theory disciplines (Greenwood, et al., 2008). There are many different research streams that have arisen within the area of institutional logics such as the emergence of new logics (Greenwood and Suddaby, 2006), resolving tensions in institutional spheres (Besharov and Smith, 2014) and institutional entrepreneurship (Battilana et al., 2009) among others.

Recent research has focused on the concept of the "hybrid organization". These organizations essentially include elements from more than one institutional logic (Battilana and Dorado, 2010) such as the blending of commercial and non-commercial logics (for instance market and social or market and science logics) in a single organization. Hybrids can take many different forms by combining multiple different logics in different combinations (Pache and Santos, 2013).

However, research on hybrid organizations commonly explores a single or small group of organizations. It is also possible for one or more actors to, intentionally or otherwise, make significant changes at the institutional field level through the mechanism of logic recombination (Thornton et al., 2012). In the Web 2.0 world, cybermediaries have played a pivotal role in changing and adapting the logics that are applicable to this context. Their important role, along with a more in depth look at how they are helping blend institutional logics in virtual firms, is offered below.

Though the term organizational or institutional field is used frequently, there is less consensus about what it is comprised of thereby leading to a multitude of definitions. For instance, Dimaggio and Powell (1983, pg.148) define it as being comprised of "organizations that, in the aggregate, constitute a recognized area of institutional life" while Quirke (2013; pg.1678) defines it as one where "organizations face the same regulations and environmental conditions". Scott (2008) defines it as a community comprised of multiple actors that are held together by their values and beliefs. Thus, an organizational field could be an industry or a more defined field of multiple actors facing the same environment while embodying similar values and beliefs. For instance, the higher education publishing industry is regarded an institutional field dealing with market and editorial logics (Thornton, 2004; Thornton and Ocasio, 1999). On the other hand, public schools in Toronto are also recognized as an institutional field (Quirke, 2013).

Keeping in mind then the definition set forth by Dimaggio and Powell (1983) and Scott (2008), for this study, it can be seen that the institutional field is comprised of virtual businesses operating in the Web 2.0 online domain, the cybermediaries, customers and the users of the

platform who may be potential customers. These are multiple actors facing the same environment due to the unique context wherein they operate. The cybermediaries provide a web-based platform to host these virtual businesses, thereby offering a novel approach to reducing the complexity of operating in the online world by providing a unifying structure that allows different virtual businesses access to similar resources and markets. In this emerging non-conventional institutional field marked by collaboration, cooperation and community (Leitner, Grechenig and Krishnamurthy, 2007; Cook 2008), a single, ideal-type interinstitutional logic does not fully explain the norms and practices visible.

Thornton and Ocasio (1999) put forth a conceptualization of the interinstitutional system, which was further refined by Thornton and colleagues (2012) who described seven distinct institutional logics at the societal level termed as ideal-types. Each of these institutional logics differs from the others based on certain categorizing factors such as sources of legitimacy, basis of norms, economic system, etc. These seven discrete sub-systems of institutional orders, namely, family, community, religion, state, market, professions and corporation were proposed as existing at societal level, and are representative of the institutional logics conveying what is most salient about them through an analytical exaggeration of some aspects (Thornton et al., 2012) Each of these sub-systems is a distinct area that has its own idiosyncratic norms, practices and symbols and thus its own cultural system (Zucker, 1977; Friedland and Alford, 1991). Logics within different institutional fields, organizations or even at the individual level draw upon and are nested within, these higher-order societal logics (Besharov and Smith, 2014). These societal level logics are also called the interinstitutional system level logics (Thornton et al., 2012).

Thornton and colleagues (2012) developed a typology of ideal-type categories in the form of an interinstitutional system. By doing so they allow future researchers the opportunity to use a detailed, theoretical model of where the boundaries of the various institutional orders lie and how they are structured for more fine-grained research. It is a "rich but generalizable" abstract model which can help understand how observations differ from these ideal-types or pure forms (Thornton et.al 2012, pg. 53). These ideal-type societal level institutional logics thus offer greater insight into understanding the institutional logics prevalent in different institutional fields.

Figure 4
Ideal-type Societal Level Interinstitutional Logics
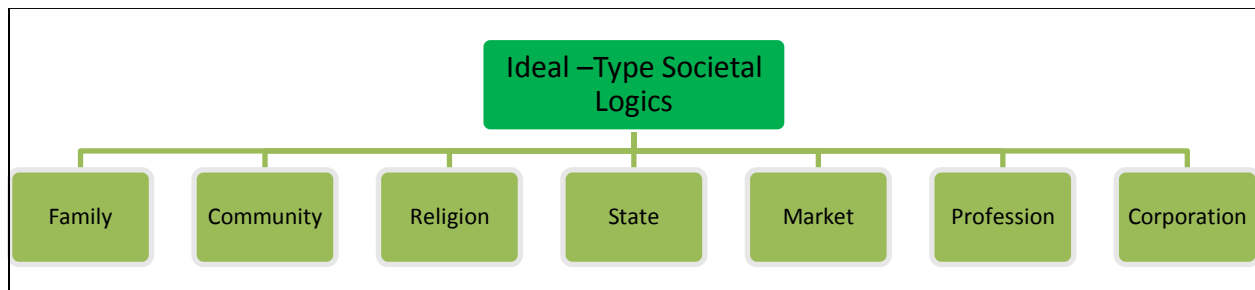
Thus, in an institutional context marked by collaboration, cooperation and community in addition to profit, three ideal-types from the interinstitutional system have the potential to explain aspects of this institutional field. These three ideal-types are Market, Corporation and Community. Each of these is discussed to highlight how these societal level institutional logics draw the attention of decision makers to particular issues, solutions, and guide them as to what practices to adopt and what norms to follow (Ocasio, 1997; Shipilov, Greve and Rowley, 2010).

For the <u>Market Logic</u>, Thornton and colleagues (2012) discuss how the transaction is the focal point and market capitalism is the prevalent economic system. Share prices act as the source of legitimacy for this institutional order. Shareholder activism provides the authority and industry analysts act as informal control mechanisms for this ideal-type. It is further marked by facelessness in terms of identity and self-interest forms the basis of the norms. Organizations governed by this logic give their attention to their status in the market and strategize so as to increase their efficiency-based profits. The <u>Corporation Logic</u> has the "corporation as hierarchy" as its focal point and managerial capitalism is the economic system considered paramount. The market positions of firms provide the source of legitimacy. The Board of Directors and top management act as the sources of authority and organization culture acts as the informal control mechanism (Thornton et al., 2012). It is bureaucratic roles that provide the sources of identity for actors and employment in the firm provides the basis of the norms. The basis of attention is the status in hierarchy while increasing the size and diversification of the firm is the basis of strategy in this interinstitutional ideal-type. The <u>Community logic</u> at the societal level is marked by the focus on the common community boundary with a cooperative capitalist economic system (Thornton et al., 2012). It is unity of will, a belief in trust and reciprocity that provide legitimacy. A commitment to the values of the community acts as the source of authority and the visibility of actions in the community provides an informal control mechanism. While the shared emotional connection acts as a source of identity, group membership forms the basis of norms. This interinstitutional ideal-type requires personal investment in the group as the basis of attention and the basis of strategy herein is increasing the status and honor of the community members and the practices of the community.

Ideal-types such as those elaborated above, offer a starting point in the form of a typology for the institutional logics, but in reality multiple institutional logics often coexist in an institutional field (Battilana and Dorado, 2010). They place different demands on the organizations in that field leading to heterogeneity instead of institutional isomorphism (DiMaggio and Powell, 1983; Thornton et. al 2012). While changes at the societal or interinstitutional level are infrequent, new alternative logics may be created at the field level by combining logics from those different sub-systems (Thornton et al., 2012; Thornton and Ocasio, 2008). When operating in a new institutional field, actors will often have to decide whether the existing interinstitutional logics are applicable or whether there are multiple logics which they may draw upon for their behaviors and practices (Glynn and Lounsbury, 2005). Certain actors can also act as the pioneers by molding and shaping the logics for other actors in the institutional field. In the case of the institutional context of virtual entrepreneurial firms operating via Web 2.0 cybermediaries, instead of a single logic (e.g. either the Market logics or Corporation logics) solely guiding behaviors and practices of the actors, multiple and diverse logics seem to have combined to form a new blended logic (of Market, Corporate and Community logics) that may be termed as the "Virtual Entrepreneurial Logic".

Thus, Web 2.0 cybermediaries help pave the way for the virtual firms using their platform to operate in this institutional context distinguished by this Virtual Entrepreneurial Logic. As hybrid organizations themselves, they facilitate the adoption of the recombined logic by the multitude of virtual businesses utilizing their platforms (Battilana and Dorado, 2010; Leitner, Grechenig and Krishnamurthy, 2007). By understanding the change in logics applicable, insight can be gained into why virtual entrepreneurial businesses in the Web 2.0 era engage in pro-

community, collaborative behaviors along with an economic business model rather than be guided fully by self-interest and opportunism.

Thornton and colleagues (2012) in addition to their typology of interinstitutional logics also describe the seven types of changes that can take place so as to adapt or recombine these ideal-types for application to different institutional fields. These changes in field-level logics can be highly radical such as when there is a complete replacement of one logic for another one (Rao, Monin and Durand, 2003). Other types of changes are less radical while still being transformational in nature, for instance, when there is blending of logics or segregation of logics (Thornton and Ocasio, 1999). Certain types of changes are developmental in nature i.e. the assimilation, elaboration, expansion and contraction of logics (Thornton et. al., 2012). Thus, while one possibility is only for a single dominant logic to be prevalent (Hensmans, 2003; Kitchener, 2002), another possibility is for some combination of logics or modified logics to be prevalent. Dominant Logics of the institutional field refer to a single logic "so dominant that it eclipses other logics rendering them immaterial to organizational functioning" (Besharov and Smith, 2014; pg. 368). It is the prevalent logic as compared to a no longer in-use, illegitimate logic that is fading away (Shipilov, Greve, and Rowley, 2010). While in the past the focus was on the importance of a single dominant logic for any institutional field, increasingly there is the recognition of plural logics co-existing (Lounsbury and Boxenbaum, 2013). The possibility of different types of changes taking place allows hybrid logics to prevail rather than compete in a struggle for dominance; such adaptations or recombinations of logics have been widely discussed in recent research (Battilana and Dorado, 2010; Owen-Smith and Powell, 2008; Thornton et al, 2012; Besharov and Smith, 2014).

A further elaboration on the different types of changes possible using the interinstitutional ideal-types of logics is provided. *Replacement* takes place when the institutional logic is completely replaced with another institutional logic in the particular organizational field (Thornton et al. 2012). With *segregation*, while there is a single starting institutional logic, a different institutional field level logic emerges from the common starting point (Purdy and Gray, 2009). With *blending* there is a mixing or combining of logics that takes place (Glynn and Lounsbury, 2005). A less radical version of blending is *assimilation* which is a developmental change wherein some elements of one other logic are combined or assimilated into the prevalent logic. In *elaboration*, it is the prevalent logic that is reinforced through internal developments in the field that use the mechanisms of new practices and narratives for this purpose (Thornton et al. 2012). Finally, *expansion* refers to when the logic shifts from one field to another while *contraction* refers to a change wherein there is a decrease in the scope of the logic.

Figure 5
Types of Changes in Interinstitutional Logics
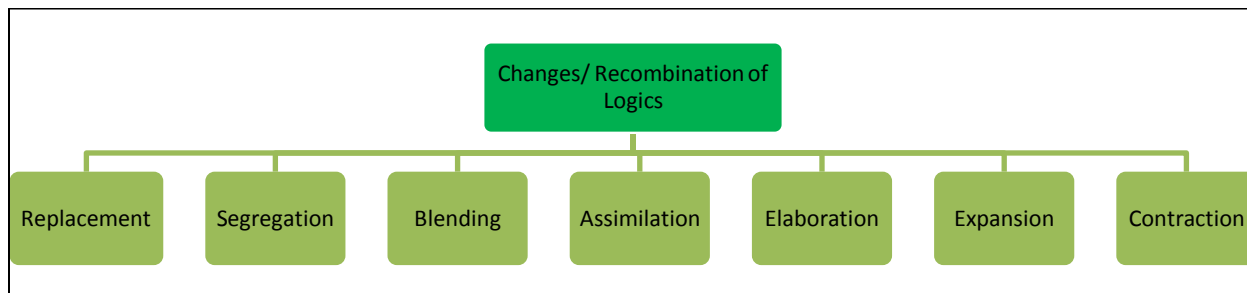
By acting as change agents, the Web 2.0 cybermediaries recombine multiple logics simultaneously by "blending". Though their focus is on making a profit, they also enable would-be entrepreneurs from all walks of life, and from countries all over the world (Etsy Report, 2013) to come together in a setting marked by a cooperative atmosphere. They provide entrepreneurs many tools, resources, information and support in developing their online ventures (Kuhn and Galloway, 2015) while also giving them an avenue to pursue uniqueness and exclusivity (Hracs,

Jakob and Hauge, 2013). Thus, they enable the functioning of the recombined logic which comes about when multiple dimensions from the interinstitutional ideal types combine together to create the logic that is prevalent in this context. Table 1 shows three pure forms or ideal-types of interinstitutional system logics proposed by Thornton and colleagues (2012) and how the different logics (Market, Corporation and Community) undergo *blending* to form a "Virtual Entrepreneurial Logic."

Table 1
Blending Three Ideal-Type Societal Logics

	Expected in Physical Businesses	Observed in virtual entrepreneurial firms	Corresponding Ideal-Type Societal Logic
CATEGORIES			
Sources of Legitimacy	Market position of firm	Belief in trust & reciprocity	Community
		Market position of firm	Corporation
Sources of Authority	Board of directors & Top Management	Commitment to community values & ideology	Community
Sources of Identity	Bureaucratic roles	Emotional Connection	Community
Basis of Norms	Employment in firm	Group Membership	Community
		Employment in firm	Corporation
Basis of Attention	Status in hierarchy	Status in market	Market
Basis of Strategy	Increase size & diversification of firm	Increase efficiency-profit	Market
Informal Control Mechanisms	Organization culture	Organization culture	Corporation
Economic System	Managerial capitalism	Cooperative capitalism	Community
		Market capitalism	Market

(Based on an adaptation of Thornton, Patricia Ocasio and Lounsbury, 2012)

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The categories or building blocks described represent the actors of that ideal-type, how they act, the vocabularies of that ideal-type, and how the actors understand their sense of self (Thornton et al., 2012). The Virtual Entrepreneurial Logic that combines the building blocks of the different ideal-type interinstitutional logics shown above is next described in detail.

The organizational fields abide by their respective interinstitutional system logics. For instance, Battilana and Dorado (2010) consider two ideal-types of institutional logics (banking and developmental), and discuss the combining of these logics the institutional field of commercial microfinancing businesses. In what they term Commercial Microfinance Logic, instead of focusing solely on profit as a banking logic would dictate, banking logics combine with developmental logics to change the focus to providing financial services access for the disenfranchised while also fulfilling obligations toward investors. Similarly, for the Virtual Entrepreneurial Logic, as is conventional for businesses, virtual entrepreneurial firms focus on the conducting of transactions as a focal point of their activities with the only difference from traditional businesses being that the transactions in this context are online (Weill and Vitale, 2013). But in addition to this typical aspect of the Market Logics, in the Web 2.0 online world, there is the potential for and emphasis on, communication, collaboration and connectedness (Chen, Yang and Tang, 2013; Kirmayer, Raikhel and Rahimi, 2013). This necessitates a closer look at the recombination or blending of different aspects of Market, Corporation and Community Logics to form a new Virtual Entrepreneurial Logic.

Sources of Legitimacy: The Community logics and the Corporation logics provide the sources of legitimacy in this context as described herein. Given the uniqueness of online trust (vs. offline

trust), it becomes particularly significant in the online context, to be able to trust fellow community members so as to be able to engage with them in different ways (Mukherjee and Nath, 2007; Benlian & Hess, 2011). A generalized norm of reciprocity also permeates virtual communities (Cialdini, 1993). Thus, belief in trust and reciprocity from the societal level Community Logics (Thornton et al., 2012) is an important feature of such online businesses where co-operation and cross-promotion among businesses is commonplace (Kollock and Smith, 1996; Kollock, 1999). Market position of the firm as envisaged under the Corporation logic is yet another aspect of the changed logic that arises from blending. A strong market position is important for the success of online businesses as well-positioned firms would be better connected and considered to have a more salient presence in the online Web 2.0 world (Zhang, Zhunag and Haung, 2010).

Sources of Authority and informal control: Within virtual communities there is a commitment to community values and ideologies. The virtual entrepreneurial ventures rely on the cybermediaries to moderate forums and solve issues through community leaders and uphold the community ideals. Just as with most online communities, deviation from community values and ideologies can be met with "punishment" such as complaints from other community members and suspension of business from the platform. (Pace, O'Donnell, DeWitt, Bardzell and Bardzell, 2013; Langerak, Verhoef, Verlegh, and Valck, 2003) Thus, due to such moderation of activities, protection of values and reprimanding of inappropriate behavior, all with the intention to protect the community and community actors, the commitment to community values and ideology becomes the guiding principle that acts as a source of authority for virtual enterprises on Web 2.0 cybermediary platforms. As stated in the previous chapter, many of these virtual businesses are

microenterprises that are owner-operated. As such, their own organizational culture is a dominant factor in their day to day decision-making and functioning and would act as an informal control mechanism (Erdogan, Liden and Kraimer, 2006; Boeker, 1988; Welch, 2003).

Sources of Identity: Members, who are part of an online community such as virtual enterprises, have a shared emotional connection (Gruzd, Wellman and Takhteyev, 2011) which is part of the actors' identity (Blanchard, 2007). As the cybermediaries strongly emphasize community aspects in the Web 2.0 era of connectedness, "the sources of identity" factor of the institutional logic is a role likely fulfilled by "emotional connection" as encompassed under the Community Logic (McNamara, Stevenson and Muldoon, 2013).

Basis of Norms: The basis of the norms would come from both the Community and Corporation logics. For new virtual entrepreneurial firms that become part of this institutional context, the norms of behavior and understanding common practices are learnt through group membership i.e. being part of the virtual community of businesses (Shen, Huang, Chu and Liao, 2010; Janssen, Erkens, Kirschner, and Kanselaar, 2009) Also integral is the founding, owning and operating of the virtual entrepreneurial firms as it is that which allows them to be part of this platform in a capacity greater than that of mere users of the cybermediary platform i.e. it is the "employment" in their firm which affords them the position of actors in this institutional context.

Basis of Attention and Strategy: Other dimensions typically considered when attempting to understand what logic or logics the institutional field follows, are basis of attention and strategy which in this case, would be blended in from the interinstitutional logics of the Market i.e. status

among other businesses or the overall market, as well as a focus on profit. Due to the pervasive community focus specific to this context and the common tendency of entrepreneurs to look at not just financial motives in their entrepreneurial endeavors (Wiklund and Shepherd, 2005) it is likely that in addition to monetary profit, the virtual entrepreneurial firms are also concerned with overall performance. Nonetheless this is still within the confines of the Market logic i.e. the motive of profit. While community bonds may help with knowledge, processes and behaviors, these virtual enterprises are for-profit businesses and follow the dictates of the market when it comes to what aspect of the business should receive the most attention and what principles should drive their strategic moves.

Economic System: Finally, a combination of cooperative capitalism and market capitalism, from Community logics and Market logics respectively, would explain the economic system dimension as it is applicable to the institutional context in this instance as it can be seen that cooperation while conducting business for profit, appears to be the cornerstone of how businesses operate in this Web 2.0 domain (Barnes, Clear, Dyerson, Harindranath, Harris, and Rae, 2012; Kollman, 2006).

Thus, the cybermediary platforms in the Web 2.0 world play an important role facilitating the blending of multiple logics to create a new and unusual combination of institutional logics. This blending of logics in a relatively novel institutional context of online entrepreneurial firms operating via Web 2.0 cybermediaries opens new areas of scholarly inquiry.

In an attempt to investigate how this "Virtual Entrepreneurial Logic" drives firm performance, three sets of antecedents (representing three blended logics) are examined. As a result of these blended multiple logics, this is a comparatively atypical institutional context with many collaborative, community and cooperative elements that coexist with economic elements. For this reason, antecedents that stem from a virtual business model, a sense of virtual community and a virtual co-creative approach are examined in detail. These antecedents are described in the following sections.

Antecedents

As web 2.0 cybermediaries emphasize communication, collaboration and connectivity while still not losing focus from the goal of profit (Ponder, 2010; Cormode and Krishnamurthy, 2008), the dominant logic of entrepreneurial firms operating in the physical world are different from those seen in this institutional context. The Virtual Entrepreneurial Logic which is comprised of multiple blended logics would also have different antecedents to performance as they relate to the different logics. A business model relating to the economic aspect, a community antecedent relating to the cooperative aspect and co-creation as an antecedent relating to the collaborative aspect of the Virtual Entrepreneurial Logic, are three different potential antecedents that are examined using three distinct studies as part of the main study. These are most fitting for the virtual context and are discussed below.

Table 2
Antecedents and Rationales

Study	Antecedent	Rationale
Study 1	Business Model	Economic
Study 2	Virtual Community	Cooperative

Study 3	Co-creation	Collaborative

Business Model Antecedent

Value Drivers:

Value drivers in the virtual domain are sources of value creation that augment the total value created by an e-business. They are the components of business models (Zott et al, 2011). In their work, Amit and Zott (2001) studied value-creation in e-businesses that were publicly-traded, located in the US/UK and derived at least 10% of their profits from online transactions which thus included some pure-plays and some brick and click businesses. In these online businesses, they found the most relevant value drivers to be efficiency which relates to gains from lowered costs due to transaction efficiency, complementarities which enable revenue increases due to bundling, lock-in which relates to motivating customers so as to engage them in repeat transactions, and finally novelty in the different aspects of conducting commercial transactions. Their work indicates that new domains have new value drivers. In keeping with these prescriptions, aspects of Schumpeterian innovation (Schumpeter, 1934/1942) network theory (Powell et al., 1999; Dubini and Aldrich, 1991;), information processing theory (McGaffey and Christy, 1975; Norton, 2004), and the literature on product lines (Kotler, 2007; Kotler and Armstrong, 2013) are used as complementary theories to examine the components of a business model relevant to virtual enterprises: information processing, product portfolio complexity, innovative practices and network membership.

Information Processing Capability: The concept of "bounded rationality" underlies the significance of information processing activities; actors are constrained in their decision-making

because of lack of time, information and/or information processing capacity (Simon, 1972). Access to information processing tools and their utilization, is a crucial factor in extending the amount of information that can be handled and applied in the face of uncertainty. Firms attempt to deal with uncertainty by gathering, processing and acting on data from the environment (Daft and Weick, 1984). While larger organizations can easily handle the dissemination challenges of the vast extent of information necessary to manage a firm (Huber, 1991), entrepreneurial firms are often owner-managed or have a small team. Choosing what information to process and how to process it is an important strategic activity (Dollinger, 1984). The owner of an e-entrepreneurial venture is the strategist for the organization and in this context strategic management is an entrepreneurial task (Mintzberg and Waters, 1982). Schumpeter (1934) theorized that the entrepreneur creates order in situations where informational asymmetries exist. Risk occupies a crucial place in entrepreneurial ventures and different entrepreneurs handle it with different levels of success (Görling and Rehn, 2008). The handling of risk and informational asymmetries is aided by the use of information processing tools. Entrepreneurs tend to reduce the organizational complexity that confronts them to manageable levels (McGaffey and Christy, 1975) and their individual cognitive processes are aided by organizational information processing capabilities.

Information processing is relevant for all businesses. Various elements of information processing, such as scanning, interpreting and responding activities, have been found to relate to firm performance (Thomas, Clark and Gioia, 1993). Improvements and enhancing information processing tools and capabilities also leads to positive changes in firm profitability (Norton, 2004). While looking at information processing as strategic behavior by owners/operators in

small businesses, it was found to be a significant predictor of performance (Dollinger, 1984) as is likely with online ventures as well.

Virtual entrepreneurial ventures often have access to additional reports, apps, tools and online functionalities. The information processing tools available to sellers on Etsy and DaWanda or creators on Quirky and Kickstarter, allow them to maintain better contact with their users, ask them for feedback more frequently, choose who to approach for reviews, see which products are more popular so as to promote them better to consumers, and manage shipping and processing in a timely manner. Among the many benefits of using virtual platforms or online businesses such as reduced costs, high connectivity, reduced impact of geographical limitations, and greater global reach, one very noteworthy benefit is that of low-cost, high-speed information processing capabilities. Information processing capabilities provide utility in risk-reduction, act as aids to manage of information asymmetry and as tools to reduce complexity (McGaffey and Christy, 1975; Görling and Rehn, 2008; Thomas et al., 1993). Thus, e-entrepreneurial ventures that use this to their benefit are expected to have higher levels of performance

Network membership: Inter-organizational relationships vary in their depth, intent, structure, content and emphasis. In general they can be explained using different theoretical lenses; primarily, resource dependence, stakeholder theory, institutional theory, and social network theory (Parmigiani and Rivera-Santos, 2011). Networks are one of the more common forms of inter-organizational relationships. Depending on the lens used, they can be seen as beneficial for organizations due to their role as a trust-building mechanism (Gruber, 2007), as enablers of collaboration and learning (Schilling and Phelps, 2007), as a means to gain control

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over vital resources (Pfeffer and Salancik, 1978), as a means to gain legitimacy (Hoang and Antonic, 2003), to gain information particularly for entrepreneurs (Sorenson and Stuart, 2008), as sources of knowledge (Phelps, Heidl and Wadhwa, 2012; Pugh and Prusak, 2013), as R&D tools (Slone, Becker, Penton, Pu, and McNamee, 2011) and as aids to innovation (Bessant, Lamming, Noke and Phillips, 2005).

Strategic networks in general are "stable inter-organizational ties which are strategically important to participating firms" (Gulati, Nohria, and Zaheer, 2000 pg. 203). In the online domain these networks have been conceptualized as virtually embedded ties which are "inter-organizational linkages that are initiated and maintained through electronic technologies and that provide distinctive solutions to the same problems with exchange relationships that are addressed by socially embedded ties" (Fowler, Lawrence, and Morse, 2004 pg. 648).

Previous research shows that at the initial start-up stage, entrepreneurs have networks or attempt to belong to networks of investors and soon, their network consists of suppliers and clients (Steier, 2000). The cybermediaries in their capacity as virtual platforms offer access to networks of current users (for instance the "teams" feature found in Etsy). This facilitates direct connections to suppliers and other users of the virtual platform who are at various stages of the entrepreneurial process with different expertise and knowledge levels. In the current era, networking is a dominant mode of operation and helps facilitate multiple aspects of business. Online business ventures need to place a special emphasis on strategically acting to develop effective strategies and networks to enable them to coordinate their value chains better (Oudan, 2010). Entrepreneurs use not only their personal network but also expand their organization's

network to reach out to other organizations to impact the success of entrepreneurs and their organizations (Dubini and Aldrich, 1991). Extant research has shown that networks have an impact on the performance of firms and can contribute to sustainable competitive advantage (Tung, 2012) and also positively affect performance of entrepreneurial ventures (Hoang and Antoncic, 2003). Recent research also indicates support for peer networks (Kuhn and Galloway, 2015). The theoretical basis for networks positively impacting performance may be traced back originally to the resource-based view, where networks are themselves a form of valuable, rare, inimitable and non-substitutable resource as well as act as a conduit to such resources (Barney 1991).

Cybermediaries through online network features offer direct contact with special groups, that fulfil one or more of the following needs of entrepreneurs- those that follow similar patterns of business, those selling the same type of goods, those having the same interests and those trying to learn the same things about conducting business. Thus, by belonging in certain groups on the cybermediary platform, entrepreneurs learn about best practices and improvements they can make in their relationships with customers. The portals in some cases (such as that of Etsy and DaWanda) offer certain networking opportunities (for example through the "teams" section) and those e-ventures that are active members of these networks will be able to utilize their network ties to improve their performance.

Innovative Practices: The third value driver looked at, is innovative business practices which include a focus on innovation as well business practices that could be innovative. Prior literature indicates that innovativeness in business practices includes innovations in products or

services offered (Hurley and Hult, 1998), innovation in administrative systems or internal operations (Han, Kim and Srivastava, 1998), and innovation in customer-related practices such as interactions or shipping procedures. Schumpeter (1934) emphasized the importance of innovation in entrepreneurial ventures in terms of their products, services, materials, processes or organizing methods and noted that entrepreneurs engaged in exploitation of inventions so as to carry out innovation either in terms of producing something completely new or using a new method to carry out production of an existing commodity. Innovation is thus the cornerstone of Schumpeter's work. Schumpeterian innovation is a source of value creation (Amit and Zott, 2001). Innovative practices of various types support operational, tactical and strategic tasks of businesses (Kollmann, 2006; Kollman and Krell, 2011). The survival and growth of the organizations depends upon their capacity to improve their offering to the world i.e. product or service innovation as well as the methods in which they create and deliver that service or product i.e. process innovation (Tidd, Bessant and Pavitt, 2001).

Innovative business practices have the potential to act as critical sources of competitive advantage (Blumentritt and Danis, 2006). In the online business context where e-entrepreneurs operate, innovativeness can be rewarded through increased sales as these ventures come into the limelight and become more popular. Innovativeness within firms leads to the capacity to innovate which is the ability to carry out innovative practices successfully and this in turn leads to greater organizational performance (Hult, Ketchen and Nichols, 2003). Innovative practices in areas such as shipping, processing, improvements to products, changes in lines of products, communication with customers and interactions with potential customers, will help improve multiple aspects of the business that impact performance.

Product portfolio complexity: Recognition of the need for product heterogeneity vis-à-vis consumer demand so as to set apart the business, drives firms to extend their product lines in terms of the product portfolio offered (Schon, 2010). A product line is a cluster of closely related products which function in a similar manner, are sold to the same customer group or could fall within the same price range (Kadiyali, Vilcassim and Chintagunta, 1998). The product portfolio complexity essentially encapsulates the assortment of products offered, involves filling and stretching of product lines as there are more items added to the present range of products as well as extensions beyond the present range (Kotler and Armstrong, 2013). An extended range of products offers e-enterprises using cybermediaries, an opportunity to showcase their length and breadth of products to boost sales. Having a sufficiently large product portfolio allows firms to be prepared for changes in item demand and have alternate products available for customers when the sale of a particular item or type of item falls so as to satisfy demand, reap greater profits and plug holes to keep competitors at bay (Kekre and Srinivasan, 1990; Kadiyali, Vilcassim, and Chintagunta, 1998; Kotler and Armstrong, 2013). This is particularly relevant given the ease with each customers can "move" to the next store i.e. just by one click.

This discussion on the value drivers leads to the first set of hypotheses:

> *H1a: Virtual enterprises that have a high usage of information processing capability will exhibit higher firm performance.*
>
> *H1b: Virtual enterprises that have greater product portfolio complexity will exhibit higher firm performance.*
>
> *H1c: Virtual enterprises that engage in innovative practices will exhibit higher firm performance.*

H1d: Virtual enterprises that are engaged in network membership will exhibit higher firm performance.

Business model:

An examination of the existing literature on e-businesses indicates that the business model approach is frequently used to study businesses that derive a portion of their sales from an online presence (Tapscott, Lowy, and Ticoll, 2000; Pauwels and Weiss, 2008; Eriksson, Kalling, Åkesson, and Fredberg, 2008), but there is a dearth of research relating to virtual entrepreneurial firms. According to Amit and Zott (2001) e-businesses that derived at least 10% of their profits from online business had the following sources of value creation: efficiency, complementarities, lock-in, and novelty as part of their business model. But very little is known about completely/almost completely virtually embedded entrepreneurial ventures.

Zott, Amit and Massa (2011) offer a detailed review of the extant literature on business models and state that while there is a lack of consensus in many aspects related to business models, there are some aspects on which the research does tend to agree i.e. business models are a unit of analysis that are centered on a single focal firm with broader boundaries thereby including its partners and peripheral associates and they emphasize a systemic, holistic approach to understanding how firms do business and capture value. Thus, conceptualizations of business models vary but concur that value creation is a core tenet. Business models are "a system of interdependent activities that transcends the focal firm and spans its boundaries" (Zott and Amit, 2010: 216).

The four value drivers are essentially parts of the whole business model (Amit and Zott, 2001) and are interconnected. There is a synergistic characteristic to how these components of the business model interact together as a gestalt in an interlocking fashion (Zott et al, 2011). For instance, networks and information processing are related- networks have an impact on information access regarding opportunities (Singh, 2000; Baron, Byrne, and Branscombe, 2005). Understanding how information flow or content takes place in entrepreneurial networks is related to its performance (Busenitz, West, Shepherd, Nelson, Chandler and Scherer, 2003). Information processing tools are utilized for better management of product portfolio complexity and matching thereof with identified market needs (Kekre and Srinivasan, 1990). The relationship between networks and innovative practices has also been established in the past as diffusion of innovation occurs via networks quite frequently (Granovetter, 1973). Innovation in information processing tools increases the capacity for information handling (Norton, 2004). Thus, these components i.e. value drivers of the business model together comprise a method used by the firm to build and use multiple resources so as to be profitable while also offering their customers better value (Afuah and Tucci, 2001). There is also a reinforcing tendency to these value drivers in that they each can enhance the effectiveness of others (Amit and Zott, 2001). Business models by their very definition are a system of components that are interconnected (Zott et al., 2011). Several prior studies (Afuah and Tucci, 2001; Applegate, 2001; Amit and Zott, 2001) emphasize the importance of simultaneously leveraging the multiple components of the business model which leads to the second hypothesis:

H2: Virtual enterprises that leverage all four value drivers (Innovative Practices, Product portfolio complexity, Network membership and Information Processing Capability) will have a higher performance than those that do not.

Figure 6
Research Model: Business Model and Performance
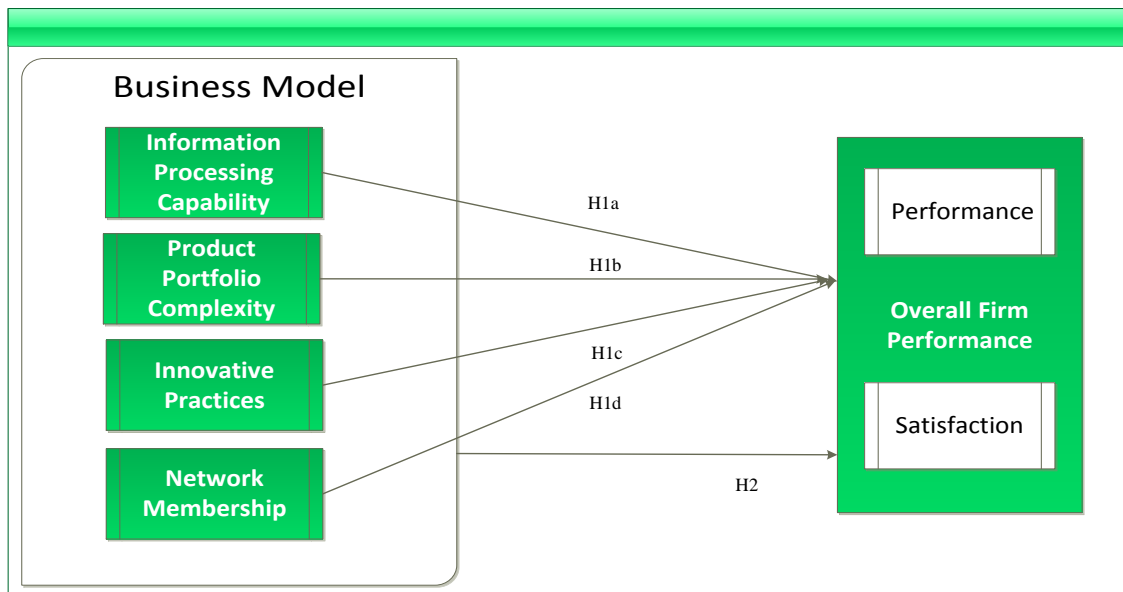
Community Antecedent

Virtual Communities: The exponential growth of the internet has brought with it the growth of online or virtual communities as well. One of the earlier definitions of virtual communities described it as an online social network of a group of persons who have a common interest (Hagel and Armstrong, 1997). More recently, it has been described as a group of people whose interactions take place primarily through information and communication technology (ICT) mechanisms (Blanchard, Frear and Askay, 2010). These virtual communities, distinct from mere virtual groups, could be composed of people that work together, belong to forums, follow the

same blog, are connected through social networking sites like Facebook or Twitter or even those who play online games together (Ren, Kraut and Kiesler, 2007; Zhong, 2011). Similar to real world or offline communities, virtual communities share social relationships which have mutuality and common ties and are marked by a common focus which could be shared goals, identities, interests or shared belongings (Rothaermel and Sugiyama, 2011). Nonetheless, the context being completely different, there are differences as compared to offline communities such as the richer communication modes available, the ability to communicate anonymously under certain circumstances as well as different social boundaries and restrictions than the offline world (Abfalter, Zaglia and Mueller, 2012). People in the same virtual community do tend to come back to the same place on the internet (Oudshoff, Bosloper, Klos and Spaanenburg, 2003).

Prior research highlights four main consumer needs that online communities seek to address namely, interest, relationship building, transaction and fantasy (Hagel and Armstrong, 1997). Communities of interest, communities of relationships, communities of transaction and communities of fantasy are the four ensuing distinct types of communities. However, certain Web 2.0 cybermediaries like Etsy or DaWanda cross these lines and embody characteristics of three of these four types of communities. Individuals and businesses are connected in the cybermediary community through different shared interests such as their interest in crafts, appreciation of movie fandoms or a shared love for antiques. There are strong personal and social elements as well as the virtual entrepreneurs share an important life experience (starting up their own business) together with similar challenges and problems confronting them. Finally, it is a community of transactions where people can buy and sell a large variety of non-mass produced items from all over the world.

Sense of virtual community: The origins of the theory of sense of community can be traced to the seminal work done in the field by McMillan and Chavis (1986) who developed their theory in 1976 and to the work by Sarason (1974) in a similar vein concerning psychological sense of community as an overarching value to define community psychology. Its original conceptualization, by McMillan (1996; pg. 315) was the "spirit of belonging together, a feeling that there is an authority structure that can be trusted, an awareness that trade, and mutual benefit come from being together, and a spirit that comes from shared experiences that are preserved as art". Sarason, (1974; pg. 157) defined it as "the perception of similarity to others, an acknowledged interdependence with others, a willingness to maintain this interdependence by giving to or doing for others what one expects from them, and the feeling that one is part of a larger dependable and stable structure". Studies pertaining to psychological sense of community over the last four decades have led to consensus in many issues such its setting-specific nature (Hill, 1996). This recognition of the importance of context specificity, has led to many developments including the adaptation of psychological sense of community to the online/virtual setting as the "sense of virtual community" (Blanchard and Markus, 2004).

Sense of virtual community (SOVC) can be defined as "members' feelings of membership, identity, belonging, and attachment to a group that interacts primarily through electronic communication" (Blanchard, 2007; pg. 827). There have been very few empirical studies on virtual communities though the conceptualization of the sense of virtual community as a key construct and subsequent scale development that has followed has helped change this situation. Koh and Kim (2003) describe the three main dimensions of sense of virtual community

as being 'membership' because people experience feelings of belonging towards the virtual community they are in, 'influence' because virtual community members influence other members and 'immersion' because people feel a state of flow while navigating through their virtual community.

The sense of virtual community experienced by community members has relationship-building potentials (Bauer and Grether, 2005). The formation of virtual communities has become easier with time as the developments in information and communication technologies enable their creation; but it is their maintenance that needs to be managed and it is the sense of virtual community which helps sustain the virtual communities by making members feel responsible for their community relationships as well as responsible for contributing to the community and creating value for others (Sutanto, Kankanhalli and Tan, 2011). On a cybermediary platform, this sense of virtual community experienced by members, would lead to a similar sense of belonging and then feeling a sense of responsibility to act in certain ways so as to create value for other community members. Just as members of knowledge-creating virtual communities with a high sense of virtual community create value by increased knowledge contribution (Chen, Yang and Tang, 2013), the members of community-focused cybermediaries who pursue virtual entrepreneurship, would create value for other virtual enterprises of the community by supporting members of the virtual community through online community behaviors.

Online community behaviors: Supportive behaviors as an offshoot of sense of community has been seen in the real world or offline communities (Prezza and Costantini, 1998) but this is one of those aspects where virtual communities are similar to their real world

counterparts (Jawecki, Füller and Gebauer, 2011). Other community behaviors are to create value and share information with virtual community members (Gaston-Breton, Duque and Lado, 2009). The two main online community behaviors focused on in this study were e-word of mouth promotion and e-community support through financial transactions.

Virtual/ e-word of mouth promotion : E-word of mouth in the general sense is defined as follows: "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the Internet" (Hennig-Thurau and Walsh, 2003; pg. 39). It is also defined as "the informal information transfer between different parties via electronic applications" (Wirtz, Schilke and Ullrich, 2010; pg. 277), which in the case of a cybermediary includes features like "favorites", "following", and "treasury list" entries depending on the platform. Extant research shows that virtual word of mouth helps online communities develop loyalty among community members (Kozinets, 1999) and it is a major aspect of online interactions (Brown, Broderick and Lee, 2007). Cybermediary users can curate and make lists of their favorite products (purchased or otherwise) similar to "treasuries" on Etsy or "pinboards" on DaWanda as well as view and comment on such curated lists. The curated list or similar features show that a variety of products of different shops are included in these lists by users of the Web 2.0 cybermediaries to draw attention to them. Firms using cybermediaries can promote other virtual enterprises using these e-word of mouth promotion mechanisms by shining the spotlight on different enterprises and in turn may often find their own enterprises featured in other lists as well, due to the sense of community pervading through the group of e-entrepreneurs (Wirtz, Burda and Raizner, 2007). These unique features of e-word of mouth (relative to aspects of word of mouth in the offline

world) suggest that theory focused on offline contexts may not be adequate for understanding e-word of mouth (Brown, Broderick and Lee, 2007). In general, among the many possible benefits accruing to the senders or transmitters of e-word of mouth, the three main outcomes that are seen in previous studies include, enhanced product learning, impression management and social capital and reputation (Muniz and Schau, 2005; Chen, Harper, Konstan and Xin, 2010; Dholakia, Bagozzi and Pearo; 2004).

   e-community support: Due to the sense of virtual community that is diffused throughout the online community, there are generalized norms of reciprocity that essentially entail freely doing behaviors that benefit others and taking comfort in the fact that others will someday respond in turn (Cialdini, 1993). The motivations to act for the benefit of the community which arise out of the sense of virtual community of members, is supplemented by the desire to augment one's reputation as well as expectations of reciprocity (Kollock, 1999). Within virtual communities, often times socio-emotional support is commonly experienced (Blanchard and Markus, 2004) however, another possibility is that once members of virtual communities become more comfortable within their communities their participation increasingly becomes more and more active and they are likely to engage in e-based economic transactions which is a part of their expression of e-community support (Rothaermel and Sugiyama, 2001). E-community support behaviors such as those characterized by financial reciprocity lend themselves to nurturing the norms of reciprocity and online social trust thereby enhancing online social capital (Zhong, 2011; Vergeer, Lim and Park, 2011).

Online social capital: Defining social capital is a challenging task as its conceptualizations are varied and multifaceted (Newton, 1997; Putnam, 2000). Coleman's (1988) definition of social capital emphasizes the resource-like nature of social capital as he defines it as the resources that accrue due to the personal relationships of people and as a means for achieving certain ends. Defining online social capital is just as difficult however it can be understood as being similar to financial capital and analogous to the same- it is a resource that is accumulated and its usage creates more of the same though what is being used and created in this case, are the personal relationships and the ensuing benefits that arise from the same (Williams, 2006). Also, with the multitude of possible conceptualizations, it should be made clear at the outset that the one used in this study looked at online social capital as an outcome rather than the network itself or as a process.

There is consensus in the literature regarding the two forms of social capital-bridging and bonding. The bridging aspect of social capital relates to the ties outside of an individual's closely knit circle (similar to Granovetter's (1973) "weak ties"). The bonding social capital focuses on the social ties with family members, close friends, friendly neighbors, and supportive co-workers and provides emotional support (similar to Granovetter's "strong ties"). Putnam's work (2000, 2002) and Granovetter's work (1973; 1983) thus make the case for social connections comprising both strong and weak ties where weak ties offer access to greater information and more knowledge and strong ties involve closer relationships with deeper exchanges. These personal and extended relationships of strong and weak ties (in the case of direct relationships) and indirect relationships as well, play an important role in the entrepreneurial process and allow

entrepreneurial firms access to diverse information sources as well as resources (Dubini and Aldrich, 1991).

Williams' (2006) work brings the social capital construct into the online world and looks at online social capital and also discusses how both bridging and bonding online social capital exists while developing scales for the same. New communication technologies have the capacity to lead to higher bridging social capital as people from all walks of life can interact, communication is faster, cheaper, more decentralized and can indeed break across barriers of age, gender, culture, politics etc. (Haythornthwaite. 2002). Additionally, the inherent sense of community in virtual environments lends itself to increased bonding social capital as people will be closer to others with similar interests as their own (Mandelli, 2002; Williams, 2006).

Prior research shows that social capital is a resource that provides entrepreneurs with information, access to financial capital, emotional support, competitive capabilities, as well as legitimacy and thereby affects venture performance (Birley, 1985; Batjargal, 2003; Stuart, Hoang and Hybels, 1999; Stam and Elfring, 2008). This relationship between offline social capital and performance could be mirrored in the virtual entrepreneurial context. The online social capital accrued by online ventures due to online community behaviors such as e-word of mouth and e-community support could be leveraged for performance gains. Online social capital confers legitimacy which could enable better performance in their virtual enterprises.

This discussion on virtual communities leads to the next set of hypotheses which relate to the model based on the virtual sense of community:

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H3a: Virtual enterprises that have a higher sense of virtual community will engage in higher virtual/ e-word of mouth promotion.

H3b: Virtual enterprises that have a higher sense of virtual community will exhibit higher e-community support

H3c: Virtual enterprises that engage in higher virtual/ e-word of mouth promotion will have greater online social capital.

H3d: Virtual enterprises that exhibit higher e-community support will have greater online social capital.

H3e: Virtual enterprises that have a high level of social capital will exhibit higher firm performance.

H3f: Virtual enterprises that have a higher sense of virtual community will have greater online social capital.

Figure 7
Research Model: Sense of Virtual Community and Performance
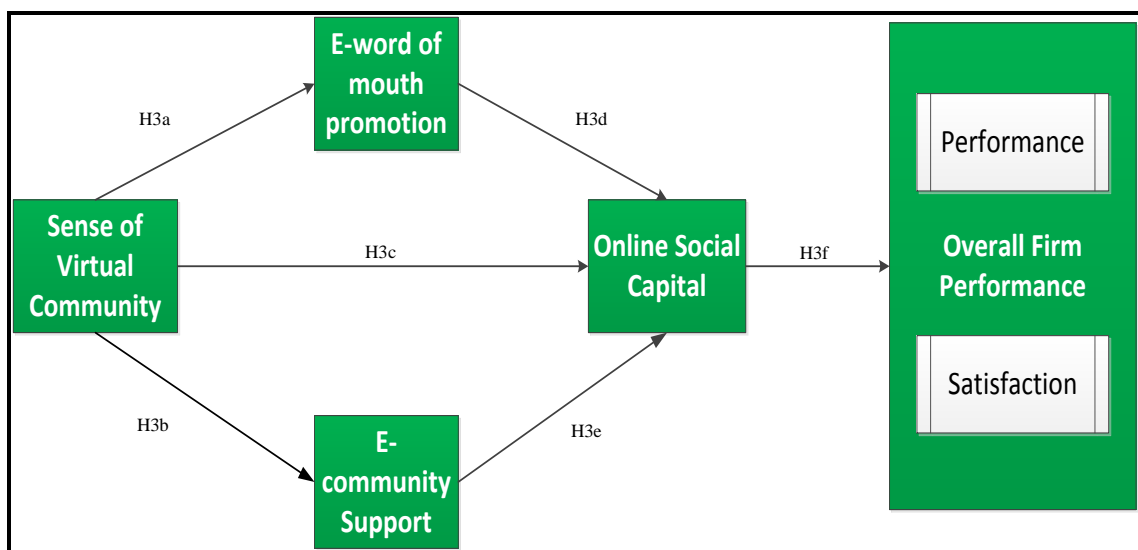
Co-creation Antecedent

Recent approaches have begun to recognize that consumers are no longer passive players in this relationship but rather a part of an interactive process of co-creation of value (Holbrook, 1996; Spena, Carida, Colurcio and Melia; 2012). In a recent study by Frow, Payne and Storbacka (2011), co-creation was defined as "an interactive process, involving at least two willing resource integrating actors, which are engaged in specific form(s) of mutually beneficial collaboration, resulting in value creation for those actors" (pg. 1). Co-creation is thus about more than just pleasing the customer or offering mass customization as an option-it is about the joint creation of value by firms and customers so that he/she can actively co-construct a personalized experience related to the product wherein if the product is the same, the consumer experience is different (Prahalad and Ramaswamy, 2004).

The underlying ideas weaving through the recent studies on co-creation by Prahalad and colleagues, is that "value will increasingly be co-created with consumers... (and that) no single firm has the know knowledge, skills, and resources it needs to co-create value with consumers. Every firm has to learn to access resources from multiple sources," (Prahalad and Krishnan, 2008). These two underlying principles of co-creation are termed (i) N=1 where firms must focus on each consumer experience as being distinct from the other and (ii) R=G where firms access resources from multiple sources (including global ones) and thus are not compelled to own all of their resource bases.

Prahalad and Krishnan (2008) provide multiple examples of businesses of all sizes who are attempting to use the N=1 and R=G fundamentals to co-create value for customers. For instance, tutoring has typically taken a one-size-fits-all approach but TutorVista allows students to choose the tutoring start time, duration, subjects, intensity, priority of multiple subjects, as well as tutor. Following specific tests the tutors develop personalized lesson plans for students who are also involved with the process. This personalized instruction to co-create a learning plan represents the N=1 aspect. As the tutors may come from all over the world, are well-trained and accessible when the company needs them, they represent the global nature of the "resource" i.e. R=G.

In the context of a virtual enterprise using Web 2.0 cybermediary platforms, a unique experience specific to a consumer could perhaps be illustrated through the experience of buying custom-painted shoes. The customer can choose to browse the website at any hour of the day or night, they can then contact the store with queries about specific paint formulas used and they could even ask the business to buy the input shoes from a fellow virtual enterprise that the customer has used before. After discussing further customization including type of paint from the options provided, they could choose among different delivery companies if so offered and transit insurance if interested. The payment screen then provides them with multiple payment options from which they make their choice. Tracking information allows the customer to check for product delivery. Post the receipt of this product, leaving feedback in terms of review stars and word reviews is possible as well as following the business on Facebook, pinning their product on Pinterest or even using the cybermediary platform feature to promote the business as a favorite. This would be an example of the N=1 aspect but the possibility of the business being located

anywhere in the world, having multiple suppliers itself and using resources from wherever it needs, is the R=G aspect.

Thus the underlying premise behind co-creation is that people demand to be more engaged with the providers of goods and services- they want to "help design the value of the products and services they use; they want an ongoing conversation with the organizations they do business with and with each other; and they want their voices heard (Ramaswamy and Gouillart, 2010; pg.3). The process of value co-creation thus involves businesses creating superior value propositions wherein consumers determine when the good or service is consumed; these superior value propositions should thus result in greater co-creation opportunities as well as value for the business in return through increased revenues and referrals (Payne, Storbacka and Frow, 2008).

There is an attempt to move away "from the old industry model that sees value as created from goods and services to a new model where value is created by experiences" (Prahalad 2004; pg. 172). Customers want to be able to choose how and when they transact with businesses, they want their choices to be reflective of their views of value and they want to be able to use their own languages and styles in interactions (Ramaswamy and Gouillart, 2010).

Co-creation is thus "the practice of developing systems, products, or services through collaboration with customers, managers, employees and other stake holders" (Ramaswamy and Gouillart, 2010; pg.4). In their more recent work, Ramaswamy and Gouillart (2010) discuss the three aspects of co-creation: the engagement platforms, human experiences and the collaborative process. While the terms co-creation and co-design are often used synonymously, the term co-

creation is a much wider term while co-design is a very specific instance of co-creation involving only collaboratively working in design (Sanders and Stappers, 2008).

Ramaswamy and Gouillart (2010) define the core-principle of co-creation as being comprised of experience mind-set, context of interactions, engagement platforms and network relationships while emphasizing that the engagement platforms "are the cornerstone of co-creation that support the other three components of co-creative engagement" (Pg. 38). Thus, the actual engagement experiences of multiple stakeholders are considered relevant and the insight obtained is responded to by continuously going through different iterations of what is of value by designing and re-designing it alongside the stakeholders.

Co-creative engagement entails that consumers no longer be passive in the process but rather be a part of it. Businesses should no longer simply set up processes but rather need to set-up platforms of engagement where the business process and customer process intersect so as to co-create unique experiences in all their interactions (Ramaswamy and Gouillart, 2010). The process of co-creating value is a constant and ongoing process. As interactions between actors continue, businesses can identify elements of the product or service offering that customers respond more favorably to while seeing which aspects are neglected or rejected by them thereby making long-term improvements as well (Lambert and Enz, 2012).

Co-creation is a distinct concept but its most distinguishing feature is that the focus is not just on creating, developing or improving a single product, but that the entire product consumption experience must be uniquely suited to the customer (Albinsson, Perera, Cruces and Sautter,2011; Prahalad and Ramaswamy, 2004). As it includes many similarities with related concepts such as

an element of product personalization similar to customization (Payne, Storbacka and Frow, 2008) or benefitting multiple current customers such as through open innovation (von Hippel and Katz, 2002), the comparison between co-creation and related concepts is presented on the next page in Table 3.

Table 3
Co-creation and Related Concepts

Related Concept	Initiated by	Product Personalization	Primarily for current user	Input benefits current customers	Input benefits future customers	Product /Product experience-related	Unique product experience in entirety
Customization	Business	Yes	Yes	No	No	Directed to single product	No
Open Innovation	Business	Not necessarily	No	Yes	Possibly	Directed to single product	No
User/Lead user innovation	User	Not necessarily	Yes	Yes	Yes	Directed to single product	No
Co-creation	Business or User- in either case, business provides tools	Usually	Yes	Yes	Yes	Includes entire product experience	Yes; N=1, R=g.

The building blocks of co-creation proposed and described by Prahalad and Ramaswamy (2004) are dialogue, access, risk-benefits/ risk assessment and transparency (DART).

Dialogue: It is an important building block to establish interactive relationships between firms and customers. It can be understood as implying the ability to interact, being deeply engaged and being willing and able to act on the part of both customers and businesses. It helps maintain the loyalty of community members and implies more than just listening to customers

but rather entails a relationship of shared learning and communication enabled by open communication (Prahalad and Ramaswamy, 2004).

Access: The emphasis under "access" is how customers get empowered through the business-provided access to different things needed to facilitate co-creation such as access to knowledge, tools, information or experience. Allowing access to any tools needed for the process is a basic step that enables co-creation. Making available the different things needed for co-creating value and allowing access to customers, is very different from the traditional approach of considering customers as being outside of the firm and keeping them disconnected (Firat, Dholakia and Venkatesh, 1995; Kotler, 2002).

Risk assessment: Risk assessment emphasizes how customers, who become part of the co-creation of value process, would increasingly seek out more information about the product, and would understand and analyze the risks involved (Prahalad and Ramaswamy, 2004). This knowledge of risks and benefits would enable them to not only understand the same but also accept the responsibility for dealing with the risks having been made aware of it. It thus basically relates to customers being aware of any risks involved in the co-creation activities or the product experience and for the benefits to outweigh any potential risks (Pluijm, 2010).

Transparency: Transparency refers to maintaining the symmetry and ease in the availability of information during the interactions between the firm and the customers – this engenders trust between the parties and enables the increase of utilizable information to further enhance the co-creation of value. It is a further step in the evolution of customers from their roles

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as "passive audiences" to active players (Prahalad and Ramaswamy, 2000). Reduction in information asymmetry and being less opaque about processes is part of the transparency aspect of co-creation (Prahalad and Ramaswamy, 2004).

The three main sources of co-creation opportunities according to Payne and colleagues (2008) are opportunities provided by technological breakthroughs, those provided by changes in industry logics and finally opportunities provided by changes in customer preferences and lifestyles. Cybermediaries have the potential to touch on all three of these and would thus be a valuable context in which to examine co-creation. Technological breakthroughs as part of Web 2.0, the availability of new and advanced mobile phones and tablets coupled with affordable access, make cybermediary websites available through mobile devices wherein users can communicate and interact with each other through multiple means. Additionally, they can pioneer change in industry logics by putting cooperation and community before competition and virtual entrepreneurial firms operating via such a cybermediary platform are front and center in being a part of these evolving logics. Finally, customers are increasingly choosing to shop online and are actively seeking unique product and service experiences. Thus, the opportunities for co-creation between customers, potential customers, users, and virtual entrepreneurial firms using cybermediaries, arise from multiple changes.

Cybermediary users on Web 2.0 platforms have the ability to interact with each other in multiple ways- in addition to direct messages there are other ways for users, potential customers and customers to interact with sellers; for instance treasury lists, admirer counts, following stores, forums etc. Prahalad and Krishnan (2008) make the case that firms that are able to engage in co-

creation by treating every customer as truly unique, with products attuned to them and utilize the vast array of global resources now accessible more easily, would outperform other firms. Even though only a unique product experience is sufficient to capture the notion of co-creation of value, the fine-grained customizability offered by virtual enterprises, would add to that as it is the product too that would potentially have a unique component. Given the ease of interaction and the customizability of products as well as the experience in its entirety, shop owners receptive and interested, can co-create value with their customers and drive up firm performance. Co-creation of value enhances the service and product experience for consumers enhancing the businesses reputation, the trust customers place in it and its performance (Lim and Palvia, 2001; Yeung, Lo, Yeung and Cheng, 2008). This emphasis on co-creation using cybermediaries would be different than what can be seen in a traditional economic model and could explain why certain firms are more successful than others. The co-creation model puts the focus on the customers' needs and wants, the interactions between the customers and the firm, and the reciprocal relationship that exists between the firm and the customers (Prahalad and Ramaswamy, 2004).

This leads to the following set of hypotheses

H4a: Virtual enterprises that engage in dialogue exhibit higher firm performance.

H4b: Virtual enterprises that engage in access exhibit higher firm performance.

H4c: Virtual enterprises that engage in risk assessment behaviors exhibit higher firm performance.

H4d: Virtual enterprises that engage in transparency exhibit higher firm performance.

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H4e: Virtual enterprises that engage in all four behaviors (dialogue, access, risk assessment and transparency) will exhibit higher firm performance as compared to those that do not.

Figure 8
Research Model: Co-creation and Performance
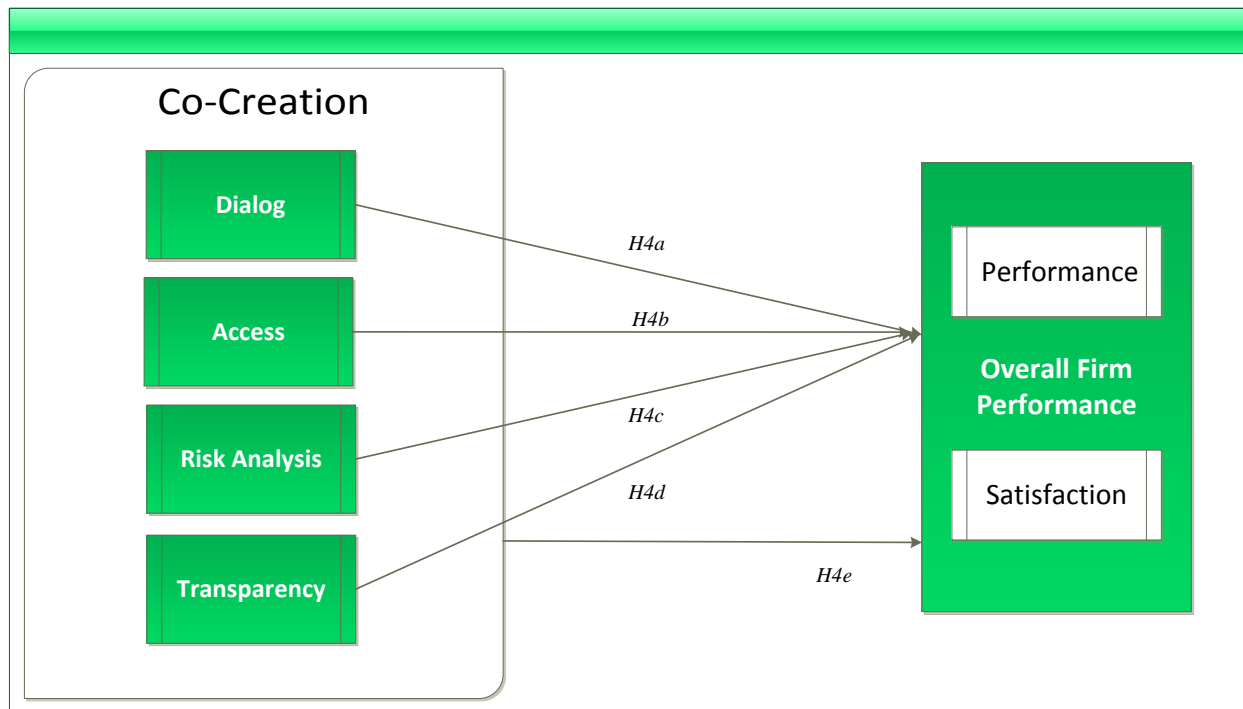
Summary

This chapter laid the theoretical foundation for virtual entrepreneurship context. A discussion on the different ideal-types of interinstitutional logics and the blending together of three ideal-types to form the Virtual Entrepreneurial Logic was provided. Next, the three antecedents to performance that arose from the multiple logics were presented. Three separate research models and testable hypotheses were developed representing each of the antecedents.

CHAPTER 3

METHODS

Overview

To understand how three different antecedents of firm performance operate in the virtual context for entrepreneurial firms on Web 2.0 cybermediary platforms, three research questions were posed, followed by hypotheses development in the preceding chapter.

In this section, the methodology employed is elaborated upon in more detail by discussing measures used, the collection of data and the analysis performed. Thus, this chapter is structured as follows: after this short overview, the sample and the database development that took place is described. Following that, the various constructs are operationalized i.e. the dependent variable for all models (firm performance), and the various independent variables for each model are sequentially discussed. A discussion of the scales used for each variable follows the variable description. This is followed by information regarding three pilot studies conducted as part of the preliminary research. Information about the main study and the method of analysis employed, conclude this chapter.

Research Design

A survey methodology is a "research strategy in which quantitative information is systematically collected from a relatively large sample taken from a population" (De Leeuw, Hox and Dillman, 2008 Pg. 2.) The use of surveys was appropriate for data collection for this study as the aim was to gather quantitative information from predominantly virtual entrepreneurial firms to allow the

testing of hypotheses for the three research models. Surveys are appropriate when the data being gathered relates to self-reported beliefs or behaviors and provides the opportunity to measure multiple variables, gather descriptive data and test multiple hypotheses, in a single study (Neuman, 2009; Sakr, Liu, Batista, and Alomari, 2011). Furthermore, past studies have found that self-reported measures offer reliable and valid data (Dess and Robinson, 1984). By using explanatory surveys i.e. where data relates to multiple variables and explains relationships between them (Singleton and Straits, 2010), valuable information about each antecedent could be gathered while also understanding the profile of these businesses.

Of the different modes of delivering surveys, web-based surveys tend to have quicker response times as well higher response rates (Cobanoglu, Warde and Moreo, 2001; Trochim, Donnelly and Arora, 2015; Sheehan, 2001; Klassen and Jacobs, 2001). In addition to being able to quickly reach out to respondents who may be spread geographically, online surveys are particularly useful when attempting to reach out to unique populations that exist only in cyberspace (Wright, 2005; Wyatt, 2000). Thus, online surveys were optimal for reaching out to virtual entrepreneurs that predominantly conduct their business online

Sample

To arrive at a sample of virtual firms on Web 2.0 cybermediary platforms, the well-known and largest cybermediaries were considered such as Amazon.com, E-bay.com, DaWanda.com, Etsy.com and StoreEnvy.com. E-bay and Amazon use mostly Web 1.5 tools and technologies i.e. they have a very limited social component and it is not a central feature or highlight. Additionally, many well-established businesses such as Hot Topic or Aeropostale, use Amazon or Ebay not just virtual entrepreneurs. DaWanda and StoreEnvy use Web 2.0 tools and are

mainly used by virtual entrepreneurs but DaWanda is restricted to Europe predominantly. StoreEnvy being relatively new does not rank highly in terms of website traffic as its global rank[2] is 5797 as compared to Etsy's 140th most accessed website[3]. Etsy has more than 30 million users worldwide. Their annual sales over the last few years have been steadily growing with more than $300 million of sales in 2010, close to $900 just two years later in 2012 and over $1.8 billion in 2014. Additional factors such as costs associated with cybermediary use, trust issues, and website features were considered as well. Due to its global nature, well-developed online presence and recognition as one of the most popular websites in the world, Etsy.com was selected as the appropriate Web 2.0 cybermediary for this study, and is described below.

According to Etsy's estimates[4] they are over 1 million active sellers using "shops" to sell their goods. A user can create a free online profile on Etsy. This allows them to make purchases, review products they have shopped, like and admire shops, make lists of their favorite products (purchased or otherwise) called "treasuries", view and comment on other treasuries. It also allows users to become sellers by quickly setting up a "shop" in 5 steps with the simple caveat that products are not mass produced items (unless they sell supplies for other stores). They may also join "teams" of other sellers who discuss business tactics of different types or just offer support to each other. Throughout the duration of their business, sellers also have access to tailor-made "apps" from Etsy as well as third party apps which make their Etsy "shop" running extremely smooth. In many ways, Etsy, as a cybermediary serves to blur the line between potential customers, actual customers, sellers and suppliers by allowing individuals to make the

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[2] Alexa.com ranking (November, 2015)- estimated worldwide websites 968,882,453(June 2014 estimate)
[3] Alexa.com ranking (November, 2015) - estimated worldwide websites 968,882,453(June 2014 estimate)
[4] Stated on their website and reiterated in personal correspondence from Etsy.

transition from would-be entrepreneurs or users/customers/suppliers to virtual entrepreneurs owning and operating their own firms with relative ease.

Another interesting feature of Web 2.0 cybermediaries is the accessibility of information about their own firms as well as other virtual firms of a non-financial nature. For instance, the review feature allows buyers to score the "shop" out of 5 stars and write a review of the product purchased which allows other potential buyers to peruse these reviews before making purchases, and is a feature seen in other offline and online businesses. However, the "admire" feature is unique to this cybermediary wherein users may validate the store as one that they admire by simple actions (i.e. clicking on a heart-shaped icon). The admirer count is visible to other users, potential customers as well as other online businesses, providing a quick measure of store reputation, which can impact buyer decisions. Such ratings are affected by multiple factors including the quality of the product, the shipping process and time, the shipping conditions, and the pre and post transaction correspondence with the customers.

Constructs and Measures

Primary and Secondary Data

The study mainly used primary data for testing the hypotheses but secondary data was used so as to validate some of the primary data collected via surveys. The secondary data, as well as lists of virtual firms and virtual teams on the web 2.0 cybermediary were gathered using a custom built software. Very few websites actually provide outside users access to their database and Etsy is no exception. Limited access was sought and obtained through their application programming interface (API). A customized software program was developed to retrieve the data in

conjunction with Etsy's API. As a result some archival data was retrieved which enabled the collation of primary survey data with the secondary data using unique identifiers in the software and shop names. As a result, it was possible to obtain firm level data that was independent of the online surveys. Mono-method bias can occur when only one measure of a construct is used but the use of some additional measures or the use of a pilot or side-study can help alleviate the problem. Thus, by using firm level data through the software in addition to firm data from surveys, the impact of mono-method bias was reduced (Trochim, 2003). Another recommended method is to use a pilot study to demonstrate that the measures behaved as theoretically expected (Trochim et. al, 2015).

Dependent Variable

Firm Performance: Firm Performance was operationalized as the relative rating of performance as compared to other similar businesses and the relative satisfaction with the businesses as compared to similar businesses.

In the case of new ventures, whether these are small and medium enterprises (SMEs) or microenterprises, the traditional objective financial measures such as share prices or market share, do not always apply. When some objective information is available, it may be harder to interpret as the accounting practices or methods to calculate the financial information may not be uniform across different firms (Chandler and Hanks, 1993). Additionally, many entrepreneurs often seek more than financial outcomes from their enterprises as well (Reijonen and Komppula, 2007; Gorgievski, Ascalon and Stephan, 2011). Gartner (1985) discusses that entrepreneurial ventures are multidimensional and that there is a great deal of diversity among entrepreneurs,

their firms, the firm environment and in the phenomenon itself. To consider a single aspect of performance as being relevant may be misleading as performance, particularly for entrepreneurial firms, has been emphasized as being multidimensional (Lumpkin and Dess, 1996). Following prior research (Wiklund and Shepherd, 2005; Stam and Elfring, 2008), multiple measures of firm performance were used consisting of both subjective and objective measures.

It has been suggested that subjective measures may be more useful in capturing the multi-dimensional nature of firm performance (Dess and Robinson, 1984). Subjective measures have been shown to have considerable reliability and be anchored to objective criteria (Chandler and Hanks, 1993/1994). Subjective measures of performance also have another additional advantage in terms of response rate. More entrepreneurs respond to subjective or qualitative questions whereas they may not do so on questions that ask for financial measures because small or new businesses are reluctant to share financial information and will often choose not to respond to the entire questionnaire when forced to answer such questions (Runyan, Droge, and Swinney, 2008). Measures incorporating the multidimensional nature of performance i.e. those looking at accounting measures such as sales growth, measures that are contextually relevant such as those that relate to a specific ownership type, overall performance measures and also elements related to broader stakeholder groups, should be included where possible (Lumpkin and Dess, 1996).

To incorporate these multiple facets of performance three measures were used to gather firm performance data- two of these were subjective (relative performance and satisfaction) and one objective (average sales per quarter). With reference to the first of these types of measures

i.e. self-reported subjective measures, this approach is quite common for entrepreneurship research as it is able to overcome some of the inherent problems such as determining what exactly is successful performance for entrepreneurial ventures, the inability to obtain conventional financial metrics of performance and the objectives that entrepreneurial ventures set for themselves being varied (Gruber, 2007; Pavia, 1990).

In their study on entrepreneurial orientation, Stam and Elfring used (2008) self-reported measures of ten dimensions as they relate to performance of the respondent firm relative to competitors. These ten dimensions were sales growth, employment growth, market share, gross profits, net profit margin, innovation in products and services, speed in developing new products and services, cost control, and customer satisfaction. They correlated this scale to the objective performance measure they had obtained to test its validity which was r=.32, p<.01 and considered satisfactory. The reliability of the scale items was alpha=.80. The use of this measure for the current study seemed appropriate as the phenomenon under investigation were new entrepreneurial ventures where all financial, objective indicators were not easy to obtain. Of the ten self-reported dimensions used by Stam and Elfring (208) in their study, five were suitable given the online cybermediary context. Context-specificity is important in scales as such scales exhibit higher validity (Bing, 1999). The five dimensions were sales growth, net profit margin, speed in developing new products and services, quality of products and services and customer satisfaction. A sample question for this sub-scale is *"How do you rate your business as compared to other similar Etsy businesses on the following performance measures: customer satisfaction."* Respondents indicated their answers on a seven-point Likert Scale which ranged from "*much worse*" to "*much better*".

In addition to rating the business on performance measures, respondents were asked about their satisfaction as compared to other similar businesses using questions from a scale previously used by Cooper and Artz (1995). Entrepreneurs do not necessarily equate the success of their venture in terms of monetary gains alone (Sarasvathy et al., 2013; Green et al, 2003). Hence, apart from queries about financial metrics, it is recommended that additional indicators be used to capture other relevant performance aspects such as whether their achievements were personally important to them (Reijonen and Komppula, 2007). Given the heterogeneity of motivations and variability in what is personally important to an entrepreneur, by asking respondents about their satisfaction levels, an attempt was made to include more than financial rewards (Wach, Stephan and Gorgievski, 2015). Questions included satisfaction with current business sales, current business profits and overall satisfaction with business. Cooper and Artz (1995) reported reliability as alpha=.78. For these items, respondents were asked questions such as: *As compared to other similar Etsy businesses, how satisfied are you: With your current business sales.* A 7 point Likert scale from "*very dissatisfied*" to "*very satisfied*" was used.

Questions for both these subjective measures were framed as comparisons to similar firms. This was done for a multitude of reasons- firstly this is in line with the adapted scales used in this study (Stam and Elfring, 2008; Cooper and Artz, 1995). Secondly, prior literature indicates that relative comparisons are feasible when there are differences among the firms in terms of industry, size of firm or locations (Dess and Robinson, 1984). While the industry differences are not applicable as all firms are in the handmade industry, the firms may differ in country location (US or outside the US) as well as in terms of their sales volumes. Thus by using the relative measure, the respondents can use the referent group they deem most relevant.

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Thirdly, the novice nature of the entrepreneurs could limit their knowledge of what absolute performance values are ideal but relative performance is easier to determine as Web 2.0 cybermediaries have a lot of information publicly available. Novice entrepreneurs are those founders that have no prior business ownership experience (Westhead, Ucbasaran, Wright and Binks, 2005). A large percentage of entrepreneurs, as shown in the demographic data in Table 14, have no prior entrepreneurial experience at all.

The last measure of performance was obtained from objective secondary data. All Etsy businesses have an absolute sales count in terms of volume listed on their shop-front as well as the precise date of start of their business. This data was used to examine the relationship between the subjective measures and an objective financial measure of performance so as to validate the use of the subjective measures. This approach has been used previously in the extant literature (Stam and Elfring, 2008). Using the aforementioned date and sales volume information, data for average sales per quarter was obtained for the Etsy businesses. The objective measure of performance alleviates the issue of common method bias (Stam and Elfring, 2008). Identifying information for approximately 80% of the firms was obtained using the custom software and the correlations between the objective and subjective measures were tested using SPSS 23. A satisfactory value of r=.37 p<.01 was seen which is significant thereby supporting the use of the subjective measures (Stam and Elring, 2008; Wiklund and Shepherd, 2005). By checking the correlation of actual sales with the subjective measures, it can be seen that the subjective performance measures are in fact valid.

Independent variables for the business model antecedent

    Information processing capability: Information processing was operationalized as the use of information processing tools for business activities. Operationalizations of information processing capability tend to be context specific as information processing tools and mechanisms vary with organizational and social contexts (Norton, 2004; Li, Yao and Chia, 2011). In this study, the Web 2.0 cybermediary allows virtual entrepreneurial firms, access to a vast variety of apps and widgets uniquely suited for use on the cybermediary's website. Etsy businesses can choose to use these tools such as inventory management, integration with Facebook, Twitter, or Google analytics, Pinterest or Instagram promotion tools, mapping tools for sales, listings and inventory supplies, product shipment management apps among others. The operationalization of this construct was thus context specific. It has been shown that when items are context-specific, their validity is greater (Schmit, Ryan, Stierwalt and Powell, 1995; Bing, 1999).

Items were measured on a 7-point Likert scale measuring usage of available apps, widgets and tools ranging from "*never*" to "*always*". In addition to specific questions about Etsy-provided tools and apps Gruber's (2007) measures relating to primary and secondary sources of information are used after adaptations for the specific context to determine if any additional information processing tools, beyond those provided by Etsy, were being used by the firms. The scale items query respondents about their usage of field research, external market studies and scientific journals as tools to make decisions about day to day operations. Sample questions are: "*Which of the following do you do so as to positively influence your business' day to day activities: Use information about admirers of your business or other Etsy businesses*" and "*How*

often do you use the following software tools/apps: Etsy offered apps for finance, product management, inventory management, customer service, wishlist, smartphone widgets etc."

Innovative Practices: Innovative practices has been operationalized as making improvements and adding elements to business aspects. A previously validated scale examining different targets of innovation possible for a business is used (Blumentritt and Danis, 2006) with a few adaptations for context-fit purposes as scale items specific to the context, have better validity than more general scales (Schmit et al., 1995; Pace and Brannick, 2010). The reliability of this scale was .90. Respondents were asked on a 7 point Likert scale from "*never*" to "*always*" to identify how often their business made improvements or additions to certain aspects of their business. A sample item is: *"Does your business make improvements or add new elements to the following: products you sell on Etsy."*

Network membership: Network membership is operationalized as using Etsy teams or other professional networking groups. Virtual entrepreneurial firms on Etsy can avail of the "Team" feature in which businesses can join different teams though many teams place restrictions on who can join the teams based on type of business, geographical location, raw materials used, or other interests. As the "Team" context is relatively specific to the online cybermediary, the scale items were developed to fit the context based on the work of Honig and Karlsson (2004) and measured using a 7 point Likert scale ranging from "*strongly disagree*" to "*strongly agree*". A sample item is: *"This question concerns Etsy teams. Please think of the Etsy team you are primarily involved with and indicate your level of agreement with the following statement/s: being the member or creator of an Etsy Team is important for our business."*

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Thus, the first set of items specifically used the Etsy teams as a frame of reference. Specifying in frames of reference for respondents is useful to increase the validity of scales measuring constructs related to particular settings (Hunthausen, Truxillo, Bauer, and Hammer, 2003; Lievens, De Corte, and Schollaert, 2008). A second set of the same questions were asked with a different frame of reference- other non-Etsy professional or networking groups in the event these were used by the virtual businesses.

Product portfolio complexity: This was operationalized as offering a wide variety of products as part of the product portfolio of the business. On these Web 2.0 cybermediary-offered platforms, every product offered for sale by the business has its own "listing". While one possibility to obtain a measure of product portfolio complexity was to look at their total listings, which is a continuous numeric variable, this can be misleading as businesses can categorize and sub-categorize products according to their own preferences and convenience rather than follow a standardized technique of categorization. Thus, while standardization makes it easier to determine the product portfolio complexity for larger, public companies, for the online entrepreneurial ventures, it is not as easy to do so. Thus, the survey questions asked respondents about the significance of product portfolio complexity. The items were developed based on the work of Cooper, Edgett and Kleinschmidt (1999) for this specific context of virtual businesses on the Etsy Web 2.0 cybermediary (Schmit et al., 1995; Pace and Brannick, 2010) and measured using a 7 point Likert scale from "*strongly disagree*" to "*strongly agree*". A sample question for product portfolio complexity was *"This question concerns the products you have for sale. Please*

indicate your level of agreement with the following statement/s: We have a wide variety of products available."

Business model: The operationalization of a business model consisting of all four components i.e. information processing capability, innovative practices, network membership and product portfolio complexity essentially consists of virtual entrepreneurial ventures who simultaneously leverage all four value drivers as a combined business model versus those who do not. A measure of the aforementioned components was created so as to obtain a measure representing the business model variable. This was done by first determining the mean for each of the individual components of the business model and then recoding values for each as high (1) and low (0) if there were above or below the mean. The business model is thus a measure of a strong or weak business model on a scale of 4 to 0 with 4 indicating that the business scored high on all 4 components, 3 indicates a high value on three of the four components of the business model, a 2 indicates a high on two of the four components of the business model, a 1 indicates a high value on only one component or value driver of the business model and a 0 indicates none of the value drivers as being significant. Similar methods of measuring business models have been used in the extant literature such as Rasheed (2009) who used dichotomized values. Additionally, as discussed in the analysis section, group differences were examined as well for the different possible business model combinations.

Independent variables for community antecedent model

Sense of virtual community: This construct is operationalized as a sense of community experienced by virtual entrepreneurial firms with regard to the Etsy community members.

Measures for the sense of virtual community variable were taken from a previously validated scale developed by Blanchard (2007) as well as questions that relate to the original literature on sense of community from the most recently updated Sense of Community scale released by Chavis, Lee, and Acosta (2008).

The scale developed by Blanchard was rigorously developed and, has been used and validated in subsequent studies as well (Blanchard, 2008; Welbourne, Blanchard and Wadsworth, 2013; Chen and Lin, 2014). Blanchard (2007) developed the scale using items from the previous version of the aforementioned scale by Chavis et al. (2008). As a new version of this scale was now available, questions not covered by Blanchard's scale items, were introduced after context-specific adaptations (Schmit et al., 1995; Pace and Brannick, 2010). The reliability of the scale developed by Blanchard (2007) was .93 while that developed by Chavis et al., (2008) was .94. This construct is measured using a 7 point Likert scale from "*strongly disagree*" to "*strongly agree*". A sample question is: "*Please consider other Etsy shop owners/businesses and potential buyers/customers as the "community" when answering the following questions: Our business has gotten support from the Etsy community.*" The specific frame of reference was provided as the term "community" could also include the Etsy company itself but attitudes towards a company may differ widely and were not a subject of interest in this study. Providing frames of reference adds greater validity to the scale (Bing, Whanger, Davsion and VanHook, 2004; Hunthausen et al., 2003).

E-community support: This construct is operationalized as the financially supportive pro-community behaviors that firms exhibit i.e. frequently making purchases at other platform

businesses. In virtual communities, a commonly exhibited behavior is that of support. Support can manifest itself through different behaviors; while socio-emotional support is encompassed as a part of online social capital (Williams, 2006), one additional aspect not captured within that is e-community support in terms of financial reciprocity. Thus, items measuring the level of e-community support of online businesses were used based on the work of Rothaermel and Sugiyama (2001) and measured using a 7 point Likert scale from "*strongly disagree*" to "*strongly agree*". *A sample item is: We support other Etsy businesses financially by shopping at their stores.*

Virtual/e-word of mouth: For the purposes of this study, the operationalization of this construct was the promotion of other similar online businesses on the Etsy cybermediary Virtual/e-word of mouth is operationalized in context specific ways such as blog reviews, negative item reviews or positive promotions via social networking sites (Wirtz et al., 2010; Chu and Choi, 2011; King, Racherla and Bush, 2014). Firms on Etsy can promote other virtual enterprises through the treasury lists by shining the spotlight on different shops. Items were developed based on the work of Chu and Choi (2011) keeping in mind the specific context of the cybermediary. Items were measured using a 7 point Likert scale from "*strongly disagree*" to "*strongly agree*". A sample item for this set of questions is *"We 'Like' or 'Favorite' other Etsy businesses to promote them to our admirers and followers."*

Online social capital: Online social capital is operationalized as the social capital resource accumulated in terms of bridging and bonding connections of the virtual entrepreneurial firm. The measures were adapted from a previously validated scale by Williams (2006) which

looked at both dimensions of social capital i.e. bridging and bonding social capital as discussed in Chapter 2. In addition to clearly including both dimensions of online social capital, the scale has also been successfully used in subsequent studies involving online social capital (Skoric and Kwan, 2011; Zhong, 2011) and had a reliability of alpha=.89. A sample item for the online social capital construct is, *"There is at least one business on Etsy we can turn to for advice about making very important decisions about our business."* A 7 point Likert scale was used to measure the items and it ranged from "*strongly disagree*" to "*strongly agree*".

Independent variables for co-creation antecedent

All survey items related to the co-creation model were from the scale developed by Albinsson, Perera, Cruces and Sautter (2011). This is the only well-developed scale to measure the co-creation model as proposed by Prahalad and Ramaswamy (2004) and captures all four sub-dimensions of the model. Minor adaptations for context were made for all the four subscales. Context specificity in scale items is very important for validity (Schmit et al., 1995; Pace and Brannick, 2010). A 7-point Likert scale was used to measure agreement or disagreement with the items from "*strongly disagree*" to "*strongly agree*". The operationalization of each sub-dimension of the scale and the reliability of the subscales is given below.

Dialogue: Dialogue is operationalized in terms of the communication opportunity provided and ease to the customer in engaging in the same. The reliability for these items was .95. A sample question related to dialogue is *"Multiple lines of communications are used by our business to gather input and ideas from the customer."*

Access: This is the second component of co-creation and is operationalized as the availability and access provided to customers for the products and services offered. The reliability for these items was .89. A sample question measuring access is *"It is easy for the customer to receive the product offering when, where and how they want."*

Risk assessment: The risk assessment construct is operationalized as the information and feedback provided to consumers about risks and benefits associated with the product itself or the product experience. The reliability for these items was .86. A sample question for risk is *"Our business fully informs the customer about all risks stemming from product use."*

Transparency: The last component of co-creation is transparency and it is operationalized as making available information to the consumer about different ways of improving the product or associated experience. The reliability for these items was .93.

Control Variables

Studies dealing with similar samples i.e. online businesses, have typically included as control variables, age of the firm (Zott and Amit, 2007; Zott and Amit, 2008), ratio of online to total sales (Saeed, Grover and Hwang, 2005), organization size or number of employees (Witell, Kristensson, Gustafsson and Lofgren, 2011; Zott and Amit, 2007; Kraemer, Gibbs and Dedrick, 2005;Min and Wolfinbarger, 2005), industry (Witell, et al., 2011; Zott and Amit, 2008; Zhu, Kraemer and Xu, 2003), segment affiliation i.e. B2B or B2C sales (Saeed, Grover and Hwang, 2005), technology change (Cho, Ozment and Sink, 2008) and website/web design (Mauldin and Arunachalam, 2002). While the inclusion of control variables i.e. variables other than those being studied which could impact the dependent variable, is a necessity in empirical research,

these can be either statistically controlled for during data analysis or controlled for as part of the research design a priori (Kerlinger and Lee, 2000). Thus, several controls were incorporated a priori into the research design (technology, industry, size, etc.). Only one variable seemed likely to have an impact on the models i.e. age of the firm and hence this is discussed below.

The age of the firm measure is available through secondary data. Using information on the date of the online business, age was calculated based on how many quarters a firm had been in operation. This was more appropriate than years in operation as many businesses were new and some could have been in operation for less than 1 year. The correlation between age of the firm and the dependent variables was examined to determine whether it would be necessary to control. However, as there was no significant correlation between age of firm and the firm performance measures used, it was not included as a control variable.

The selection of a single Web 2.0 cybermediary which focuses on product retail ensured that firms were from the same industry and variation in host website and online storefronts was minimized. All firms were hosted on the same platform with a similar user interface (UI). Technology change is thus controlled for, as the same tools, technologies and apps are available to all users of the Web 2.0 cybermediary. Variation in organizational size is also minimized as the firms operating on Etsy were primarily owner-operated microenterprises with less than a handful of employees.

Additionally, Etsy does not distinguish between any platform users i.e. both businesses and individuals are free to purchase from other online ventures and everyone is regarded as a

customer. This eliminates the need to set any B2B or B2C segment distinction. This study looks at only predominantly virtual firms- those that have 75% or more of their total sales from the online channel. Firms that do not meet this criterion were excluded hence online sales intensity was controlled as part of the design.

Pilot Studies

There are multiple well known reasons to conduct a pilot test before conducting the full scale investigation. For instance, developing and testing the adequacy of instruments to identify flaws, identify issues with logistics and administration, examine sufficiency of time required to complete the survey, assessing potential response rates, identifying additional resources or changes for the main study as well as to examine the feasibility of conducting a full study using the proposed research design (Trochim, et al., 2015; van Teijlingen, Rennie, Hundley and Graham, 2001). In addition to the above reasons, the selected sample has not been subjected to much empirical testing, and not much is known about e-entrepreneurial ventures on Web 2.0 cybermediary platforms or the key antecedents being explored. Hence there was a need for "true" pilots in this under-researched area. The choice was made to conduct separate pilot studies for each model as they were expected to be fundamental and important to the research process and the design of the main study.

For each of the models investigated, a separate pilot study was conducted. The three pilots were conducted in 2014 and early 2015 after obtaining the appropriate IRB permissions. For the three pilots conducted, permission was sought from Etsy to contact the virtual businesses directly. By using the previously mentioned custom software, a random list of 15,000 active online

businesses on the Etsy platform was obtained. Examining this master list of businesses indicated that 60% of these e-entrepreneurial firms were from the US while 40% were non-US based.

Pilot Study 1: Business Model Antecedent

Using a stratified random sampling technique (Trochim et al., 2015), a subset of 1500 randomly selected shops was contacted in the same proportion as the composition indicated in the master list i.e. 900 US businesses (60%) and 600 businesses from the rest of the world (40%) to ensure data was representative of this composition (Trochim et al., 2015). After the initial email with the online survey link one additional reminder was sent. Respondents were also offered a chance to win an Amazon Kindle e-reader. The permissions from Etsy at this point in time allowed for an initial email with the online survey link, and one other reminder to be sent. A total of 462 respondents took the survey leading to a response rate of 30.8 %. After deleting incomplete responses, and businesses with no sales at all (as a single objective measure of performance used in this study), the criterion that each business should have at least 75% of its' sales from the online component of their business (i.e. to ensure firms were predominantly virtual), was applied. These led to 383 useable firm level responses for the business model antecedent.

The survey was very brief with preliminary questions similar to those in the final study being used but fewer in number. Additionally for the dependent variable, data were obtained via secondary sources i.e. performance was measured by average volume of sales per quarter. The hypotheses were tested using Spearman's Rho correlations in IBM SPSS 21. Results indicated that carrying out innovative practices is positively correlated to sales by the online ventures ($p <$ .01) and that there was a correlation between a business model consisting of all four independent

variables on the performance (p<.01) of the virtual enterprise. Variations of the business model consisting of two and three of the four variables were also checked but a model consisting of all four was better correlated with performance.

Several significant changes were made before conducting the next series of pilot studies based on the experience and insights from conducting this particular pilot. Firstly, performance was objectively measured by absolute sales per quarter. As extant theory (Wiklund and Shepherd, 2005; Stam and Elfring, 2008; Wach et al., 2015) supports subjective measures of performance while also allowing for a better measure than volume of sales, these were utilized in the main study. Statistically as well, a single absolute measure restricts the data analysis techniques that can be used. As basic questions were used for the independent variables, in order to get refined data, more survey items were adapted or developed for all variables and used in the main study. A decision was made to gather additional descriptive data in the main study for sample characteristics. This was beyond that which was available through the custom software and these questions were made optional in the main study.

Pilot Study 2: Community Antecedent

A new subset of 1500 randomly selected shops was contacted so as to avoid using the same data to test a different model. Data slicing and dicing concerns have prompted the need to ensure that the subsequent use of data is different from the initial use (Kirkman and Chen, 2011). By using a new set of firms, any potential issues with repeated dataset usage were avoided. Additionally, if all three models were to be tested simultaneously, respondent fatigue could have become a significant issue (Lavrakas, 2008). The enormous length of time to complete all three surveys

would be close to an hour whereas 10-15 minutes is considered long for web-surveys (Czaja and Blair, 2005).

The businesses were contacted in the same proportion as before using stratified random samples (Trochim et al. 2015) Permissions from the cybermediary changed midway however. Thus, after the initial message with the online survey link was sent, no further reminders were allowed as the Web 2.0 cybermediary used i.e. Etsy.com had modified its policies.

For this survey as well, respondents were offered a chance to win an Amazon Kindle e-reader. A total of 277 respondents took the survey leading to a response rate of 18.5 %. After deleting incomplete responses, and applying the criteria as before, 170 virtual firms remained. The survey was only moderately long as some variables had objective measures i.e. for e-word of mouth and e-community support secondary measures were used. The e-word of mouth was measured as an average of how many "Treasury Lists" were created per quarter to promote other businesses on the same platform. E-community support was measured by using the average number of purchases made per quarter at other shop fronts. For the dependent variable, the subjective items relating to satisfaction outlined at the start of this chapter were used.

The hypotheses were tested by examining Spearman's Rho correlations with the help of IBM SPSS 22. Results indicated support for the first hypothesis i.e. higher sense of virtual community is positively correlated to e-word of mouth by the online ventures (p< .01). The second hypothesis, that virtual enterprises that have a higher sense of virtual community will also exhibit higher e-community support of a financial nature, was unsupported. The third hypothesis was supported as businesses engaging in greater e-word of mouth also had higher social capital (p<

.01). The fourth hypothesis that virtual enterprises that exhibit higher e-community support will also have higher online social capital was unsupported. The hypothesis that greater online social capital was correlated to the outcome variable of performance was supported ($p < .05$) as was the hypothesis that a higher sense of virtual community was correlated to greater online social capital ($p < .01$).

After this pilot study, it was determined that the secondary measures for e-word of mouth and e-community support would be substituted for scale items adapted or developed from the extant research as the current measures were merely proxies and not capturing the richness of these constructs. These scale items previously discussed at the start of this chapter were used for the main study. Also only performance measures of satisfaction were used at this time, but in the subsequent pilot all performance measures discussed at the start of this chapter were used so as to capture the multidimensional nature of performance.

Pilot Study 3: Co-creation Antecedent

Yet another subset of 1500 randomly selected shops was contacted using the stratified random sampling approach (Trochim et al., 2015) in the same proportion as before so as to avoid issues with over-use of dataset and respondent fatigue as mentioned above (Czaja and Blair, 2005; Kirkman and Chen, 2011) Due to the change in permissions from the cybermediary, after the initial message with the online survey link was sent no additional reminders could be sent. For this survey as well, respondents were offered a chance to win an e-book reader. A total of 308 respondents took the survey leading to a response rate of 20.5 %. After deleting incomplete responses, and applying the criteria as before, 170 virtual firms remained.

Only survey items were used for all measures i.e. for both independent and dependent variables. Results indicated support for the first relationship i.e. the dialogue aspect of the co-creation model is positively correlated to performance of the online ventures (p< .01). The second hypothesis examined was, that access was related to performance, which was supported as well (p< .01). The third hypothesis with regard to the relationship between risk analysis and performance was unsupported however. The fourth hypothesis tested was that transparency would be positively correlated with virtual enterprises and this was supported (p< .05). The last relationship examined was between the all aspects of DART i.e. dialogue, access, risk analysis and transparency in its entirety with firm performance, and this was supported (p< .01).

After this pilot study, some scale items were removed as they did not seem suitable for the context nor did the items perform well during the exploratory factor analysis i.e. their factor loadings were below the recommended threshold of .5 (Hair, Tatham, Anderson, & Black, 2006). Items removed were-"Our business makes it easy for the customer to communicate his/her ideas about the design and delivery of the product experience" and "Our business is interested in communicating with the customer about the best ways to design and deliver a quality product experience". As the main study survey contained more than 50 items, care was taken to avoid possible respondent fatigue by keeping the instrument length at an acceptable level (Czaja and Blair, 2005; Lavrakas, 2008)

Thus, each of the pilot studies for the three models had satisfactory results and provided support for continuing with the main study. Fortunately no major glitches were experienced in the

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administration of the pilot surveys. The response rate seemed fairly good and the sample criteria i.e. that the e-entrepreneurial venture must have 75% or more of its sales come from online means, was found to work well. This was particularly significant as similar studies in the past used lesser thresholds such as 10% by Amit and Zott (2001). More importantly, all three of the models' hypothesized relationships worked in the expected directions even when relationships were statistically insignificant.

However, in addition to the particular changes mentioned in relation to each pilot, the change in restrictions and permission levels for contacting businesses on the Web 2.0 cybermediary, needed to be factored into the main study. As "spam reports" had been generated after sending out so many surveys, individual contact was no longer allowed. This issue was satisfactorily resolved (details are outlined in the section dealing with the main study). Thus, the preliminary examinations served as "true" pilots, providing direction and insights on both the mechanics of data collection and the items to be used to accurately represent the key antecedents to explicate performance in the three models. Implementing the prescriptions gained from the deployment of the pilots, the final study incorporating three surveys (with appropriate items and methodology) for the three models was prepared.

Main Study

Survey Administration

Due to changes in Etsy policy as stated earlier, directly contacting the firms via their in-system email was no longer an option. After discussions with representatives of Etsy, fortunately, permission for an alternate method of conducting the main study was made available. The new

approach entailed contacting leaders of online teams (called "Team Captains" on Etsy) and seeking permission from these leaders to make a "post" on the online discussion board for members to access. Using the custom-built software, a list of all the teams on the cybermediary website was developed. This complete list contained 11,805 teams. However, not all teams were active i.e. there were no recent posts made or discussions threads created on the team boards. This reduced the likelihood of the survey being noticed on the team discussion board if activity levels were low. Thus, to narrow the sample to the active, teams with recent activity were shortlisted by determining that a recent update to the team had been made since January 1, 2015. Thus, a list of 1821 teams was obtained based on activity levels. For further refinement of the teams, team size was looked at as this was a source of great variation. The variety of teams was great with product-specific teams, knowledge-sharing teams, location specific teams etc. with no particular kind being especially salient. Therefore, based only on team sizes, four subcategories were developed of teams with (1) more than 5000 members, (2) teams with 3000-5000 members, (3) teams with 1000 to 3000 members and (4) teams with less than 1000 members. From these 300 teams were randomly contacted (100 for each of our models) and approval was received from a total of 83 teams to post the survey information on the Team discussion board. Thus four strata were created and random number generators were used to contact teams. This stratified random sampling allowed for representation of all team sizes (Trochim et al., 2015).

In summary, 28 teams received the Business Model survey with potential visibility to 43810 members; 27 teams received the Sense of Virtual Community survey with the possibility of 54680 members coming across the post; and 31 teams received the Co-creation survey which had the potential of being viewed by 41600 members. This process is illustrated in the figure below:

Figure 9
Team Contact Process
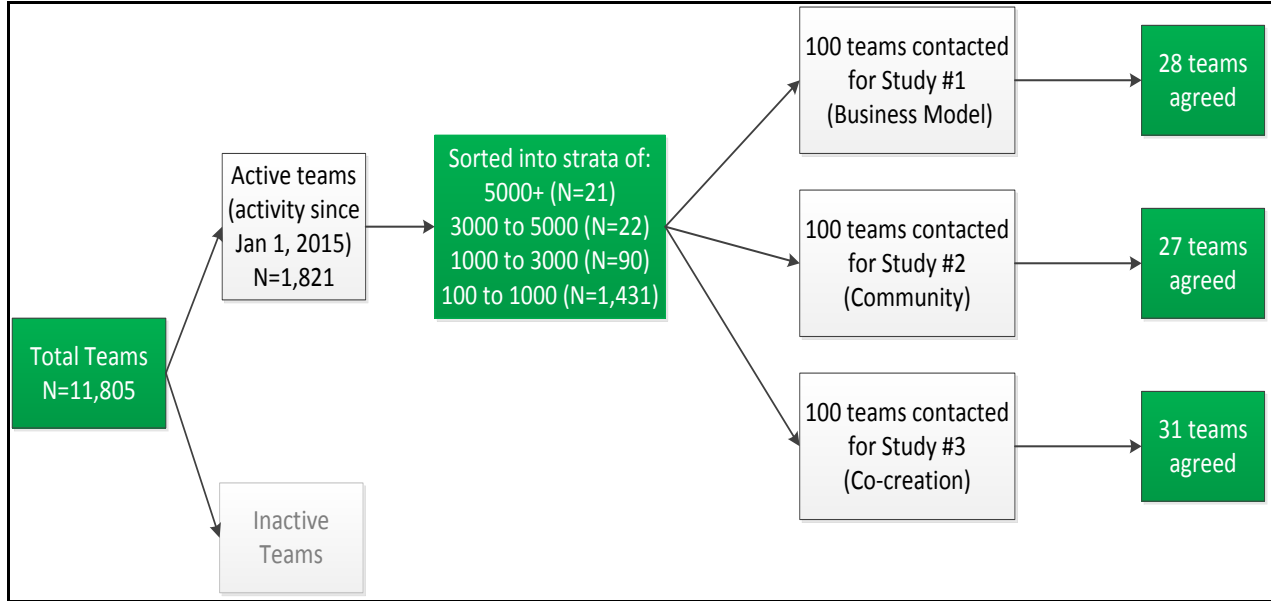
These teams had a total number of 140,090 members who may "potentially" see the post; however this is no guarantee of "actual" number of members as it is analogous to posting a flyer on a wall. Additionally, some members may not be businesses even though these team forums were predominantly used by businesses. An additional favorable development was in the features of the cybermediary website that now allowed team captains/ leaders to mass email and thereby contact team members directly. This feature previously did not exist. All captains were requested to use this feature to direct their members to their post, however, as expected, not all agreed to comply with the request.

For the business model antecedent survey of the 28 teams being surveyed, 6 captains agreed; for the community antecedent of the 27 teams being surveyed, 6 captains agreed to send out a mass

email; whereas for the co-creation antecedent of the 31 teams being surveyed, only 4 captains agreed to do so. This added communication from team captains did positively influence the response rates.

Survey response rates are enhanced by repeated reminders (Dillman, 2007), and this was seen when team captains sent out mass emails reminding the respondents about the survey. Manfreda and Vehovar (2008) described the use of pre-notifications, main survey invitations and reminders and their utility in the online setting. For this specific context, the process followed was to first contact the Team Captains and request that they permit the posting of the surveys on their Team discussion board. After getting their approval an initial post was made about the survey detailing information about the study. Reminders were made every 2-3 days initially as this would keep the post visible. After the initial 15 days, reminders were made once a week approximately for 2 months as it is slow process owing to the fact that team member visits to the board are unpredictable.

Additionally, constant communication was required with Team Captains, with potential and actual respondents who posted queries on the discussion board as well as those who sent emails or used the Etsy message board with questions or comments. Though time consuming, this was the only method to contact the virtual entrepreneurial businesses and this "other researcher-respondent interaction" is recommended for online surveys so as to influence response rates (Manfreda and Vehovar, 2008). The posts were available for a period of 2 months as posting the survey link on the team discussion board did not guarantee that members would necessarily see it. To ensure maximum possible exposure, therefore, the post was kept active through reminders

and other communication. Respondents were also offered a chance to win $200 gift cards – 2 for each survey. All of the surveys were hosted on Qualtrics.com using provided survey tools.

Thus, the respondents who clicked on the survey link were considered as having been "sent" the survey initially. For the Business Model survey, this was a total of 543 people of which 423 began the survey making the response rate 77.9%. From these only businesses that were predominantly virtual i.e. at least 75% or more of their sales come from their online business were examined. After removing incomplete surveys and applying this criterion a sample of 379 virtual entrepreneurial firms remained. For the Sense of Virtual Community Model, a total of 1376 respondents clicked the survey link of which 987 began the survey leading to a response rate of 71.72%. After removing incomplete surveys and applying the previously mentioned, criterion a sample of 870 virtual entrepreneurial firms remained. For the Co-creation Model survey a total of 547 people clicked the survey link of which 329 began the survey making the response rate 60.14%. From this after removing those that did not meet the criteria of being predominantly virtual i.e. at least 75% or more of their sales come from their online business and after removing incomplete surveys, a useable sample of 293 virtual entrepreneurial firms remained. As these are owner-operated businesses, the sample is comprised of founders or co-founders.

The data screening and variable screening carried out are discussed below. These included steps to remove responses that suffered from technical glitches, blanks, and unengaged responses. Additionally steps were taken to detect skewness and kurtosis. The exploratory factor analysis,

results thereof, and examination for adequacy are then described. Following that validity and reliability is discussed.

Data Evaluation

Data Screening: After the data was gathered, it was first examined to eliminate the various test runs that were created periodically to test the survey access and verify deployment and smooth functioning. At some times test runs were done when technical glitches were mentioned by respondents and needed to be rectified. Next the criterion that more than 75% of the total sales must be online, was then applied. The data were examined for blanks and incompletes- from the Business Model survey, there were 12 removals for technical glitches and 15 incompletes, in the Sense of Virtual Community Model dataset, there were 11 removals for incompletes and 6 removals from the Co-creation model. Thereafter, the data was checked for unengaged responses and only 1 was found in total (in the Sense of Virtual Community model) where the respondent seemed to have checked the same response throughout. The data were examined for outliers but no issues were detected (Hair et al., 2006)

Skewness and Kurtosis are two typically used variable screening steps to check for normality of data. Skewness is considered much less meaningful on short-interval ordinal measures and any severity in skewness is better captured through Kurtosis. While ideally values for Kurtosis should be within ±2.58 for p = .01 (Hair, Black, Babin, Anderson, & Tatham, 2006), values close to absolute three are considered acceptable as well with values above 10 being considered as extreme (Kline, 2005). There was some indication that there may be issues with kurtosis on one item in the Sense of Virtual Community Scale (value close to absolute 4). As recommended, the item was more closely monitored when communalities, and factor analysis was performed, but

did not cause any concerns. The data were examined for multicollinearity and no issues were found as all VIFs were satisfactory (O'Brien, 2007). Homoscedasticity tests were also conducted. Where group comparisons were involved, Levene's test was used and for the other instances, box plots were generated. Additionally, the data were examined for linearity by conducting curve estimations in SPSS 23. SEM is only useful when the data is linear and all three datasets were found to be sufficiently linear allowing the analysis steps to proceed.

It is also important to examine the data for Common Method Variance, a systematic error variance that has a tendency to cause observed correlations among the measure variables to differ from the population values (Doty & Glick, 1998). Though some measures that can reduce this such as ensuring respondents of anonymity and diligently improving scale items by adapting for context and pilot testing was done at the procedural level, at the statistical level, all three datasets were examined for common method bias as well (Podsakoff, MacKenzie, Lee and Podsakoff, 2003). This was done using the Harman's single- factor test (Harman, 1967) using SPSS 23. This test is performed on the construct data to determine whether a single factor accounts for the majority of the variance explained. No significant bias was found due to the use of the survey methodology in any of the datasets.

Exploratory Factor Analysis: An Exploratory Factor Analysis (EFA) was conducted for each of the three datasets using SPSS 23. The Maximum Likelihood extraction method was used with Promax rotation. Items that cross-loaded or loaded poorly (less than .6 for the sense of virtual community factor and less than .4 for all other factors) were dropped. EFA tables for each of the studies are presented as Tables 4, 7, and 10.

The data adequacy was then examined (Fabrigar, Wegener, MacCallum, and Strahan (1999). These measures such as communalities and KMO Measure of sampling adequacy essentially show that results support use of factor analysis for this data (Munro, 2005) The communalities table was examined to detect any issues i.e. values less than .3 but none were found. The total variance explained column was examined to ensure that more than 60% of the variance was in fact explained and this was true for all three datasets. Goodness of fit tests information and non-redundant residuals were examined as well and were satisfactory. Finally as part of the adequacy check, the KMO values (i.e. Kaiser-Meyer-Olkin Measure of Sampling Adequacy) were examined. A value greater than .80 is considered good while one over .90 is considered excellent (Kaiser, 1974); for all three sets of data, the KMO values were .80 or greater.

The data were additionally examined to ensure validity at this stage. Most items were taken directly or adapted from pre-existing scales and where developed, were based on pre-existing frameworks or dimensions to ensure they were suitable for the specific context. Additionally after each pilot, the items were examined to ensure appropriateness for the specific context (Schmit et al., 1995; Pace and Brannick, 2010). Thus, face validity wherein the operationalization appears satisfactory on the face of it and content validity where the operationalization is checked against the relevant content domain, were satisfactory (Hair et al., 2006; Trochim, et al., 2015). For convergent validity factor loadings were examined. The data did exhibit convergent validity as each item in the factor loadings had a value greater than .5 (Hair et al, 2006).

For discriminant validity the pattern matrix was examined. Items that loaded only on a single factor and had no cross-loadings within .2 of each other were considered satisfactory. Additionally the factor correlation matrix was examined and as all values were less than .7, it could be concluded that the requirements for discriminant validity were met (Hair et. al, 2006). The factor correlation matrices for the three models are reproduced below as Tables 5, 8 and 11.

Finally, the reliability was examined and while the Cronbach's Alpha (1951) values for the most part were greater than .8 or .9, the lowest was .77. Values greater than .7 are considered adequate, over .8 are considered good and above .9 are considered excellent (George and Mallery, 2003; Nunnally, 1978). Overall, the reliability measures were satisfactory. The tables 6, 9 and 12 show the Cronbach's alpha values for all the factors. The tables are presented below by study.

Study 1-Factor Loadings, Factor Correlation Matrix and Reliability Tables:

Table 4
Factor Loadings for Business Model Scales

Scale items	Networks	Innovation	Satisfaction	Information Processing	Product Portfolio Complexity	Performance
Networks_Q3	0.93					
Networks_Q1	0.9					
Networks_Q2	0.804					
Networks_Q4	0.782					
Innovation_Q3		0.889				
Innovation_Q4		0.795				
Innovation_Q5		0.736				
Innovation_Q2		0.679				
Innovation_Q7		0.618				
Satisfaction_Q1			0.98			
Satisfaction_Q2			0.914			
Satisfaction_Q3			0.799			
Information Processing_Q7				0.991		
Information Processing_Q8				0.865		
Information Processing_Q6				0.806		
Product Portfolio Complexity_Q4					0.951	
Product Portfolio Complexity_Q3					0.901	
Product Portfolio Complexity_Q5					0.574	
Performance_Q5						0.879
Performance_Q4						0.79
Performance_Q3						0.644

Table 5
Factor Correlation Matrix for Business Model Scales

Constructs	Mean	Standard Deviation	CR	AVE	MSV	ASV	Product Portfolio Complexity	Innovative Practices	Networks	Information Processing	Satis-faction	Perf-ormance
Product Portfolio Complexity	5.687	1.141	0.86	0.67	0.144	0.066	0.821					
Innovative Practices	5.066	1.609	0.88	0.59	0.223	0.143	0.38	0.766				
Networks	5.055	1.725	0.91	0.73	0.094	0.053	0.306	0.279	0.854			
Information Processing	4.903	1.309	0.92	0.8	0.223	0.076	0.248	0.472	0.288	0.894		
Satisfaction	4.037	1.532	0.92	0.8	0.113	0.046	0.128	0.336	0.057	0.09	0.893	
Performance	5.563	1.69	0.81	0.6	0.158	0.054	0.117	0.398	0.077	0.076	0.297	0.772

CR- composite reliability
AVE-Average Variance Extracted
MSV- Maximum Shared Variance
ASV- Average Shared Variance

Table 6
Reliability-Business Model Scales

Construct	Cronbach's Alpha
Independent Variables	
Information Processing Capability	0.921
Product Portfolio complexity	0.843
Innovative Practices	0.869
Network Membership	0.913
Dependent Variables	
Satisfaction	0.92
Performance	0.8

Study 2-Factor Loadings, Factor Correlation Matrix and Reliability Tables:

Table 7
Factor Loadings for Community Scales

Scale Items	SOVC	e-Word of Mouth	Satisfaction	Social Capital1	Performance	Social Capital2	e-Community support (ECS)
SOVC_Q8	.828						
SOVC_Q5	.780						
SOVC_Q3	.735						
SOVC_Q4	.729						
SOVC_Q6	.715						
SOVC_Q9	.665						
SOVC_Q17	.636						
SOVC_Q7	.636						
SOVC_Q19	.603						
EWOM_Q2		.733					
EWOM_Q5		.723					
EWOM_Q1		.701					
EWOM_Q4		.700					
EWOM_Q3		.632					
Satisfaction_Q2			.951				
Satisfaction_Q1			.942				
Satisfaction_Q3			.829				
SocialCapital_Q2				.970			
SocialCapital_Q1				.907			
SocialCapital_Q3				.811			
Performance_Q5					.928		
Performance_Q4					.802		
Performance_Q3					.613		
SocialCapital_Q9						.854	
SocialCapital_Q8						.751	
SocialCapital_Q7						.703	
SocialCapital_Q6						.612	
ECS_Q3							.932
ECS_Q1							.655
ECS_Q4							.559

Table 8
Factor Correlation Matrix for Community Scales

Constructs	Mean	Standard Deviation	CR	AVE	MSV	ASV	Online Social Capital	Sense of Virtual Community	E-Word of Mouth	Satis-faction	Perfor-mance
Online Social Capital	4.956	1.25	0.86	0.58	0.22	0.11	0.758				
Sense of Virtual Community	5.544	1.167	0.9	0.51	0.221	0.14	0.44	0.712			
E-Word of Mouth	5.718	1.253	0.84	0.51	0.221	0.12	0.469	0.47	0.714		
Satisfaction	3.8	1.703	0.93	0.83	0.14	0.06	0.193	0.374	0.152	0.909	
Performance	5.307	1.175	0.83	0.62	0.049	0.02	0.08	0.039	0.05	0.222	0.79

CR- composite reliability
AVE-Average Variance Extracted
MSV- Maximum Shared Variance
ASV- Average Shared Variance

Table 9
Reliability-Community Scales

Construct	Cronbach's Alpha
Independent Variables	
Sense of Virtual Community	0.899
Online Social capital	0.862
E-Word of Mouth	0.831
E-Community Support	0.776
Dependent Variables	
Satisfaction	0.932
Performance	0.833

Study 3-Factor Loadings, Factor Correlation Matrix and Reliability Tables:

Table 10
Factor Loadings for Co-creation Scales

Scale Items	Risk analysis	Dialogue	Satisfaction	Access	Performance	Transparency
Risk analysis_Q2	0.958					
Risk analysis_Q4	0.874					
Risk analysis_Q1	0.823					
Risk analysis_Q5	0.778					
Risk analysis_Q3	0.764					
Dialogue_Q2		0.962				
Dialogue_Q4		0.865				
Dialogue_Q5		0.816				
Dialogue_Q3		0.704				
Dialogue_Q6		0.659				
Satisfaction_Q1			0.942			
Satisfaction_Q2			0.918			
Satisfaction_Q3			0.813			
Access_Q1				0.862		
Access_Q2				0.796		
Access_Q3				0.681		
Performance_Q4					0.885	
Performance_Q5					0.782	
Performance_Q3					0.61	
Transparency_Q1						0.778
Transparency_Q2						0.684
Transparency_Q3						0.681

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Table 11
Factor Correlation Matrix for Co-creation scales

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Constructs	Mean	Standard Deviation	CR	AVE	MSV	ASV	Access	Dialogue	Risk	Satis-faction	Trans-parency	Perform-ance
Access	4.763	1.606	0.84	0.63	0.42	0.194	0.794					
Dialogue	5.012	1.614	0.92	0.65	0.42	0.215	0.648	0.809				
Risk	4.938	1.54	0.93	0.73	0.454	0.185	0.461	0.492	0.854			
Satisfaction	3.616	1.509	0.92	0.8	0.075	0.031	0.208	0.146	0.063	0.892		
transparenc	5.656	1.335	0.81	0.52	0.454	0.228	0.533	0.596	0.674	0.097	0.72	
Performanc	5.544	0.982	0.81	0.59	0.075	0.033	0.088	0.194	0.099	0.274	0.186	0.768

CR- composite reliability
AVE-Average Variance Extracted
MSV- Maximum Shared Variance
ASV- Average Shared Variance

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Table 12
Reliability-Co-creation Scales

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Construct	Cronbach's Alpha
Independent Variables	
Dialogue	0.921
Access	0.834
Risk Analysis	0.93
Transparency	0.789
Dependent Variables	
Satisfaction	0.923
Performance	0.801

Method of Analysis: All three models involved the use of self-reported responses to measure a variety of different latent variables. The survey instrument items were either based clearly on prior research, adapted from pre-existing scales or directly involved the use of pre-existing scale items. None of the variables involved feedback or reciprocal effects i.e. they were recursive models and in addition, theoretically sound hypotheses were clearly laid out for this

non-experimental study. For all of these reasons, structural equation modelling is the appropriate statistical analysis method as long as assumptions such as sufficient linearity of data were met and the data did not have problematic issues involving adequacy or multicollinearity (Byrne, 2009). As stated earlier, these aspects were examined and were found to be satisfactory.

The software used for analysis were SPSS 23 which aided in the initial analysis and AMOS 23 which was used for the SEM i.e. testing measurement models and the full latent variable models for all three of the datasets. Microsoft Excel was also used for some basic data organizing and inspection.

Summary

In summary, this chapter described methodology, design, sample and the various scales used for measuring the constructs. The three pilot studies provided satisfactory results and valuable information about the context. The insights from the pilot studies were used to develop and enhance the main study. Information on sample, collection of data, examination of the three datasets, the satisfactory results of the EFA, the correlations among the factors and the internal consistency of the scales used, were provided in several tables. In the next chapter, the results of the analysis are discussed.

CHAPTER 4

RESULTS

Analysis

Three different surveys were launched to gather data for antecedents relating to firm performance of virtual enterprises operating via Web 2.0 cybermediary platforms i.e. the business model antecedent, the sense of virtual community antecedent and the co-creation antecedent.

The different relationships being tested were (1) for the business model antecedent- whether the different components in the business model would affect firm performance individually and whether a strong business model in its entirety would affect firm performance positively; (2) for the community antecedent (also referred to as the sense of virtual community model), whether online social capital is positively related to sense of virtual community, e-word of mouth and e-community support, whether sense of virtual community positively relates to e-word of mouth and e-community support behaviors and whether online social capital affects firm performance of these virtual enterprises; (3) for the co-creation antecedent (also referred to as the co-creation model), the relationships look at whether each of the independent aspects of co-creation i.e. dialogue, access, risk analysis and transparency affect the performance of the firm and does an emphasis on all of the co-creation aspects together, affect the performance of the firm.

To test whether or not the hypotheses discussed in detail in Ch. 2 are in fact supported, the data was collected using surveys and analyzed using SEM as described in Ch. 3. The results of the analyses are described below. A CFA was conducted using a rough measurement model on the data. The results are described in more detail below and shown in the appropriate tables.

Confirmatory Factor Analysis:

Using AMOS 23, a Confirmatory Factor Analysis was conducted using a rough model i.e. the analysis of the measurement model in SEM was carried out and certain items that were deemed unsatisfactory i.e. if they were not significant or their factor loading as part of the CFA was less than .5 (Hair et al., 2006) were dropped.

Table 13
Factor Loadings for Final Scales

Factor Loadings		
Antecedent	**Construct**	**Average Factor loading**
Business Model	Information Processing Capability	0.78
	Product Portfolio Complexity	0.807
	Innovative Practices	0.741
	Network Membership	0.85
Sense of Virtual Community Model	Sense of Virtual Community	0.703
	Online Social capital	0.83
	E-Word of Mouth	0.711
	E-Community Support	0.724
Co-Creation Model	Dialogue	0.795
	Access	0.767
	Risk Analysis	0.84
	Transparency	0.661

The factor loadings tables are presented in the previous chapter. The diagonal values in all tables represent the square-root of the Average Variance Extracted. The composite reliability (CR) measure was examined to ensure that all values were above .7 (Hair et. al, 2006) and this was true for all variables. The CFA also allows for re-validating convergent validity by checking that Average Variance Extracted (AVE) was greater than .5 (Hair et. al, 2006) which was confirmed thereby indicating no issues with convergent validity. Finally, discriminant validity is checked

using three measures, Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV) where values are considered satisfactory when the following relationships hold: MSV<AVE; ASV<AVE; √AVE>inter-construct correlations (Hair et. al, 2006). Discriminant validity checks in the CFA were satisfactory as well.

Results

Sample Characteristics and Descriptives

The total responses received for all three of the surveys were 1396. Demographic data, which were optional, were supplied by almost all participants. The descriptive information about the businesses as well as the demographic data of the business owners is summarized in Table 14. All the virtual enterprises were from the Etsy website, and the samples were highly similar for all three models.

The median age of the firm was between 3.5-4.25 years. Regarding ownership, 78-81% of the businesses had a single owner. The majority of the respondents (i.e. 44%-50%) were in the 30-49 year age bracket. A large percentage of the respondents (i.e. 92%-94%) were women which is not unusual as over 80% of businesses on such cybermediary platforms were owned by women (Etsy Report, 2013). Initially when the Web 2.0 cybermediaries such as Etsy, DaWanda and ArtFire started, participating firms were required to have an art/craft component which was dominated by females, however this demographic trend has changed over the years and more males are setting up businesses in this industry and using this avenue. In terms of education, 85% to 88% of the respondents had at least some college education. In terms of ethnicity, 83% percent of the respondents identified themselves as White.

With regard to prior entrepreneurial experience, 41% to 49% had no prior entrepreneurial experience at all, whereas 20 to 22% of the respondents had less than 2 years of prior entrepreneurial experience. Using the custom software, the location of respondent firms was checked. This information was not available for all the firms however in the case of those firms whose location could be, 60-64% of the businesses were located in the US. This is in line with the findings from the pilot studies which indicated that approximately 60% of businesses using the Etsy Web 2.0 cybermediary were located in the US.

Overall 46 countries were represented in the sample. These were: Albania, Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Colombia, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, India Indonesia, Ireland, Israel, Italy, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Panama, Peru, Poland, Portugal, Romania, Russia, S. Africa, S. Korea, Serbia, Singapore, Slovenia, Spain, Sweden, Switzerland, Thailand, Turkey, Ukraine, United Kingdom and United States.

Table 14
Descriptive and Demographic Information for three Datasets

	Study1: Business Model Approach	Study 2: Sense of virtual community Model	Study 3: Co-creation Model
Response rate	77.9%	71.72%	60.14%
Total sample size	366	732	298
N for demographic info	*360-366*	*718-728*	*292-296*
Countries represented	16	25	31
Business Description: **Age of Firm**	3.5 years	3.75 years	4.25 years
Business Description : **Ownership** (Single owner)	78%	81%	78%
Owner Demographics**: Gender** (female)	94%	92%	93%
Owner Demographics: **Age** (30-49 years old)	45%	50%	44%
Owner Demographics: **Ethnicity** (white)	83%	83%	83%
Owner Demographics: **Education**: Some college or more	85%	88%	88%
Owner experience: none	48.9%	41.5%	46.9%

Before testing the various models, as stated earlier, the correlations between objective and subjective measures of performance were checked so as to ensure that the subjective measures were representative of objective financial performance (Chandler and Hanks, 1993/1994). The correlation was found to be r=.37 p<.01 which was satisfactory thereby supporting the use of the subjective measures.

Fit Indices for the Three Models

After using SPSS as an initial tool, SEM analysis for the full structural model was conducted. . Multiple measures were used to determine if the model is satisfactory and these indices are shown in Table 15.

While the chi-square is a commonly reported measure for model fit, it is very sensitive to sample size. For sample sizes over 200, the chi-square statistic has values that cause a rejection of the model (Bentler and Bonnet, 1980; Jöreskog and Sörbom, 1993). As all three of the models had more than 200 respondents in terms of sample size, the Chi-square would not be an appropriate measure. Therefore, the recommended alternative for larger sample sizes is relative Chi-square or Normed Chi-square. Regarding relative Chi-square (reported as CMIN/DF) in the AMOS output, the criterion for acceptance varies across researchers however Schumacker and Lomax (2004) recommend it be less than 5, and this guideline was met for all three models. The CMIN/DF for the Business Model approach was 2.08, for the Sense of Virtual Community Model it was 3.15 and for the Co-Creation model was 1.714.

While some measures penalize large or small sample sizes, RMSEA and CFI appear to be less sensitive to sample size (Fan, Thompson, and Wang, 1999) and these measures were also considered for determining model fit. The Root Mean Square Residual (reported as RMSEA) has come to be regarded as one of the most informative criteria in SEM analysis (Byrne, 2009). While there isn't complete consensus on what the best values for RMSEA are, it is generally observed that the value should be less than .08 (Browne & Cudeck, 1993; Kline, 1998) for an acceptable model and ideally the value should be equal to or less than .05 (Kline, 1998; Steiger,

1990). These prescribed parameters were satisfactorily met for all three models. The RMSEA for the Business Model approach was .053, for the Sense of Virtual Community Model it was 0.53 and for the Co-Creation model was .049.

A stated earlier, another fit index that is widely used and is less sensitive to sample size, is the Comparative Fit Index (CFI) which essentially compares the model of interest to an independent model where variables are assumed to be uncorrelated (Fan, Thompson and Wang, 1999). For an acceptable model, the CFI should exceed .93 (Byrne, 1994). The CFI for the Business Model approach was .963, for the Sense of Virtual Community Model it was .942 and for the Co-Creation model was .967. The Goodness of Fit Index (GFI) is affected by sample size to some degree however it is still a popular measure reported in studies and has therefore been included in this study as well. The values for GFI should exceed .90 (Byrne, 1994). These prescribed parameters were satisfactorily met for all three models. The GFI for the Business Model approach was .915, for the Sense of Virtual Community Model it was .913 and for the Co-Creation model was .909.

The Normed Fit Index (NFI) was the first index in the literature (Bentler and Bonett, 1980) and is an incremental measure of fit – it should exceed .90 (Byrne, 1994) with .95 indicating good fit. The NFI for the Business Model approach was .932, that of the Sense of Virtual Community Model was .918 and for the Co-creation model, it was found to be .926. The Non-normed Fit Index (NNFI) is also known as the Tucker Lewis Index (TLI) or the Bentler-Bonett Index and it penalizes additional parameters which not all fit indices do. The NNFI values should be greater than .90 (Hu and Bentler, 1999). These prescribed parameters were satisfactorily met for all three

models. The NNFI was .956 for the Business Model approach, .932 for the Sense of Virtual community Model and for the Co-creation Model it was .926.

Table 15
Fit Indices for all Models

	Recommended Values	Model 1- Business Model	Model 2- Community Antecedent	Model 3- Co-creation Antecedent
Sample size	Generally at least 200 for SEM	366	732	298
CMIN/DF (relative Chi-square)	<5	2.08	3.10	1.71
RMSEA (Root Mean Square Residual)	.10 cutoff, <.08 acceptable; <.05 ideal	0.053	0.054	0.049
CFI (Comparative Fit Index)	>.93	0.963	0.942	0.967
GFI (Goodness of Fit Index)	>.90	0.915	0.913	0.909
NNFI (Non-normed Fit Index)	>.90	0 .956	0.933	0.961
NFI (Normed Fit Index)	>.90	0.932	0.917	0.926

Hypotheses testing of three models

The SEM analysis for each model and all the path values are now discussed sequentially.

Business Model Antecedent: The overall business model hypothesis received support as expected, and in addition support was found for one of the independent value drivers of the business model. Hypotheses 1(a), 1(b) and 1(d) were not supported as there were no statistically

significant relationships found between firm performance and information processing capability, network membership and product portfolio complexity. Hypothesis 1(c) was supported as there is a positive relationship between innovative practices and firm performance (for performance, estimated regression weight .489, p<.001; for satisfaction, estimated regression weight .394, p<.001). Most importantly, hypothesis 2 was supported. Results for this hypothesis were obtained by performing a separate SEM analysis (CMIN/DF= 4.158, GFI= .961, CFI= .969, RMSEA= .063, TLI= .950, NFI= .960). This indicates that there is a positive relationship between the full business model and firm performance (for performance, estimated regression weight .289, p<.001; for satisfaction, estimated regression weight .196, p<.001)

Figure 10
Main Study Results: Business Model Antecedent: Individual Components
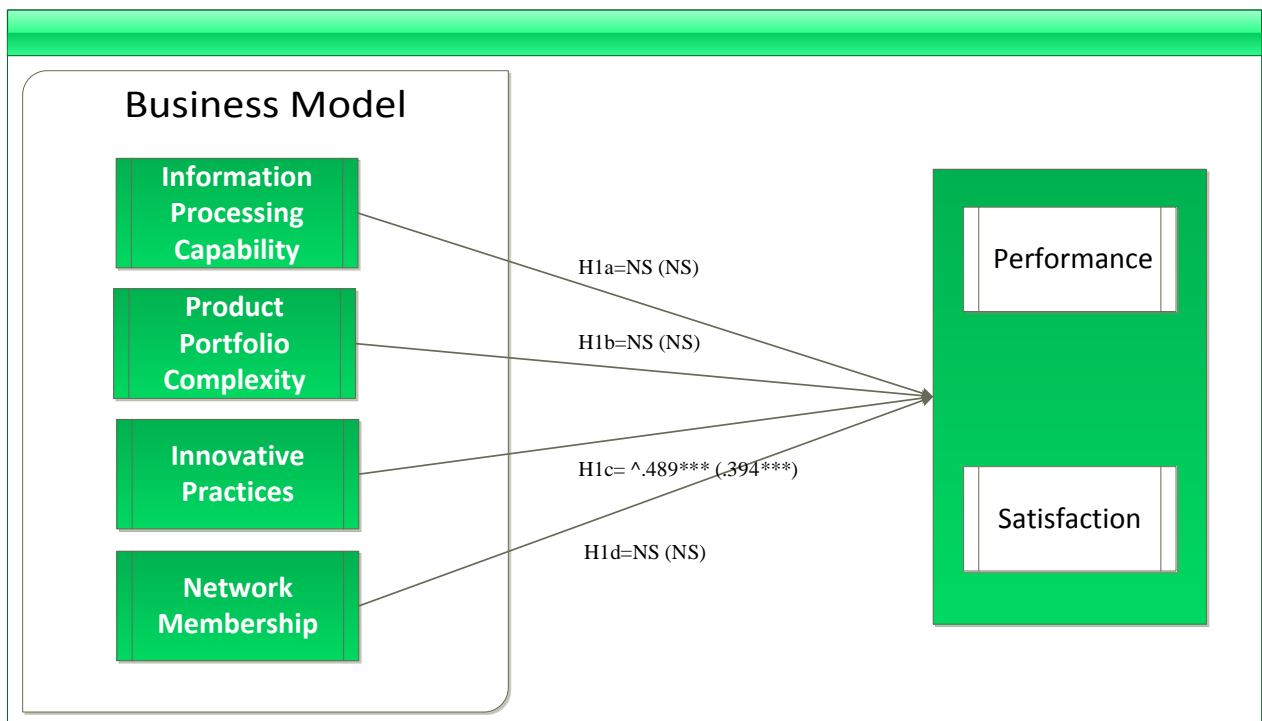
Note: ^ Values refer to performance, and () values refer to satisfaction
***p<.001
NS= Not significant

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Figure 11
Main Study Results: Business Model Antecedent: Business Model
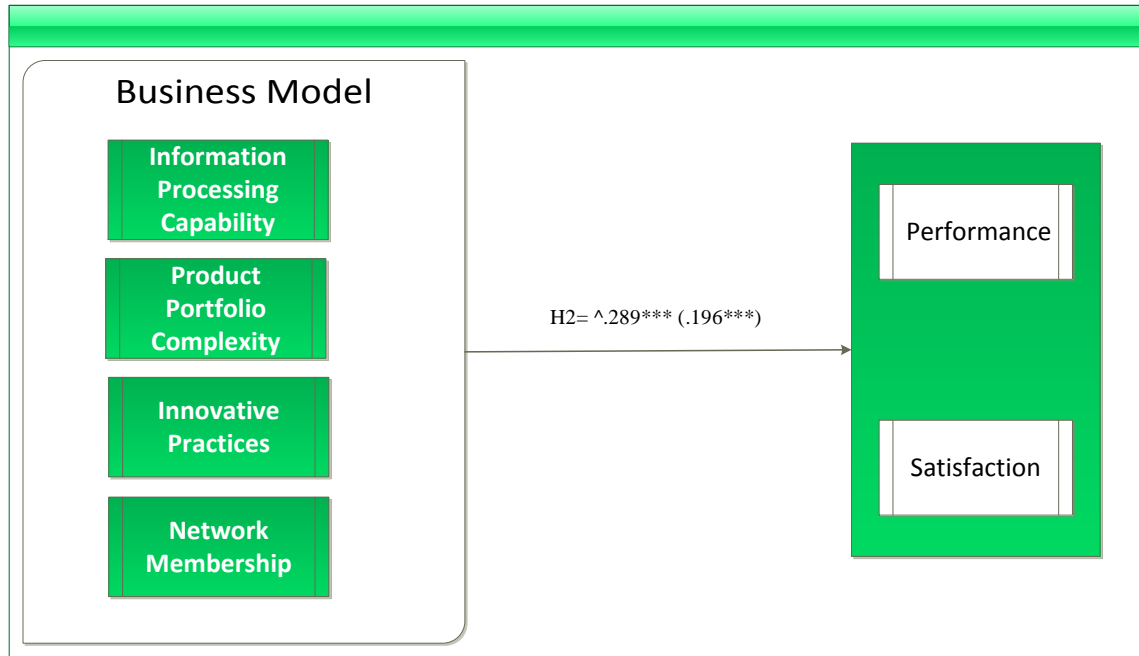
Note: ^ Values refer to performance, and () values refer to satisfaction
***p<.001

The model fit indices are presented below:

Table 16
Fit Indices for the Business Model Antecedent

	Recommended Values	Individual Components	Business Model
Sample size	Generally at least 200 for SEM	366	366
CMIN/DF (relative Chi-square)	<5	2.08	4.158
RMSEA (Root Mean Square Residual)	.10 cutoff, <.08 acceptable; <.05 ideal	0.053	0.063
CFI (Comparative Fit Index)	>.93	0.963	0.969
GFI Goodness of Fit Index)	>.90	0.915	0.961
NNFI (Non-normed Fit Index)	>.90	0.956	0.95
NFI (Normed Fit Index)	>.90	0.932	0.96

Given that innovative practices is an important and statistically significant variable, to ensure that it was not having a disproportionate impact on the full business model, group differences were examined. Hence, a business model consisting of all 4 independent variables (full business model) was compared against those that had a combination of three components, those that had a combination of two, and those that had no business model i.e. they used none of the components or just one. A single value driver does not comprise a business model (as just one component does not suffice), therefore such instantiations were considered as also not using a business model.

Group mean differences in ANOVA were explored using SPSS 22. ANOVA is fairly robust to differences in sizes if groups and the differences in sample sizes for the groups of business model combinations were satisfactory. As a first step, Levene's test of homogeneity of variance was conducted. The dependent variables examined were satisfaction and performance. The Levene's statistic should have a significance value greater than $p=.05$. This would indicate that the null hypothesis (i.e. that no group differences exist), is rejected implying that at least one of the groups is significantly different than the other. When this condition is met, the next step is to conduct Tukey's HSD (1951). If the Levene's statistic of homogeneity of variance is significant, then a Welch (1951) and Brown-Forsythe (1974) statistic should be examined for significant p-values as this indicates that group differences are in fact present. This should be followed by Tamhane's test instead of Tukey's.

For Satisfaction, the Levene's test had a significance value of .983. Therefore the one-step Tukey HSD was used. For Performance, the Levene's test statistic had a value of .036 but the Welch

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and Brown-Forsythe statistics were significant and therefore the Tamhane's test was used as it is robust to unequal variances.

For satisfaction, significant differences were seen between groups having no business model at all i.e. those that had a value of 0 or 1 with all other groups i.e. those having a business model comprised of 2, 3 or all components. The group with no business model, rated lower on satisfaction as compared to all other groups. For the group consisting of firms that used only 2 components , this group was significantly different from the group that used the full business model i.e. those with a full business model had higher values for performance. It also differed from the group not using a business model. Firms that used three components from the four were significantly different from those not using a business model at all i.e. none or just 1 value driver is used. But there were also differences from the group consisting of firms using the full business model. The group consisting of firms using a full model was significantly different from the group not using a business model or using only two of the components of a business model. All these group differences were found at the $p<.05$ level.

For performance, the group consisting of firms with no business models i.e. firms that had a value of 0 or 1 were significantly different from business models where 3 components or the full business model was being used. For the group consisting of firms that used only 2 value drivers , this group was significantly different from the group that used the full business model i.e. those with a full business model had higher values for performance. Firms that used three components from the four were significantly different from those not using a business model at all i.e. none or just 1 value driver is used. The group consisting of firms using a full model was significantly

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different from the group not using a business model or using only two of the components of a business model All these group differences were found at the p<.05 level.

It also seems that groups with a combination of three components do not differ significantly from the full business model. This is examined in more detail in a post hoc analysis where the different combinations of three variables were further scrutinized in relation to the full business model.

Community Antecedent: Six of the seven hypotheses for the community antecedent model received support from the results. Hypothesis 3(a) was supported indicating a positive relationship between sense of virtual community of firms and e-word of mouth practices of the firms (estimated regression weight .522, p< .001). The results supported hypothesis 3(b) indicating a positive relationship between sense of virtual community of firms and e-community support of the firms (estimated regression weight .390, p< .001). Hypothesis 3(c) was supported as well because there was a statistically significant positive relationship between sense of virtual community of firms and online social capital (estimated regression weight .274, p< .001)

Hypothesis 3(d) was supported as there was a statistically significant positive relationship between e-word of mouth of firms and online social capital (estimated regression weight .361, p< .001). The results did not support hypothesis 3(e) because there was no statistically significant relationship between e-community support and online social capital. Hypothesis 3(f) was supported as well because there was a statistically significant positive relationship between

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online social capital and firm performance (for performance, estimated regression weight .075, p< .10; for satisfaction, estimated regression weight .211, p<.001)

Additionally, the online social capital represented two separate dimensions in the original scale (Williams, 2006). The EFA and CFA analyses also revealed two separate factors, and hence prior to arriving at a combined construct, additional tests were conducted. Tests were done to check if the two dimensions contributed towards a second order factor of online social capital. The "bridging" dimension had a regression weight of .89 while the bonding .60. This indicates that (even though slightly different values were obtained), the dimensions contribute similarly to the second order construct and it would be acceptable to combine and use them as a single construct as was done in the analysis (Koufteros, Babbar and Kaighobadi (2009).

Figure 12
Main Study Results: Community Antecedent
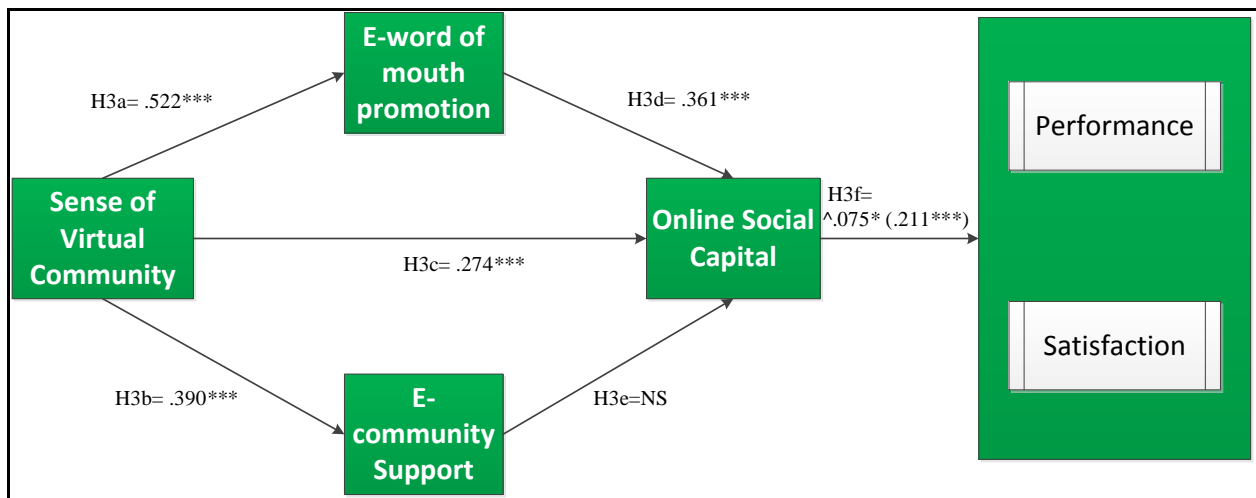
 Note: ^ Values refer to performance, and () values refer to satisfaction)
***p<.001
*p<.10
NS= Not significant

The model fit indices are presented below:

Table 17
Fit Indices for the Community Antecedent

	Recommended Values	Study 2– Community
Sample size	Generally at least 200 for SEM	732
CMIN/DF (relative Chi-square)	<5	3.1
RMSEA (Root Mean Square Residual)	.10 cutoff, <.08 acceptable; <.05 ideal	0.054
CFI (Comparative Fit Index)	>.93	0.942
GFI Goodness of Fit Index)	>.90	0.913
NNFI (Non-normed Fit Index)	>.90	0.933
NFI (Normed Fit Index)	>.90	0.917

Co-creation Model: The overall co-creation hypothesis received support as expected, and in addition support was found for one of the independent variables of co-creation. Hypothesis 4(a) was supported indicating a positive relationship between dialogue and firm performance (for performance, estimated regression weight .200, $p< .10$). The results also supported hypothesis 4(b) indicating a positive relationship between the access variable in the co-creation model and firm performance (for satisfaction, estimated regression weight .268, $p< .05$). Hypotheses 4(c) and 4(d) were unsupported as no significant relationships were found between firm performance dialogue, risk analysis, and transparency. More importantly, as stated earlier, the results supported hypothesis 4(e) for which results had been obtained by performing a separate SEM analysis (CMIN/DF= 2.141, GFI= .974, CFI= .985, RMSEA= .063, TLI= .976, NFI= .972). This indicated a positive relationship between the entire set of co-creation practices and firm performance (for performance, estimated regression weight .164, $p< .05$; for satisfaction estimated, regression weight .170, $p<.05$).

Figure 13
Main Study Results: Co-creation Antecedent: Individual Components
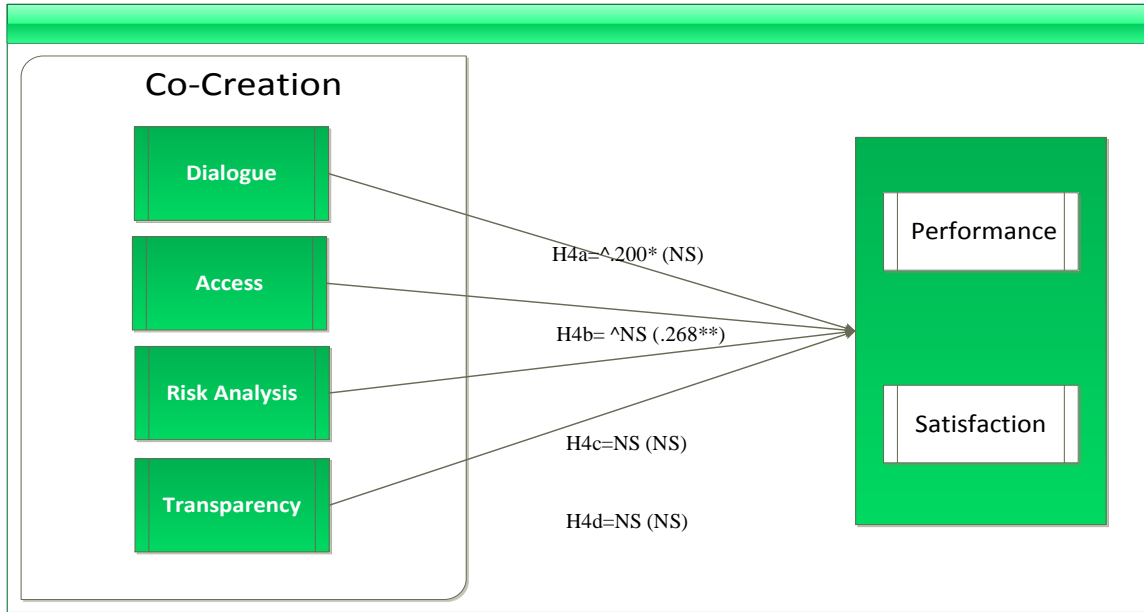
Co-Creation

Dialogue

Access

Risk Analysis

Transparency

H4a=^.200* (NS)

H4b= ^NS (.268**)

H4c=NS (NS)

H4d=NS (NS)

Performance

Satisfaction

Note: ^ Values refer to performance, and () values refer to satisfaction)
***p<.001
**p<.05
*p<.10
NS= Not significant

Figure 14
Main Study Results: Co-creation Antecedent: Full Model
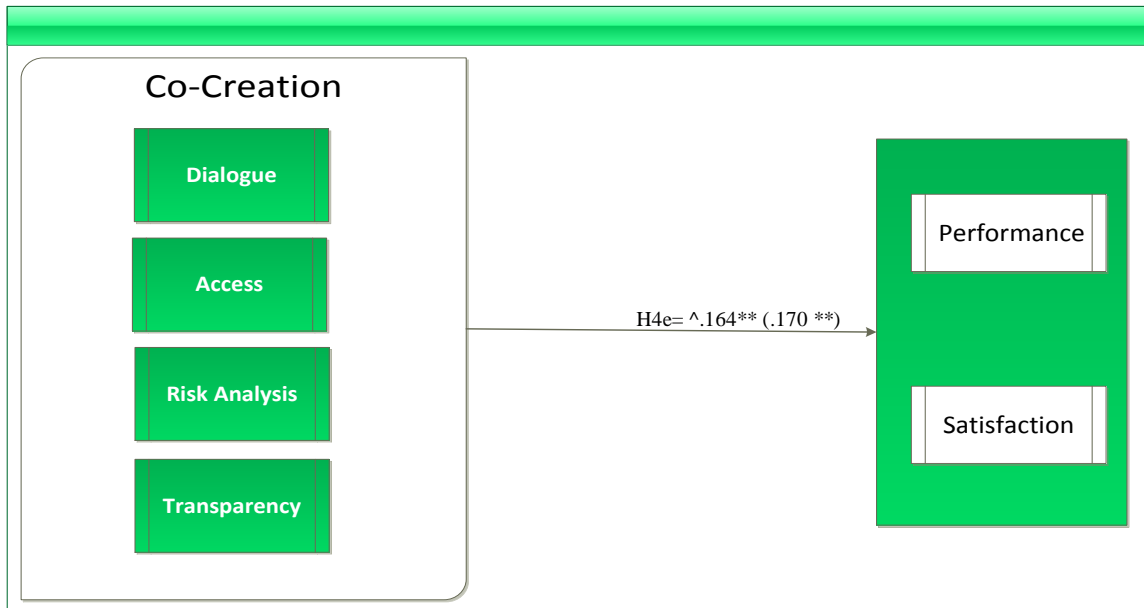
Co-Creation

Dialogue

Access

Risk Analysis

Transparency

H4e= ^.164** (.170 **)

Performance

Satisfaction

Note: ^ Values refer to performance, and () values refer to satisfaction)
***p<.001
**p<.05
*p<.10
NS= Not significant

The model fit indices are presented below:

Table 18
Fit Indices for the Co-creation Antecedent

	Recommended Values	Individual Components	Co-Creation
Sample size	Generally at least 200 for SEM	298	298
CMIN/DF (relative Chi-square)	<5	1.714	2.141
RMSEA (Root Mean Square Residual)	.10 cutoff, <.08 acceptable; <.05 ideal	0.049	0.063
CFI (Comparative Fit Index)	>.93	0.967	0.985
GFI Goodness of Fit Index)	>.90	0.909	0.974
NNFI (Non-normed Fit Index)	>.90	0.961	0.976
NFI (Normed Fit Index)	>.90	0.926	0.972

A summary of all the hypothesized relationships tested along with the results is presented in Table 19.

Table 19
Summary of Results for Hypothesized Relationships

Antecedent	Hypotheses	Relationship Hypothesized (in brief)	Results
Business Model	1(a)	Information processing is positively resulted to Firm Performance	*Not Supported*
	1(b)	Product portfolio complexity is positively resulted to Firm Performance	*Not Supported*
	1(c)	Innovative Practices are positively resulted to Firm Performance	**Supported[1]**
	1(d)	Network membership is positively resulted to Firm Performance	*Not Supported*
	2	Full business model is positively resulted to Firm Performance	**Supported[1]**
Community	3(a)	Sense of Virtual community is positively resulted to E-Word of Mouth.	**Supported**
	3(b)	Sense of virtual community is positively resulted to E-Community Support	**Supported**
	3 (c)	Sense of virtual community is positively resulted to Online Social capital	**Supported**
	3 (d)	E-Word of Mouth is positively resulted to Online Social capital	**Supported**
	3 (e)	E-Community Support is positively resulted to Online Social capital	*Not Supported*
	3 (f)	Online Social Capital is positively resulted to Firm Performance	**Supported[1]**
Co-creation	4(a)	Dialogue is positively resulted to Firm Performance	**Supported[2]**
	4 (b)	Access is positively resulted to Firm Performance	**Supported[3]**
	4 (c)	Risk Analysis is positively resulted to Firm Performance	*Not Supported*
	4(d)	Transparency is positively resulted to Firm Performance	*Not Supported*
	4 (e)	Full co-creation model is positively resulted to Firm Performance	**Supported[1]**

[1]Relationships with both performance and satisfaction measures were found
[2] Relationships with only performance measures were found
[3]Relationships with only satisfaction measures were found

Post Hoc Analysis

While the results for each of the models were sufficient to test the hypotheses and answer the three questions, more in-depth analyses were conducted to examine several additional relationships to gain further insight. Thus, though not part of the dissertation, a summary of the four post-hoc analyses are presented as supplementary information.

Post hoc Test 1

In the first of these post-hoc analyses, the business model antecedent is explored in more detail. The results of group analysis (presented in Chapter 4) showed that the group consisting of firms using a combination of only three business model components was not significantly different from firms using the full business model for performance mainly. This prompted a closer look to determine whether any specific combination of the business models composed of three value drivers did in fact exhibit group level differences

A series of sub-group analysis was therefore conducted. First new subcategories of groups were created, i.e. (1) group 3A which consisted of firms using the information processing capability, product portfolio complexity and innovation components (2) group 3B which consisted of information processing capability, network membership and innovative practices as the components, (3) group 3C which consisted of e-entrepreneurial ventures using a business model comprised of the three components of information processing capability, product portfolio complexity and network membership and (4) group 3D which consisted of product portfolio complexity, network membership and innovative practices. This was followed by using Levene's test to check for homogeneity of variance. The Levene's statistic as stated earlier, should have a significance value greater than $p=.05$ indicating that the null hypothesis i.e. that no group

differences exist, is rejected. When this condition is met, a Tukey's HSD (1951) is conducted. If the null hypothesis cannot be rejected, after using the Welch (1951) and Brown-Forsythe (1974) statistic, the Tamhane's test to examine group differences should be conducted.

The dependent variables examined were satisfaction and performance. As Levene's statistic was not significant for Satisfaction (.758) but was significant for Performance (.011) Tukey's HSD was used to examine group differences with the satisfaction dependent variable and Tamhane's was used for the Performance dependent variable as this is a better technique when the Levene's test statistic is significant. When groups 3 A-D were compared to the full business model comprising all four of the components, there appeared to be no significant differences between the full business model group of businesses and all groups 3A through 3D. *This perhaps indicates that minimal differences exist between the groups using three of the four value drivers and that firms may be able to perform satisfactorily using at least three value drivers with all combinations being equally effective.*

Post hoc Test 2

A second post-hoc analysis was conducted on the community antecedent model. Though six of the seven proposed hypotheses were supported, one hypothesis related to e-community support was unsupported by the results. This prompted a closer look at whether e-community support has a direct effect on performance.

Theoretically, the direct relationship between firm performance and e-word of mouth by virtual entrepreneurial businesses for similar businesses has not been examined and was hence was not presented in the main study. However, relationships between certain types of e-word of mouth

and particular types of performance such as stock performance (Tirunillai and Tellis, 2012) and box-office performance of films, (Gopinath, Chintagunta and Venkataraman, 2010) have been found. Conceivably, engaging in financially supportive behavior could lead to improved performance if the norms of reciprocity are strong as well. While the model fit was satisfactory as indicated in Table 20, not all relationships were supported in this particular model. *This perhaps indicates that while e-community support did affect firm performance, e-word of mouth did not positively affect performance of the virtual enterprise.*

Figure 15
Post Hoc 2: Community Antecedent
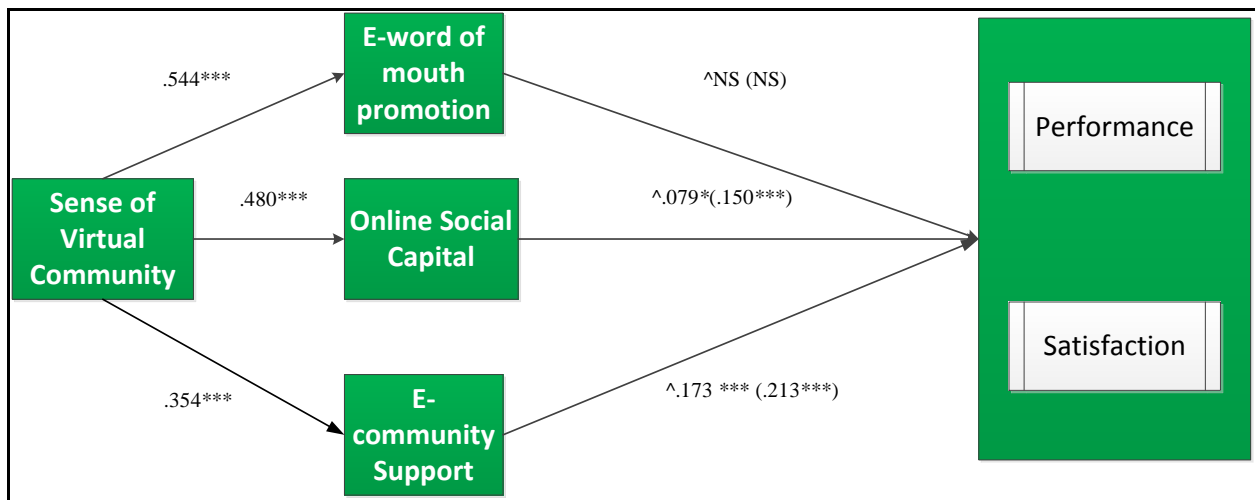
Note: ^ Values refer to performance, and () values refer to satisfaction)
***p<.001
*p<.10
NS= Not significant

TABLE 20
Post Hoc 2: Community Antecedent: Model Fit

	Recommended Values	Model : Post hoc 2: Community antecedent
Sample size	Generally at least 200 for SEM	732
CMIN/DF (relative Chi-square)	<5	3.192
RMSEA (Root Mean Square Residual)	.10 cutoff, <.08 acceptable; <.05 ideal	0.055
CFI (Comparative Fit Index)	>.93	0.940
GFI (Goodness of Fit Index)	>.90	0.911
NNFI (Non-normed Fit Index)	>.90	0 .930
NFI (Normed Fit Index)	>.90	0.915

Post hoc Test 3

A third post hoc analyses was conducted that looked at a mediated model for the community antecedent where the sense of virtual community, e-word of mouth and e-community support were independent variables and online social capital acted as a mediator. This proposed alternate model is represented below:

Figure 16
Post Hoc 3: Community Antecedent
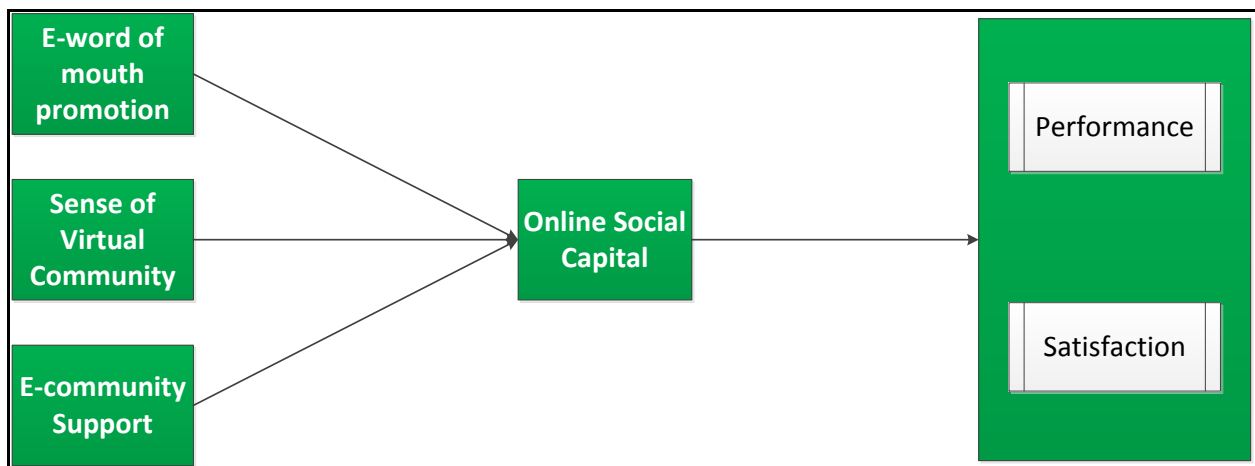
Using Amos 23, the direct model without online social capital as a variable was examined to determine the direct effects between the independent and dependent variables. Thereafter, a model containing the mediated relationships as depicted in the above table was tested and the direct effects at this point were examined. To detect mediation using the Baron and Kenny (1986) approach, change in these values for the direct effects i.e. in a model without the mediator and in a model with the mediator, is examined. If previously strong direct effects are reduced in significance it would indicate partial mediation and if the relationships became no longer significant by adding the mediator, it would be regarded as a model with full mediation effects.

The following table indicates the values obtained on examining these two models:

Table 21
Post Hoc 3: Community Antecedent: Mediation Table

Relationships	Direct (no mediator)	Direct (with mediator)	Conclusion based on Baron and Kenny's method
E-WOM (OSC) Perf.	Not significant	Not significant	No Mediation
E-WOM (OSC) Satisf.	Not significant	Not significant	No Mediation
SOVC (OSC) Perf.	Not significant	Not significant	No Mediation
SOVC (OSC) Satisf.	.331	.311	No Mediation
ECS (OSC) Perf.	.210	.208	No Mediation
ECS (OSC) Satisf.	.159	.157	No Mediation

E-WOM: E-Word of Mouth
OSC: Online Social Capital
SOVC: Sense of Virtual Community
ECS: E-Community Support
Perf.: Performance aspect of Firm Performance
Satisf.: Satisfaction aspect of Firm Performance

Thus, while three of the relationships are not significant directly when the model does not contain online social capital, or with a mediator added in, the change in the remaining three relationships by adding the mediating relationship is so minute as to render it practically

meaningless. Thus, the mediation model was unsupported by the results. This indicates that the while online social capital does play an important role in the model tested in the main study as well as in the post hoc model A, *it does not act as mediator for the relationships between firm performance and sense of virtual community, e-word of mouth and e-community support.*

Thus, for the community antecedent post hoc analyses, the mediation model did not yield satisfactory results. The other model explored in the post hoc, does have satisfactory model fit however it has less theoretically sound hypotheses than those used in the originally proposed model in the dissertation. Therefore, neither of the two models relating to the community antecedent tested in the post hoc analyses, substitute the model proposed initially.

Post hoc Test 4

A fourth and final post hoc analyses with regard to the co-creation antecedent was conducted as well. As stated in chapter 4, no statistically significant relationship was found between risk analysis and firm performance in either the pilot study or in the main study. This prompted the question that perhaps risk analysis may be irrelevant for co-creation in this context and may be removed so as to arrive at a more parsimonious model. To test this, Amos 23 was used to conduct structural equation modelling and the following results were obtained:

TABLE 22
Post Hoc 4: Co-creation Antecedent: Model Fit

	Recommended Values	Model : Post hoc Co-creation Antecedent
Sample size	Generally at least 200 for SEM	
CMIN/DF (relative Chi-square)	<5	1.90
RMSEA (Root Mean Square Residual)	.10 cutoff, <.08 acceptable; <.05 ideal	.056
CFI (Comparative Fit Index)	>.93	.967
GFI (Goodness of Fit Index)	>.90	.927
NNFI (Non-normed Fit Index)	>.90	.958
NFI (Normed Fit Index)	>.90	.934

The path regression weights and hypotheses supported are shown in the following figure:

Figure 17
Post Hoc 4: Co-creation Antecedent
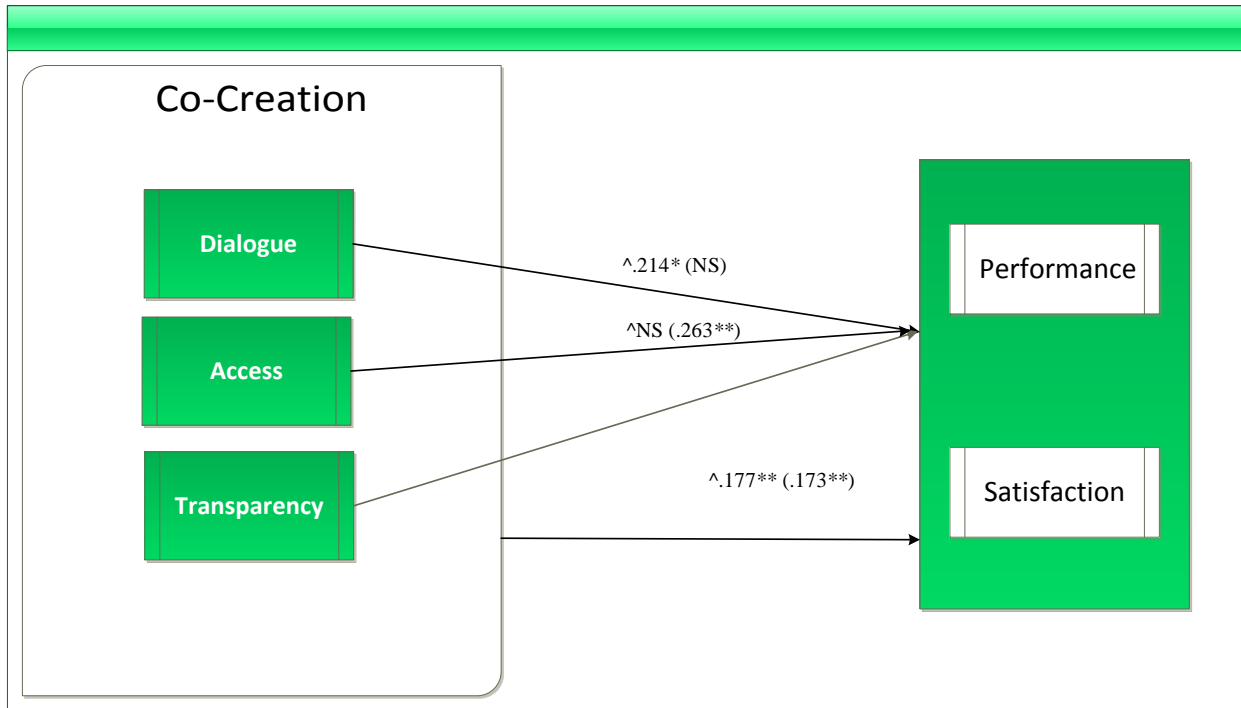
Note: ^ Values refer to performance, and () values refer to satisfaction)
***p<.001
**p<.05
*p<.10

It was found that the model fit is equally good (without risk analysis) and the path regression weights remained similar to the main study results. This could be because "risks" are a non-issue for the retail sector of handmade goods. *This perhaps indicates that in specific industry contexts risk analysis is irrelevant for co-creation and does not significantly affect performance outcomes.*

Summary

In this chapter, the results of the confirmatory factor analysis were presented in brief, followed by information about the sample characteristics for the three models. The fit indices for each of the models as well as path values were discussed. All three models were supported as were a

majority of proposed hypotheses. For the business model antecedent the direct relationships between firm performance and the innovation value driver and the full business model were supported. For the community antecedent, all proposed relationships were supported except the one between e-community support and online social capital. For the co-creation model, relationships between firm performance and dialogue as well access were supported. More importantly, the relationship between the entire set of co-creation practices and performance was supported. Post hoc analysis for all three antecedents was presented. For the business model antecedent, results show that there are no significant differences between firms utilizing three value drivers with those utilizing the full business model. For the community model, results showed that a direct (rather than an indirect) relationship to performance exists between e-community support and performance. A mediated model of online social capital however, did not prove statistically significant. Finally, for the co-creation antecedent, eliminating risk analysis from the model led to equally good results with the parsimonious model.

The next chapter discusses the implication of these findings and ensuing insights that help inform scholars towards a better understanding of virtual entrepreneurship

CHAPTER 5

DISCUSSION

The purpose of this study was to explicate the antecedents of performance in virtual entrepreneurial firms operating via cybermediary platforms. Three key antecedents were analyzed in detail i.e. the business model, a virtual sense of community and a co-creational model with the help of primary and secondary data and a number of post hoc analyses. In this chapter the theoretical and practical implications of the study as well as the limitations and future avenues of research are discussed. Prior to that, a brief discussion of how the findings enrich the extant knowledge about virtual entrepreneurship is presented.

The use of the Web 2.0 avatar of the internet replete with cybermediaries with their emphasis on communication, collaboration as well improved connectivity and affordability (Ponder, 2010; Cormode and Krishnamurthy, 2008) by virtual entrepreneurial firms with increasing volume and success indicates that there has been an implicit shift in the dominant logic that typically underpin the functioning of entrepreneurial firms operating in the physical world. Theoretically this leads to the deeper question of whether traditional institutional logics apply in this context and whether alternate explanations may be relevant. Treading in this relatively uncharted territory of virtual entrepreneurship, the advantages of economy, collaboration and cooperation available through Web 2.0 cybermediaries, prompted an examination of three ideal-type logics that blend together to form the Virtual Entrepreneurial Logic. Given the exponential rise in the use of this platform, and the success of entrepreneurs leveraging the advantages that it offers, raised the intriguing question of whether the three ideal-types lead to different antecedents of performance in this context. Three different potential antecedents that were most fitting for the

virtual context i.e. a business model addressing the economic dimension of the Virtual Entrepreneurial Logic, a community antecedent to address the community dimension and co-creation to address the collaborative dimension were examined through three different models.

Business Model Antecedent: Individual vs Synergistic effects

To answer the research question "*Does a business model drive the performance of virtual enterprises operating via cybermediary platforms?*" the works of Amit and Zott (2001) were drawn upon as well as theories on Schumpeterian innovation, network theory, information processing theory and the literature on product lines (Schumpeter, 1934/1942; Dubini and Aldrich, 1991; Powell, et al. 1999; Norton, 2004; McGaffey and Christy, 1975); Kotler, 2002; Kotler and Armstrong, 2013).

Results supported the hypothesis that the business model (comprised of the four value drivers - information processing capability, product portfolio complexity, innovation and network membership) would have a positive impact on the performance in virtual entrepreneurial ventures.

Most studies involving business models look at the impact of the business model as a whole. Several words and phrases in the definitions of business models also reflect this holistic approach such as "architecture" (Timmers, 1998), "system of interdependent activities" (Zott and Amit, 2010), "an interrelated set of decision variables" (Morris, Schindehutte and Allen, 2005), "these issues are all interrelated" (Teece, 2010) and "interlocking elements" (Johnson, Christensen and Kagermann, 2008). A detailed comparison of some of these definitions can be found in Zott, Amit and Massa's work (2011). Thus, they essentially posit that it is the combined effect of the

distinct value drivers that leads to desirable outcomes. It is therefore the synergistic interconnectedness of the components/ value drivers (as discussed in Ch. 2) which drives firm performance.

When considered individually, the effect of each of the components is not as substantial as only innovation showed a direct, positive and statistically significant relationship with firm performance. While this was unexpected, it is not inexplicable, given the holistic nature of business models. Interestingly, the components of information processing capability, product portfolio complexity and network membership were still critically important for the model even though they did not demonstrate individual direct effects on performance. Higher values on each of these drivers related to higher performance, and lower values related to lower performance when the full business model is looked at. It is the systemic, connected relationships among the components/ value drivers that allow firms to capture value rather than any single value driver (Amit and Zott, 2001). The combined effect of the value drivers seen in this study is in line with this tenet, which is one of the few areas of consensus in the business model literature.

Web 2.0 cybermediaries are able to provide a platform wherein many features relevant from a business model perspective such as revenue model, competitive environment, market opportunity etc. (Zott et al., 2011; Applegate, 2001; Morris et. al, 2005) are identical for firms using the platform. The Virtual Entrepreneurial logic suggests that many elements of the Market and Corporate ideal-type logics are found in the business model. These firms are driven by profit motives and have the intention to strengthen the market position of their firm. Innovation emerged as having an independent direct effect on performance, yet the other drivers need to be

present in the business model as well. This is due to the interplay between the utilization of network memberships to learn more and make better connections, the use of information to improve product portfolios, innovatively solving problems and creating changes and improvements to product portfolios, etc. (Busenitz et al, 2003; Kekre and Srinivasan, 1990; Norton, 2004, Baron et.al, 2005) that has a synergistic effect on firm performance. The theoretical implication is that the synergistic role of value drivers in the business model is more important than their independent role.

Community Antecedent: Competitive vs Cooperative

To answer the second research question i.e. *"Does a virtual sense of community drive the performance of virtual enterprises operating via cybermediary platforms?"* a community rationale was used based on the theories of sense of community, sense of virtual community, social capital, e-word of mouth and reciprocity (Blanchard, 2007; Wirtz, Schilke and Ullrich, 2010; Rothaermel and Sugiyama, 2001; Williams, 2006).

Results indicated that the sense of virtual community (Blanchard, 2007; Koh and Kim, 2003) does lead to greater e-word of mouth practices as well as e-community support behaviors in virtual entrepreneurial businesses operating on the cybermediary platform. Thus, the opportunity to be part of an online community and the emphasis on togetherness and shared experience by the cybermediary leads to a sense of camaraderie shared by actors across community. E-community support behaviors may arise from a desire for a reciprocal transaction, albeit unexpressed or the motive may be an attempt to support businesses in a similar position i.e. small, new, virtual, and part of the same community. In either case, virtual entrepreneurial ventures do engage in these behaviors as a result of the sense of virtual community experienced.

Results indicated a statistically significant positive relationship between the sense of virtual community and online social capital. The support for this hypothesis leads to the conclusion that the sense of virtual community translates into real gains in terms of better ties-strong and weak- among community actors (Putnam, 2000; Williams, 2006).

The hypothesized relationship that e-community support behaviors would lead to greater online social capital however, did not find support. There are two reasons that could explain why the relationship was not statistically significant the first of which is methodological. There are no well-established, frequently-used scales to measure e-community support behaviors as it is a relatively new concept and still under-researched in the literature. Thus, perhaps the items used to measure the concept do not sufficiently capture the construct. However, the other relationship examined i.e. e-community support and sense of virtual community was statistically significant, leading to the conclusion that some other possible reason is more likely. A potential secondary explanation is that while e-community support behaviors through financial transactions are indeed a commonly occurring outcome due to the sense of virtual community, they do not necessarily lead to more relationships i.e. the online social capital accrued is not of a magnitude significant enough to be measured. The last of the relationships tested within this model was whether the online social capital of virtual entrepreneurial firms does impact firm performance and the results indicate that this was supported. The various avenues of connectedness and sharing that information and communication technologies (ICT) make possible, do help virtual entrepreneurial businesses that are better embedded in the cybermediary community to get performance gains (Coleman, 1988; Mandelli, 2002; Williams, 2006).

Overall, this particular antecedent was examined because while there are many cooperative and communal aspects made available by cybermediaries for virtual entrepreneurial firms, further research was undoubtedly needed in this oft under-emphasized area where instead of adversarial outlooks, relationships of community abound. The Community ideal-type Logic which is part of the Virtual Entrepreneurial Logic applicable to this context, points to the fact that community factors are important to the actors but do those factors have a relationship with performance? The results were in the affirmative. Tests of the proposed model as well as the post hoc models show that the community antecedent is in fact important for firm performance in the online world. The Community ideal-type is reflected in the focus on trust and reciprocity and the shared emotional connection coming from the common boundary of the virtual community of firms. In the context of virtual firms using Web 2.0 cybermediaries, the sense of virtual community permeates through and connects businesses. This leads to multiple outcomes: e-word of mouth, e-community support and greater online social capital. In addition, the Corporate ideal-type Logic plays a crucial role because while community aspects are highly important in guiding behaviors and actions, the organization's own culture helps guide the business as well. The theoretical implications of the positive relationships among the community-related factors as well as with desirable firm-level outcomes, shows that the path to success need not be a competitive, antagonistic one but rather that firms with a pro-community, cooperative approach can succeed as well.

Co-Creation Antecedent: Independent vs Collaborative

The third and final antecedent examined in this study is co-creation so as to answer the research question "*Does a co-creational model drive the performance of virtual enterprises operating via*

cybermediary platforms?" by using the literature on co-creation and the DART model (Prahalad and Ramaswamy, 2004; Prahalad and Krishnan, 2008).

Results supported the hypothesis that dialogue positively affects dimensions of performance thereby indicating that engaging in open, frequent and interactive relationships with the customer enhances their product experience. This also allows firms to learn from customers which leads to higher levels of performance. Access makes available to customers knowledge and tools to facilitate co-creation (Prahalad and Ramaswamy, 2004) and this too was positively related to firm performance. Thus, virtual enterprises that value their customers' collaborative input and wish for greater creation of value for all actors involved can benefit in terms of firm performance by allowing their customers greater access to avenues of co-creation.

Risk assessment was not found to relate to performance of the virtual entrepreneurial firm. A possible explanation for this could be that the industry examined in this study, consumer retail goods, did not involve enough "risky goods" for it to be an aspect of business that virtual entrepreneurial firms concern themselves with. Transparency also did not have a statistically significant relationship with performance. This was somewhat surprising given that virtual entrepreneurial firms were expected to place a greater importance on increasing transparency in their interactions with customers so as to improve the overall product experience related to their business. It is possible that transparency is almost a "built-in" feature of running a business on a Web 2.0 cybermediary platform. A wide range of information is usually made available to all users. This includes a variety of information ranging from all the available payment options,

shipping companies used, materials used in the making of the products, packaging weights and sizes, delivery times, as well as information about the business and the business owners.

The use of all aspects of the model combined together does have a positive relationship with firm performance. Virtual entrepreneurial firms taking a comprehensive approach towards co-creation and engaging in all dimensions i.e. dialogue, access, risk assessment and transparency do have high firm performance.

The ideal-type Market Logic which is part of the Virtual Entrepreneurial Logic applicable to this context drives firms to improve their status in the market and increase their efficiency and profits. The use of cybermediaries in the current avatar of the internet i.e. Web 2.0, has made constant communication and collaboration ubiquitous. Virtual firms have the opportunity to provide their customers a unique product experience during their own "consumption" as well as provide collaboration opportunities to customers who are no longer passive consumers of products or information but rather can help improve the product experience and help the firms' performance. The Corporate ideal-type Logic emphasizes the importance of being part of a firm. The end goal of using co-creation, is to enhance customer experiences so as to improve firm performance as is made evident by the Corporate Logic. The Community Logic ideal-type speaks to the significance of group membership and common boundary. On these Web 2.0 cybermediary platforms, the customers too are part of the shared group space occupied by the firms. The information and communication technology tools (Ovaskainen and Tinnila, 2011) of these platforms allow firms the opportunity to collaboratively, rather than independently, attempt to improve the product experience. Firms that use this to their advantage by allowing customers

greater access to detailed information in a transparent manner while engaging in continuous and constant dialogue with them (Prahalad and Ramaswamy, 2004), do find these actions translating to firm performance. The theoretical implication is that the collaborative approach involving the co-creation of value with customers does lead to firm performance strengthening the argument in favor of collaboration.

Theoretical Contributions

With the paradigm shift in how organizations are and how they operate, a greater need for midrange theory now exists (Daft and Lewin, 1993). Recent calls harken back to Merton's (1966) ideas that we need to move beyond just day to day working hypotheses and need to shift focus from grand theory. Instead, the emphasis should be on middle of the range theory. Thus, there has been a call to move beyond "footnote on footnote" research (Daft and Lewin, 1993). By looking at a medium slice of the phenomenon, using multiple models, this study takes a step in that direction.

In considering the domain of virtual entrepreneurship, it is necessary to examine firms that operate solely or primarily online. This allows a better understanding of the effects of the virtual context on the performance of these firms. This study approached the virtual entrepreneurship context in a clear, well-defined and generalizable manner as opposed to prior research where the businesses though described as "online" had only 10% of total sales from online channels (Amit and Zott, 2011), tended to examine very few firms (Nenonen and Storbacka, 2010), or conducted small case studies (Wirtz et al., 2010). In this study, care was taken to examine "predominantly" virtual entrepreneurial firms i.e. those with at least 75% of online sales, and selecting a large sample of over a thousand virtual entrepreneurial firms from many countries. By approaching the

definition of virtual entrepreneurship in a manner better than that taken before, the results are likely to be more reflective of the virtual entrepreneurship phenomenon, offer more insight into different antecedents that could driver performance while also be more generalizable (Truong and Bhuiyan, 2009; Kuckertz and Wagner, 2010).

The lack of large scale empirical studies is also a major issue in the business model literature as it leads to limited insights on the evaluation criteria as well as limited information on structures of business models (Burkhart, Krumeich, Werth and Loos, 2011). Though online business models have been examined in the past (Amit and Zott, 2001; Kshetri, 2007/2008; Lyubareva, Benghozi and Fidele, 2014), this study makes a contribution by being the first to examine business models on predominantly virtual entrepreneurial ventures operating on Web 2.0 cybermediary platforms.

As the literature on business models is somewhat fragmented (Zott et al., 2011) and identifying the value drivers pertinent to the particular context is challenging, prior research on the business models have often taken a data-driven approach, gathering a plethora of value drivers to statistically determine what works in a particular context (Sen and Swierczek, 2007; Bose and Oh, 2004). In contrast, the present study took a theory-driven approach (following Amit and Zott, 2001) to determine the most relevant value drivers for virtual entrepreneurial firms operating on cybermediary platforms.

Not all business models work in all settings because within the virtual context a great deal of variation is possible in the business model used (Weill and Vitale, 2002). Therefore lists of

different possible e-commerce models are proposed (e.g. Weill and Vitale, 2002: Applegate, 2001) specific to the needs of different businesses. This particular business model is a new addition as it is specifically applicable to the virtual entrepreneurial firms on Web 2.0 cybermediaries.

The relationship between the innovation value driver and firm performance is also noteworthy The use of the same cybermediary allows these virtual entrepreneurial firms access to similar resources, knowledge, information and communication technology tools, and customer bases (Grigoryan, 2006). The benefits accrued due to this such as being protected from liabilities of newness and smallness (Bruderl and Schussler, 1990; Freeman et al., 1983; Shapiro and Varian, 1999), comes with a price- a degree of homogenization which makes it perhaps imperative for the businesses to focus on different aspects of innovation so as to offer more value among thousands of similar businesses which are but one click away (Weill and Woerner, 2012). Establishing this clear path between innovation and firm performance for virtual entrepreneurial ventures highlights the fact that in this context, innovation is important for the sake of innovation of course but also due to the homogeneity factor.

With regard to the community rationale deployed to examine the second antecedent, some important contributions are made. The sense of virtual community permeating across virtual businesses operating through the same cybermediary, directly leads to three desirable outcomes i.e. e-word of mouth, e-community support and online social capital. Thus, these are not symbolic or token community connections and bonds but instead are rather valuable for the virtual entrepreneurial firm itself in terms of increased promotions of their business (e-word of

mouth), financial reciprocity among fellow virtual entrepreneurs (e-community support) and improved ties among firms (online social capital).

In this study, the promotion of online entrepreneurial ventures by other firms highlights the potential gains of coming into the spotlight as transmitters and likelihood of being favorably viewed by other community actors. Typically e-word of mouth promotion has been considered as customer reviews that promote businesses using online communication channels (Bosman, Boshoff and van Rooyen, 2013). It is likely that the sense of virtual community prompts firms (rather than customers) to promote other firms in this specific context.

Secondly, the sense of virtual community has usually been applied to either individuals or to entire communities in past studies (Blanchard, Welbourne and Boughton, 2011; Sutanto, Kankanhalli and Tan, 2011). The use of the sense of virtual community construct and the empirical test of the related measurement scales (Blanchard, 2007) from a firm-level standpoint helps shed light on how businesses can become a part of a community and interact as community members towards similar businesses as well as other stakeholders such as customers and users of the cybermediary. Online communities exist in many shapes and forms (Hagel and Armstrong, 1997) and their sense of community has been alluded to in the past but predominantly from the perspective of how individuals may benefit from such communities. By showing that other actors, such as online entrepreneurial firms, can benefit from the sense of virtual community, the theories on sense of virtual community and businesses as community members (Blanchard and Markus, 2004; Lähdesmäki and Suutari, 2012) are extended. Additionally, the significance of online social capital and the role it plays as a valuable resource for virtual entrepreneurial firms

leading to greater performance is yet another contribution from examining the community-related antecedent.

With regard to the co-creation antecedent, results show that it is not necessary to be a large firm to gain the benefits afforded by co-creating with customers but rather even small entrepreneurial firms are able to leverage co-creation to their advantage. Collaborating and creating value with customers has positive outcomes for all actors involved, for businesses of all sizes and even those that are relatively young (the average age of the firms for this study was 4.25 years). Additionally, co-creation is by no means restricted only to the physical or offline world even though most of the dominant examples may be of physical, offline businesses such as ICICI banks, NIKE or Nokia (Wirtz et al., 2010; Prahalad and Krishnan, 2008) .The online Web 2.0 world provides many mechanisms for co-creation to flourish and results show clear performance benefits may be actualized by virtual entrepreneurial firms engaging in co-creation. Thus, a theoretical extension of Prahalad's work with Ramaswamy (2000/2004) and with Krishnan (2008) to small entrepreneurial ventures on Web 2.0 cybermediary platforms is another contribution of this study.

Thus, a better understanding of what drives performance, beyond the typical economic factors, is engendered by examining the community and co-creation rationales. This brings to the forefront, the important role played by sense of virtual community, e-word of mouth promotion, e-community support behaviors and online social capital in the virtual entrepreneurship process taking place on Web 2.0 cybermediary platforms while also validating aspects of the DART model as it applies to these ventures.

The sample of firms examined in this study was composed of owner-operators whose firms had none to very few employees. The findings offer insight into microenterprises which have been referred to as the next entrepreneurial frontier (Chandy and Narasimhan, 2011). Microenterprises that may have likely suffered an early demise due to the liabilities of smallness, (Bruderl and Schussler, 1990; Freeman et al., 1983) are given a leg up by Web 2.0 cybermediaries. This study answers the call for more microenterprise research as well. Barnes et al. (2012) in their case-study based research into Web 2.0 and microenterprises in the UK outlined the need for large-scale empirical research that looked at how Web 2.0 technologies benefitted microenterprises in multiple countries.

The blending approach described by Thornton et al., (2012) was utilized to show how three ideal-type interinstitutional logics recombined to form a new logic applicable to the institutional context comprised of virtual entrepreneurial firms on Web 2.0 cybermediaries. Thus, a specific logic applicable to this specific institutional context is described herein. This logic was termed the Virtual Entrepreneurial Logic.

While identifying the ideal-types of logics applicable has been discussed above, it is also important to make a note of the relevance of the different logics. Besharov and Smith (2014) describe how compatibility i.e. the degree to which the multiple logics recombined are consistent with each other as well as centrality i.e. the extent to which multiple logics are treated as equally important in the recombined logics, help explain the varied nature of how multiple logics coexist. Using their framework, it can be seen that the "Virtual Entrepreneurial Logic" proposed for this

context, is similar to the aligned category proposed by Besharov and Smith (2014) as the multiple logics have high centrality with aspects of Corporate, Market and Community ideal-types. All play a significant role without the clear dominance of any one logic over another. There is also a high level of compatibility as the logics do not compete with one another but are consistent and blend well together.

While the work of Besharov and Smith (2014) relates to single organizations, it can be extrapolated that in this context, where the three logics of Market, Corporation and Community are equally valid and relevant and there is overall unity in how the blended logic operates, the "aligned" description is apt. Future researchers may build upon further extensions of the Virtual Entrepreneurial Logic.

Practical Implications

Would-be entrepreneurs often have to contend with hastily compiled business models or have to find a business model that works through iterative means (Shafer, Smith and Linder, 2005). Findings from this study on the synergistic effect of value drivers in the business model can be implemented by virtual entrepreneurs.

The knowledge that there are benefits of being part of the virtual community in this context is useful for future entrepreneurs as well. Virtual enterprises in practice, can use the tools and technologies made available to them by the Web 2.0 cybermediary to interact with other similar businesses, create direct and indirect bonds, cross-promote each other and engage in reciprocal behaviors of a financial nature (Krollmann and Krell, 2011; Kayri and Cakir, 2010) .

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Additionally would-be virtual enterprise owners can take note that B2B e-word of mouth is highly relevant in addition to customer e-word of mouth. Thus, the permeating sense of virtual community coupled with the positive pro-community practices outlined in this study would help virtual entrepreneurial firm performance.

Future virtual entrepreneurs can enter the virtual business world armed with information on how the different factors of co-creation and indeed co-creation as a whole, are important even for small and microenterprises and positively affect firm performance. By examining co-creation from the perspective of the business, the importance of engaging in open dialogue and providing access to information and tools to customers is emphasized in this study. E-entrepreneurial firms can act upon the knowledge that co-creation is useful and practicable, to develop more customer-centric and customer-oriented businesses (Piller, Ihi and Vossen, 2011) which would enable them to co-create value for their current and future customers. This in turn could lead to better product quality, customer satisfaction, reduced risk and performance (Fuller et. al, 2007; Nambisan and Baron, 2007; Maklan, Knox and Ryals, 2008)

Teaching in entrepreneurship can also benefit from this study as instructors can help share knowledge that would aid would-be virtual entrepreneurs in the classroom. Instructors can emphasize that in addition to traditional physical entrepreneurial ventures or starting an online business from scratch, the Web 2.0 cybermediary platforms offer user-friendly approach to starting up businesses. Additionally, as the three antecedents were positively related to firm performance, the value of multiple logics is seen i.e. while a purely economic approach as

epitomized by the business model approach is valid, so are approaches based on community and collaborative antecedents.

Limitations and Future Directions

This study looks at a specific cybermediary, Etsy.com. Though the focus on a particular cybermediary was necessary to ensure uniformity in comparing businesses (all firms had access to the same tools and technologies, and all firms were part of the same community), this does pose a limitation in terms of generalizability. Additional cybermediaries such as Artfire.com and DaWanda.com could be included in future studies.

A second limitation is that the entrepreneurs running these virtual enterprises were mostly female. While no gender effects were expected given the models specified, it cannot be completely ruled out either without further investigation. As many of the cybermediary websites were originally craft-oriented, the female to male ratio was 80:20. Hence an attempt to ensure that half the respondents were male was not only unfeasible but also renders non-representative the sample of entrepreneurs using these cybermediaries.

A third limitation was that the study was cross-sectional. Ideally, longitudinal data would be useful to study firm performance in virtual entrepreneurial ventures to see how the different antecedents affect performance over a period of years while also allowing a closer examination of the survival rates of such ventures. Future researchers may pursue additional examination of firm growth and expansion, their mortality rates as well as determine whether the benefits likely to be accrued from reduced liabilities of newness and smallness were truly realized.

Another question that researchers may seek to address is whether virtual entrepreneurship is a passing fad similar to the dotcom craze? At this juncture, it seems highly unlikely that the overall use of the internet for entrepreneurial purposes is a mere passing fad. However with specific regard to the Web 2.0 cybermediary use for the purposes of entrepreneurship, this could lose fervor when new internet versions Web 3.0 and beyond bring with them massive new changes or conversely, lose fervor because of a re-channeling of focus by e-entrepreneurs on purely economic outcomes with no interest in cooperation, collaboration or similar non-monetary factors. Additionally if setting up a website and establishing customer relations becomes very easy for standalone businesses that too could impact the existence of such businesses as those are two major benefits of using the Web 2.0 cybermediary platforms i.e. no expertise being required of would-be entrepreneurs and an established, pre-built customer base.

As this study was conducted in a relatively new and under-researched area, theoretical models were developed to explicate the direct effects of three key antecedents to performance in virtual entrepreneurial firms. Additional research questions could be undertaken in future. For instance, future researchers could help answer the following questions- do individual characteristics of entrepreneurs such as their social adaptability or values play a role when it comes to the community antecedent? Would environmental dynamism have a moderating effect on the co-creation practices of virtual entrepreneurial firms? Does having greater resource slack affect the utilization of the business model discussed in this study?

Web 2.0 cybermediaries offer a unique opportunity to virtual entrepreneurs all over the world. They can set up their virtual enterprise with ease irrespective of the country they are in, as well

as potentially be "born-globals" as they can sell their products or provide their services to customers all over the world. It would be interesting to see if any country-level differences exist in the utilization of these Web 2.0 cybermediaries.

Conclusion

There is a dearth of quantitative empirical research on e-business in general and virtual entrepreneurship via cybermediary platforms in particular, and this study helps fill that gap. Taking note of the distinctiveness of the virtual context and the specific recombination of institutional logics that operate in the institutional context of Web 2.0 cybermediary platforms, three different antecedents were examined in this study. Thus, at the outset, the purpose of this study was to answer whether a business model, a virtual sense of community or a co-creational model drove the performance of virtual enterprises operating via cybermediary platforms. The results showed all three antecedents drive firm performance in virtual entrepreneurial firms.

In conclusion the virtual entrepreneurship phenomenon has become increasingly relevant from a theoretical and practical standpoint. Researchers can benefit from the theoretically well-grounded findings of this study to understand how virtual entrepreneurial firms function in the Web 2.0 world by blending logics that represent economic, community and collaborative features. While additional investigations into virtual entrepreneurship are needed, researchers can use the current theoretical and practical insights to further the development of virtual entrepreneurship as an important topic within the field of entrepreneurship.

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