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## **DIGITAL ENTREPRENEURSHIP: RESEARCH AND PRACTICE**

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### **ABSTRACT**

Digital entrepreneurship is broadly defined as creating new ventures and transforming existing businesses by developing novel digital technologies and/or novel usage of such technologies, (European Commission, 2015). Digital entrepreneurship has been viewed as a critical pillar for economic growth, job creation and innovation by many countries including the Member States of the European Union. We argue that a nation's digital entrepreneurial capacity depends largely on digital entrepreneurial behaviour, culture, and strategies as well as a supportive innovation ecosystem in which governments, industry, business, educational institutions and NGOs (non-government organizations) work together. Therefore, a holistic and integrative approach is needed. This study aims to explore the emerging concept of digital entrepreneurship from multiple disciplinary perspectives, namely, information technology and systems, entrepreneurship and management, as well as contextual political/legal and socio-economic factors and their impacts in a systemic and integrative way. For that purpose, the paper develops a conceptual model to study digital entrepreneurship drawing on current literature and three well-established theories – social network theory, social capital theory and institutional theory. The model addresses five fundamental research questions of digital entrepreneurship, thus leading to a better understanding of the concept and practice of digital entrepreneurship.

### **INTRODUCTION**

The rapid proliferation of digital technologies with new functionalities has profoundly changed competitive environments, reshaping traditional business strategies, structures and processes (Bharadwaj et al. 2013). For example, in the networked economy powered by digital technologies, many organizations are getting smaller, with one-person companies and partnerships proliferating. New digital technologies such as social media, big data, and mobile and cloud solutions technologies give rise to new ways of collaborating, leveraging resources, product/service design, development and deployment over open standards and shared technologies (Markus and Loebecke, 2013). These technologies power the digital economy by bringing in a new range of opportunities with substantial potential business value and can dramatically reduce the cost for new ventures (Zhao et al., 2015). A good example is Alibaba.com which has helped millions of Chinese become entrepreneurs and, in the process, created many jobs.

Although the opportunities created by digital technologies are enormous, they also bring serious challenges. Digital technologies are reshaping fundamentally the labour market. Take Australia for example. Around 40 per cent of Australian jobs that exist today will be lost in about 20 years' time according to a recent research report by the Committee for Economic Development of Australia (CEDA, 2015). To harness the opportunity and address the challenges that are brought forward by digital technologies, we argue that Australia needs to position itself to better take advantage of digital entrepreneurship. Although the Australian Government has developed a series of national strategies to enhance Australia's digital transformation, Australia does not have a national strategy to grow the digital entrepreneurship capability that drives the digital economy and realizes the business value of digital technologies. According to a recent survey conducted by PricewaterhouseCoopers (PWC, 2014), Australia's digital IQ (i.e. how well organisations capture the value they expect from technology investments) is 61 per cent, which is below the average (63 per cent) of the 36 countries surveyed. In the same survey, it was also found that only 43 per cent of company executives in Australia say that they have a digital enterprise roadmap that includes digital business capabilities and processes, whereas the average of the 36 major economies surveyed is 53 per cent. The findings indicate that a significant gap exists between Australia and other major economies in terms of digital IQ and digital strategy development. Australia will lose its competitiveness if its businesses fail to embrace the rapid and fundamental changes as a result of digital technologies and embrace digital transformation. This paper argues that its capacity to do so depends largely on digital entrepreneurial behaviour, culture, and strategies as well as a supportive innovation ecosystem in which governments, industry, business, educational institutions and NGOs (non-government organizations) work together.

Digital entrepreneurship, as an emerging phenomenon, fuses and involves stakeholders from different social and economic sectors. This paper posits that a holistic and integrative approach is needed. For example, growth in the number of digital entrepreneurs relies on the digital business skills of individuals as well as systemic support through transformative policies and programs from governments, industry/business, education and training institutions and the society as a whole. In this regard, this paper aims to explore the emerging concept of digital entrepreneurship from multiple disciplinary perspectives, namely, information technology and systems, entrepreneurship and management, as well as contextual political/legal and socio-economic factors and their impacts in a holistic and integrative way.

## **DIGITAL ENTREPRENEURSHIP RESEARCH**

While the term 'digital entrepreneurship' has been used by some researchers and policy makers, its conceptualization remains quite elusive. There is very little scholarship evident in the study field of

digital entrepreneurship. Is digital entrepreneurship a sub-set of entrepreneurship associated with digital technologies? Or is it a sub-set of digital economics associated with entrepreneurship? Or is it sufficiently important or distinctive to be recognized as a separate field of scholarship? Only recently have some studies in the entrepreneurship field started to examine the impact of digital technologies on entrepreneurs' decision making (Fischer and Reuber 2014; Sigfusson and Chetty 2013) and entrepreneurial activities for venture development (Allison et al. 2014). There is a lack of conceptual discussion and development of the concept of digital entrepreneurship as most prior research on using digital technologies in entrepreneurship examined only sporadic phenomena related to it. Some important fundamental questions remain largely unanswered in the current literature. For example, how do digital technologies transform entrepreneurship? How is digital entrepreneurship different from traditional entrepreneurship? How would digital entrepreneurship predict performance outcomes? Several review articles on entrepreneurship identify other gaps in understanding the use of digital technologies by entrepreneurs (Kiss et al. 2012; Mainela et al. 2014).

Recent developments in entrepreneurship research have given increased attention to the novel usage of digital technologies for entrepreneurship. For instance, Sigfusson & Chetty (2013) report how international entrepreneurs involved in software in Iceland use social networking sites to develop their social capital and to identify opportunities. Digital platforms, such as open source communities (Yetislarsson et al. 2014), or innovation competition websites (Lampel et al. 2011), can serve as marketplaces of knowledge and innovations (Dushnitsky and Klueter 2011), or as brokers between solutions seekers and problems solvers (Fischer and Reuber 2014). Recently crowdfunding has received growing interest from the IS field (Burtch 2014; Zheng et al. 2014) and such studies provide interesting insights into funders' lending behaviors and contribution patterns on crowd-funding websites.

The potential for digital technologies to be a distinct economic influence was recognized some time ago, such as in the comments by Rosenbaum and Cronin (1993) when they remarked (p. 461) that:

*Of much greater importance, however, is the growing awareness among many companies and entrepreneurs that there is strategic and economic advantage to be gained by becoming involved in the growth and development of electronic networking ...*

With improving communication and increasing specialization, opportunities for individual actors to participate in the digital economy increased. This is identified and, to some extent explained by Yetislarsson, Teigland and Dovbysh (2015). They introduced this concept by saying (p. 475):

*In the contemporary economy, work is increasingly becoming freelance-based while moving online. Open source software communities are rapidly becoming arenas in which individuals identify, co-create, and realize opportunities through shared resources and expertise. Operating in a communal setting, these*

*individuals, who we label open entrepreneurs, work and collaborate with members of their own open source community.*

Yetis-Larsson et al. identify their *open entrepreneurs* as becoming economically more important and their work model self-sustaining. In order to realize the potential of digital entrepreneurship government settings have to be, if not encouraging, at least benign. This was recognized by the OECD as early as 2001 (OECD 2001, p. 8) when it noted that:

*Policies that engage ICT, human capital, innovation and entrepreneurship in the growth process, alongside policies to mobilize labor and increase investment, are likely to bear the most fruit over the longer term. But to have any chance of succeeding in these areas, governments must ensure that the fundamentals – macroeconomic stability, openness and competition, as well as economic and social institutions – are working.*

It is clear that political, economic and social environments all have a role to play in the development of digital entrepreneurship.

## **WHAT IS DIGITAL ENTREPRENEURSHIP?**

Digital entrepreneurship is a term that appears to have only a vaguely-settled meaning. While it is a rather complex definition, that used by the European Commission (2015, p.1) appears to be the only attempt to define digital entrepreneurship up to now:

*Digital entrepreneurship embraces all new ventures and the transformation of existing businesses that drive economic and/or social value by creating and using novel digital technologies. Digital enterprises are characterized by a high intensity of utilization of novel digital technologies (particularly social, big data, mobile and cloud solutions) to improve business operations, invent new business models, sharpen business intelligence, and engage with customers and stakeholders. They create the jobs and growth opportunities of the future.*

Arguably, digital entrepreneurship is probably the most significant single manifestation of entrepreneurship and has flow-on effects into the structure of business itself. In this regard, digital entrepreneurship appears likely to have a profound effect on all advanced economies. For example, the Australian Innovation System Report (2015, p. 46) noted:

*The values of entrepreneurial organizations have mostly been heralded for employment generation and commercialization of new inventions. This is all changing with the rise of the knowledge and digital economy, where entrepreneurs and the organizations they create are uniquely positioned to exploit new opportunities, adopt new production methods and technologies, and reshape competition by penetrating new markets.*

It is reasonable to conclude that digital entrepreneurs will have a profound influence on the further development of the internet and the digital economy.

### **WHY IS DIGITAL ENTREPRENEURSHIP IMPORTANT?**

According to Murphy et al. (2005) it is primarily entrepreneurship that has been responsible for the amazing increase in Western per capita income over the past 200-300 years. The continuing importance of entrepreneurship in Australia is demonstrated by Hendrickson et al. (2015) that the increase in employment that occurred during the Global Financial Crisis, the greatest economic downturn since the Great Depression of the 1930s, was attributable to entrepreneurship. As noted by Zahra (1999), entrepreneurship should be considered as a significant socio-economic development factor in solving unemployment problems, by providing a wider range of consumer products, and increasing competitiveness and overall prosperity.

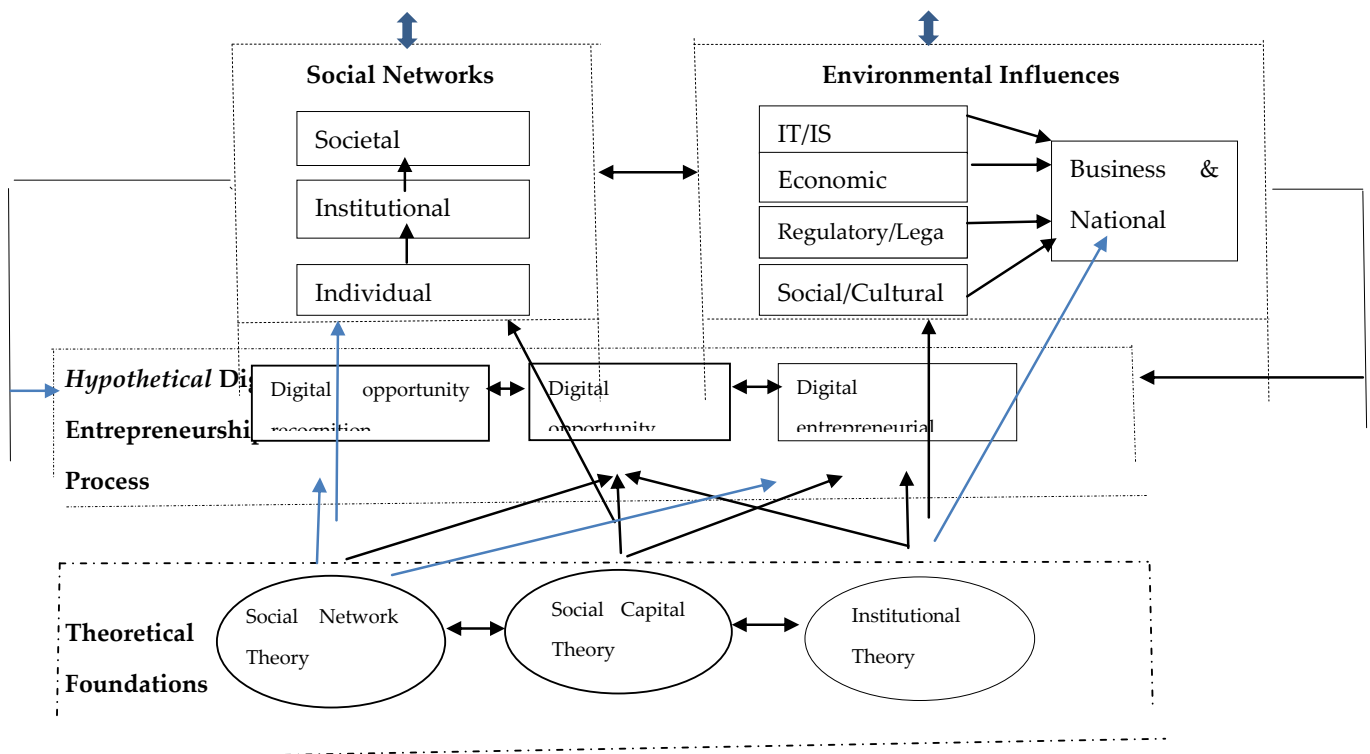
In the context of Australia, with the rapid growth of ICT and digital technologies, the contribution of the ICT sector to the Australian economy was profound because the direct contribution of the internet to the Australian economy is around \$50 billion, or 3.6% of GDP (AIIA 2015). As recently as 2015, *Seek*, the largest job advertising agency in Australia, has reported that 10% of job vacancies are currently in the ICT sector. Australian research shows that small and medium sized enterprises actively using new technologies to improve communications and business processes create more new jobs and generate more revenue than SMEs that use little technology – in fact, between 2010 and 2012 SMEs regarded as leaders in the adoption of technology increased revenues 15 percentage points faster and created jobs at twice the speed of less progressive companies. A recent PWC analysis estimates that Australian small businesses can generate additional \$49.2 billion revenues in the next ten years by making better use of digital technologies, of which 53 per cent could be realized in rural and regional Australia (PWC Australia, 2015). All this evidence demonstrates the importance to the Australian economy of promoting digital entrepreneurship. To achieve its vision of becoming a global leading digital economy by 2020 (Australia Government, 2011), we argue that Australia needs a national strategy and a concerted national effort to grow the digital entrepreneurship that drives the digital economy and realizes the business value of digital technologies.

### **A CONCEPTUAL MODEL TO STUDY DIGITAL ENTREPRENEURSHIP**

Digital entrepreneurship as an emerging concept differs from the traditional and general entrepreneurship that has been studied for years. The European Commission (2013) identified five 'pillars' in its conceptual model of digital entrepreneurship, each of which is relevant in the analysis of digital entrepreneurship:

1. Digital knowledge base and ICT market.
2. Digital business environment.
3. Access to finance.
4. Digital skills and e-leadership.
5. Entrepreneurial Culture.

We argue that to study this new phenomenon in an integrative and holistic way, a new conceptual framework is needed. Figure 1 illustrates our proposed approach to the study of the relationships amongst variables in a hypothetical process (which is yet to be empirically tested) of digital entrepreneurship. Given the social and networked nature of digital entrepreneurship, three theories: social network theory (e.g. Borgatti et al., 2009); social capital theory (e.g. Nahapiet and Ghoshal, 1998); and institutional theory (DiMaggio and Powell, 1983), are selected as the theoretical foundations for our model. Social networks and social capital commonly appear to interact with each other in digital entrepreneurship development. For example, open source software (OSS) communities are increasingly attracting entrepreneurs to create and obtain economic benefits through sharing knowledge and innovation in the communities (Yetis-Larsson, et al., 2015). The key argument in social capital theory is that relationships among members in a social network can become or lead to an important source of social capital (e.g. information, knowledge and resources). The position of individuals or firms in the network also affects their innovation performance. Studies suggest that the higher the centrality, the higher the performance (Tan et al., 2014).



**Figure 1. Conceptual Framework for Study of Digital Entrepreneurship**

By using these theories, this model helps explore how social networks at individual, institutional and societal levels, and social capital, online and offline, affect digital opportunity identification and exploration as well as entrepreneurial outcomes. In particular, this model allows us to investigate the role and intensity of social networks and social capital in, and the effects of their interaction on, the development and outcomes of digital entrepreneurship. This line of inquiry will help answer the following two research questions:

1. What role do social networks play in digital opportunity identification and exploration at individual, institutional and societal levels?
2. How, and to what extent, do social networks become or lead to an important source of social capital in digital entrepreneurial development and performance?

The answers to the questions can help examine and test whether and how digital entrepreneurs follow the same entrepreneurial process as traditional ones, namely, opportunity recognition and exploration, and entrepreneurial outcomes.

To investigate the environmental influences, in particular, the role of enduring systems or institutions in the development of digital entrepreneurship, the model draws on institutional theory (DiMaggio and Powell, 1983). According to institutional theory, institutional forces have many facets, which Scott (1995) summarized and categorized into three – regulatory, social and cultural influences that promote survival, and legitimacy of an organization. Institutional forces can be formal and informal

(North, 1990). Formal institutions refer to laws, regulations, and their supporting apparatuses and informal ones could be social norms, values and beliefs. Although institutional theory has been adopted in entrepreneurship research and proved to be highly useful (Bruton et al., 2010), its application in digital entrepreneurship research is novel. We argue that the theoretical lens of institutional theory allows researchers to explore in-depth what and how a society's regulations and rules, social norms and culture can do to influence the ecosystem in which digital entrepreneurship can thrive. Given the important role that the economy and ICT can play, the model also uses them as environmental forces for the study. This line of inquiry addresses the third and fourth research questions below. The results of this inquiry will complement the findings from social networks and social capital perspectives and can help develop sound business and national digital entrepreneurship strategies to answer the fifth research question below.

3. What and how do digital technologies transform entrepreneurship in the developmental process and in terms of outcomes?
4. What and how do environment forces (e.g. ICT, economic, regulatory/legal and social/cultural) influence the process and outcomes of digital entrepreneurship?
5. What support mechanisms, structures, strategies, and performance variables are needed for Australian digital entrepreneurs and firms to enhance their performance?

## CONCLUSION AND FUTURE RESEARCH

There is an arguable case to recognise digital entrepreneurship as a distinct field of academic scholarship in its own right based on its social and economic importance. The European Commission has, through its 2013 study into digital entrepreneurship, identified this topic as worthy of specific analysis. There is a body of scholarship, albeit an apparently quite thin body, related to digital entrepreneurship that presently exists, and this body of scholarship has found several homes, principally in the existing areas of digital economy and entrepreneurship. Taking each of these factors into account there is a case for recognition of digital entrepreneurship as a new and growing area of scholarship and research. In this regard, the present study paves the way for future research into this important and yet underexplored study field.

**Keywords:** *Digital entrepreneurship, digital economy, social network theory, social capital theory, institutional theory*

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