

Chapter 12

Women Entrepreneurship and Digital Technologies: Towards a Research Agenda



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Abstract *Purpose* The aim of this paper is underline how the new emerging digital technologies could be of great value in expanding the opportunities for women entrepreneurship by supporting them in overcoming the constrains they face as well as in creating more favorable network environment. This is creating the conditions for a new phenomenon called *Digital Women Entrepreneurship*. *Methodology* A qualitative literature review in relation to women entrepreneurship activities and the emergence of digital technologies is performed. *Findings* Specifically the contribution and the impact provided by the Digital Technologies will be analyzed for women entrepreneurship. A holistic interpretative framework for analyzing Digital Women Entrepreneurship is proposed. A conceptual discussion on how the Digital Technologies opportunities could be valuable in overcoming some of the constrains women tackle in their entrepreneurship process and which are the main research streams that emerge for future investigation on the theme. *Originality/value* Even if the literature on Women Entrepreneurship is well covered, to our best knowledge the intersection between the two fields remains unexplored. The paper provides a contribution in this direction, identifying new trends and future directions for research. *Practical implications* The major implication is to advance knowledge and practice in the area of gender in management and use of Digital Technologies

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by focusing upon empirical research, theoretical developments, practice and current issues. Benefits are related to a better understanding of the debate on “Gender and Management” themes by reconsidering networking activities with social media.

Keywords Digital technologies · Women entrepreneurship · Digital platform Entrepreneurial process

12.1 Introduction

The participation of women in labor force, especially in entrepreneurial positions, has, in our country, a significantly lower rate than the European average (38.7% vs. 53.1%) (data Presidency of the Council Minister’s Office, Department of Equal Opportunity 2009).

However, some studies (SFC—TRAINING SYSTEMS CONFINDUSTRIA ScpA and Ecoteam Ltd. 2010) show that, despite the fact that these indicators are among the lowest in Europe and work-family services are limited, women show an interesting dynamism towards business. This has been seen also in the last two years of deep economic crisis. Therefore, supporting the development of women is important; it can be seen as a strategy to encourage both, employment growth and local development.

Moreover, many studies show that the under-use of women “labour force” (both as employees and entrepreneurs) is a high cost for the productive system. Over the past few years, the positive economic effects of the women labour force have been demonstrated. Therefore, actions to enhance the development of women enterprises are important mainly in the current period of crisis. In fact, woman entrepreneurs are important for both the family, because they can contribute to the family income, and the economic development. Even if appear that women don’t do an accurate analysis of the risks when they want to start a business. For these reasons we decided to focus on start-up businesses of women in order to understand the factors which facilitate and/or hinder this phase. There is a trend for women to integrate professional life with private life, while men tend to separate them (BroBrush 1992; Caputo and Dolinsky 1998; Donati and Prandini 2009).

Moreover, from the other side, the emergence of Digital Technologies cannot be neglected as main source for innovation also in all the above activities characterizing the entrepreneurship more in general. Nambisan et al. (2017) introduced the concept of digital technologies as the result of three distinct but related elements: digital artifacts, digital infrastructure and digital platforms. This wave of digital technologies opens new channels and connections to markets, users and other stakeholders (Abernathy and Clark 1985). In researches concerning women’s entrepreneurship and its approach to “network”, attention is mainly paid to the study of how the networks look like. Less attention is paid to both, the motivations to build a certain kind of network and the impact it can have for the management and performance of the women business. It is believed (D’Egidio 2001), that the

quality of the relationship between the entrepreneurs and customers, suppliers, retailers, producers and other business partners, as well as the value of reputation in the market and among investors, are intangible factors that can greatly affect the results of the company.

However, even if the digital technologies phenomenon has been analyzed for the organizations in general, suggesting the rise of a new category of Entrepreneurship, Digital Entrepreneurship (defined as a relevant socio-economic and technological phenomenon, which can be considered as leveraging digital technologies in order to shift the traditional way of creating and doing business in the digital era), to the best of our knowledge, the impact of digital revolution on specifically women entrepreneurship remains not addressed. Against the above premises, the paper aims to analyze the impact of digital technologies on women entrepreneurship taking a holistic approach to define the theory, research, policy and practices behind this emerging phenomenon.

This work aims at reflecting on the role of Digital technologies in order to know the state-of-the-art and to understand whether and to what extent studies conducted so far in the field of women entrepreneurship and digital technologies have addressed these issues: *Which are the opportunities that Digital technologies provide for Women Entrepreneurship? How Digital technologies could influence new Women Entrepreneurship initiatives?*

From a methodological point of view this paper relies on a qualitative literature review about women entrepreneurs and Digital Technologies. While the review highlights a lack of researches focusing in the intersection of these fields, this paper tries to close the gap by providing a holistic interpretative framework for analyzing Digital Women Entrepreneurship, by linking together these two areas of research and mapping the main problems challenges of Women Entrepreneurship with the Opportunities that Digital technologies provide for the entrepreneurial process. Then we introduce some new research streams that are relevant for future research in the aim to widen the women entrepreneurship literature.

The remaining part of the paper is structured as follows: in the second section the relevant literature will be analyzed, then a conceptualization about the impact of Digital Technologies on Women Entrepreneurship will be proposed, discussions will provide avenue for a future research agenda and conclusion will close the paper.

12.2 Literature Framework

The literature streams considered for the research are women entrepreneurship and the emerging field of Digital Technologies.

12.2.1 *Women Entrepreneurship: Issues and Perspectives*

In accordance with the literature analysis carried out by Paoloni and Demartini (2016) we can highlight how the main issues addressed by the literature on gender are:

- **Corporate governance**, includes those papers that are inherent to the issue of corporate governance and the presence of women on boards of directors (Pesonen et al. 2009), audit or other company committees. It also includes articles concerned with career paths (Healy et al. 2011; Tlaiss and Kauser (2011), the glass ceiling phenomenon (Guillaume and Pochic 2009) or female leadership (Grisoni and Beeby 2007) and dissemination of knowledge inside the firm (Durbin and Tomlinson 2014; Powell 2012).
- **Female entrepreneurship** includes all the research on female entrepreneurship, the family business, relational capital, the activation of the formal and informal networks that women entrepreneurs activated during the life cycle of their company (Paoloni 2011), and different problems that women have to overcome in doing business (Lewis and Simpson 2010; Kirkwood (2009); Hancock 2012; Tyler and Cohen 2008). The debate on women's social capital (Broadbridge et al. 2006a, b) and on the ability of women to create a network is also of considerable interest. Another, critical startup problem of women business owners seem to be a lack of confidence in women business owners' abilities on the part of banks, suppliers, and clients alike, as well as family issues. Additional problems, such as marketing and labor difficulties and disagreement with associates, may arise after the startup phase (Lee-Gosselin and Grisé 1990).
- **Conflicts of interest** embrace the papers that talk about the problem of conflicts between work and family, maternity, time management between a woman her children, husband and work and how the cycle of career coincides with the life cycle of a woman (Emslie and Hunt 2009; Kelan 2010; Wood and Newton 2006; McDonald et al. 2005; Ezzedeen and Ritchey 2009) and how to face the problems of conciliation between work and family (Russell et al. 2009; Atkinson and Hall 2009), work-life balance and flexible work (Smithson and Stokoe 2005; Crompton and Lyonette 2011). Neider (1987) mentioned the difficulty of delegating authority and the tension caused by conflict between life and career as important problems. Brown and Segal (1989) reported that finding and keeping qualified professional staff, finding and keeping skilled labor, making the business profitable, and doing government paperwork pose additional major problems.
- **Differences between men and women**—includes those studies who are interested in differences between men and women in different socio-political contexts (Joshi et al. 2007; Swan 2010; Holvino 2008) or socio-economic (workaholic) (Aziz and Cunningham 2008; Van den Brink and Stobbe 2009; Powell et al. 2009); and different geo-political contexts (Booyesen and Nkomo 2010; Crump et al. 2007; Tienari et al. 2009; Jamali 2009). Access to finance is another typology of differences between men and women. In fact, different studies have

argued the challenges related to the access to finance for female entrepreneurs (Coleman and Robb 2009). A study of IFC & GPMI (2011) argues as on average, women have less access to basic financial services as result of a lack of self-confidence in women business owners' abilities on the part of banks, suppliers, and clients alike.

- **Discrimination** at work is the relevant category to highlight situations of discrimination against women in the workplace, political, economic and social field. In particular, some articles enunciate new models to explain gender inequality (e.g. Czarniawska et al. 2013; Dick and Hyde 2006; Baines 2010; Davey 2008; Eriksson-Zetterquist and Styhre 2008; Bird 2011).

In the next section the emerging role of Digital technology will be analysed.

12.2.2 The Role of Digital Technologies

The rapid acceleration of digital technologies is reshaping markets and society globally (Nambisan et al. 2017). Digital technologies, such as social media, mobile, business analytics, Internet of Things, Big data, Advanced Manufacturing, 3D printing, cloud and cyber-solutions, MOOCs, artificial intelligence are nowadays impacting all the business processes, manufacturer or service, private or public organisations (Fischer and Reuber 2011; Greenstein et al. 2013; Fitzgerald et al. 2014).

Entrepreneurs and innovators are adopting digital technologies to develop new forms of entrepreneurial actions that moves beyond the traditional industry boundaries, to include networks, ecosystems and communities, so accelerating the evolution of new ventures (e.g., Chandra and Leenders 2012; Huang et al. 2017; Rayna et al. 2015). Several authors are analysing impact and future challenges deriving from digitization: impact of digitization on innovation (Yoo et al. 2010; Nambisan et al. 2017), on entrepreneurship (Nambisan et al. 2017; Cohen et al. 2017), on technology entrepreneurship (Giones and Brem 2017) and on new venture creation processes (Davidsson et al. 2017). Entrepreneurs and innovators are adopting digital technologies to develop new forms of entrepreneurial actions that moves beyond the traditional industry boundaries, to include networks, ecosystems and communities, so accelerating the evolution of new ventures (e.g., Chandra and Leenders 2012; Huang et al. 2017; Rayna et al. 2015; Chang 2017). Specifically, the 'digital' component relates to what Parker et al. (2016) refer to as 'digital platforms' that allow the development of digital start-ups and scale-ups are ventures that incorporate novel digital technology as a vital component of their business model and which could not feasibly operate without the internet-enabled platforms.

Nambisan et al. (2017) synthesized the concept of digital technologies as the result of three distinct but related elements: *digital artifacts*, *digital infrastructure and digital platforms*. This classification has been proposed to highlight the role of digital technologies into entrepreneurial processes (Rippa and Secundo 2017).

A *digital artifact* can be defined as a digital component, application, or media content that is part of a new product (or service) and provides specific functionalities or value to the end-user (Ekbia 2009; Kallinikos et al. 2013). *Digital infrastructure* is defined as digital technology tools and systems that offer communication, collaboration, and/or computing capabilities (Nambisan et al. 2017). Infrastructure can be defined in general as the basic physical and organizational structures needed for the operation of a society or organizations (Tilson et al. 2010). Digital infrastructures depend on the pro-active involvement of different and heterogeneous group of actors in using, operating, designing and planning them. Digital infrastructure as cloud computing, data analytics, online communities, social-media, 3D printing, digital makerspaces, can support women entrepreneurial activities.

Digital platforms are shared, common set of services and architecture that serves to host complementary offerings, including digital artifacts (Parker et al. 2016; Tiwana et al. 2010). They can be defined a software based platform that provides core functionality shared by the modules that interoperate with it and the interfaces through which they interoperate (Tiwana et al. 2010). A platform's ecosystem can be defined as the collection of the platform and the modules specific to that platform (Cusumano and Gawer 2002).

12.2.3 A Conceptual Framework: Toward 'Digital Women Entrepreneurship'

A research on Scopus database related to the keywords 'Digital Technologies' and 'Women Entrepreneurship' demonstrate that nonetheless the digital technologies are now pervasive and influencing all activities of our lives, there are yet few researches focusing on the intersection of these two fields and on understanding which are the opportunities, benefits, implications of Digital Technologies on women entrepreneurship. In fact, the research produced a very low number of articles dealing with both these two keywords. The search related to the keyword 'Digital entrepreneurship' AND "Women" produced just one result (one journal article), while the search using keyword Women AND Entrepreneurship AND Digital AND Technologies produced 12 results, containing journal articles, conference proceeding, book chapters etc.

The result obtained indicate as the research is almost missing in this field. As such new research streams could be delineated to better understand the opportunities offered and how Women are grasping or could grasp them. In this aim we firstly provide a conceptual discussion of the emerging opportunities thanks to the new emerging digital technologies that enable new ways of doing business.

Considering the intrinsic features of the Digital technologies (in its three forms —digital artifacts, infrastructure and platform) (Nambisan 2017) they could be of relevant support in alleviating the problems encountered by women and for

empowering them significantly by creating a sustainable favorable environment for the entrepreneurship process and activity. There are a range of potential benefits that Digital technologies can offer in this direction, that could be synthesized as follows.

First of all, digital technologies allow better access to information, knowledge and resources related to markets, customers, production methods, technologies, marketing and business models (Ojokoh et al. 2013; Ajjan et al. 2014).

The emerging communication and collaboration opportunities among different actors with different experiences, backgrounds, knowledge, experiences etc. has the potential to improve the entrepreneurial capability of women as well as to influence the outcomes of their endeavors (UNCTAD 2014). Especially the advent of social media, easily accessible and usable by different users, has enlarged opportunities for mutual communication, collaboration and contact with partners, customers, potential customers etc. (Aldrich et al. 2002; Ukpere et al. 2014). Alsop and Heinsohn (2005) argues that increased access to information through social media can improve a woman's capacity to envision alternative options to make meaningful choices. This is essential in the pre-incubation phase the venture for sharing and exchanges ideas, knowledge and resources as well as in the running and growth stage of the venture for marketing, promotion, renew business contacts etc. This in turn will contribute in overcoming problems related to *discrimination, wage differences as well as physical mobility* to access specialized knowledge and expertise (UNCTAD 2014).

On the other hand, while, the access to finance is considered a relevant constrain for WE (IFC & GPFI 2011), digital platforms that host information on offerings can play a relevant role in helping women obtain access and support to such opportunities and alternatives. On the other hand, the crowdfunding platforms could serve as new options for financing new ideas and ventures. Such access to information will in turn *diminish the inequalities that generally exists between men and women*.

The new emerging forms of working and running business provide women with more opportunities to be get involved into entrepreneurial activities by heavily employing technology for realizing their ventures (Davis 2004; Padmannavar 2011; Singh and Belwal 2008). They could get involved in running ecommerce businesses of local craftsmanship product, get involved in ventures aimed to provide digital services and application for existing products and existing business such as online travel agencies, online promotional agencies etc. Also, through the use of use social networking technologies they could be easily upload in the creation of business related online marketing and promotional ventures etc. Women Micro entrepreneurs are proactively using the social networks to advertise their goods and services and then make use of this mobile technology, which work for them in terms of client payments and banking (Ukpere et al. 2014). All these opportunities offer *flexibility in terms of time and location of doing business*, thus allowing women to *better combine work with family responsibilities* (UNCTAD 2014).

The entrepreneurial process in itself has been digitalized through the creation of digital platforms to support entrepreneurship, enabling thus women to have access

to different information regarding the aspects related to legal issues, IPR, management, business models, design thinking, creativity, leadership, growth etc.

In addition, opportunities for *improving the skills upgrade and education* exist (Thomas and Moisey 2006) that derive from the multiple forms of education available and accessible today (distance education, online programs, seminars, webinars, collective intelligence platforms, virtual entrepreneurship communities etc.). The literature asserts the education and its kind and level are determining factors for the success of the women venture (Khan 2017).

Therefore, with the emergence of the so called ‘Digital Entrepreneurship’ the opportunities created could be synthesized according to three main perspectives:

- New opportunities to overcome inhibiting factors—The multitude of Digital technologies including ICT, social media, mobile, sensors, internet of Things, Big data, 3D printing, etc., provide new conditions for women to overcome a series of problems and challenges they have faced so far in their path to entrepreneurship.
- Entrepreneurial process perspective –new options are available that open up and democratize the access to information, resource and knowledge resources (Christopher et al. 2006; Kolvereid et al. 1993).
- Thirdly, from the perspective of networking (Carter et al. 2003)—The social networks that could be established are relevant for the establishment of relations and social capital thus facilitating the access to multidisciplinary information and knowledge (Salman and Saives 2005) and contributing in improving the quality of decision-making (Xie and Lv 2016).

All these options have created the premises to shift toward ‘Women Digital Entrepreneurship’ activity that could help women to be more active in venture creation and growth.

This opens up new research venues being that up to now the researches focusing on linking the Women Entrepreneurship and Digital Technologies is almost lacking. In the following sections we delineate some of the most important research streams that could guide future research in the field.

12.3 Discussion and Conclusions: A Future Research Agenda

This paper contributes to expand the literature on Women entrepreneurship and it offers a new perspective applied to a topic of high relevance such as Digital economy. While, the literature on Women Entrepreneurship and Digital technologies is well covered, to our best knowledge the intersection between the two fields remains unexplored. The paper provides a contribution in this direction, identifying new trends and future directions for research.

The final goal of this paper is to focus on the intersection of Digital Technologies and Women Entrepreneurship to highlight how new digital technologies can provide a novel contribution for women to improve existing businesses and processes, to invent new and digital business models and get involved with customers and stakeholders in creating and capturing value.

These options create the premises to shift toward a new phenomenon called *Women Digital Entrepreneurship* activity that could be interpreted as the leveraging of digital technologies in order to shift the traditional way of creating and doing entrepreneurship toward new perspectives where digital technologies play an increasing relevant role for success.

Therefore, a holistic perspective about women entrepreneurship is indeed required to posit new directions for research about the impact of Digital Technologies. It is important at this point to identify research streams that can involve scholars in the near and far future. We've based our discussion on the what, how, why, and who as suggested in Whetten (1989) in theory development.

First of all, digital technologies can release their potential if adopted into women entrepreneurship practices. There is a need to map and categorize all the new emerging forms of digital women entrepreneurship, investigating the major challenges facing the network of relations of women entrepreneurship and how new women entrepreneurship business or start-up can be supported by digital technologies.

Moving from this premise, by Digital Women Entrepreneurship we mean a relevant socio-economic and technological phenomenon, where the innate ability of women to sense and act on opportunity, combined with new digital technologies (such as social media, mobile, analytics, 3D printing, cloud and cyber-solutions) could transform existing business and create options for developing novel solutions for the society.

Specifically, the digital women entrepreneurship allows to overcome traditional inhibiting factors of women entrepreneurship (e.g. discrimination, gender differences, governance, Conflicts of interest), to improve the process of entrepreneurial development and to facilitate the social networking of women by enabling the creation of new relational capital.

The debate around Digital Women Entrepreneurship should encompass a holistic perspective of this emerging phenomenon according to the new forms of digital women entrepreneurship (*what*), the processes supported by digital technologies (*how*), the stakeholders involved through the digital technologies to achieve the goal (*who*), and the rationale for the adoption of digital technologies for Women entrepreneurship (*why*).

Research stream 1: What. A first research theme regards the incorporation of theoretical concepts coming from digital technologies and their impact on women entrepreneurship research. The analysis of the forms emerging in the digital women entrepreneurship required new insights.

It is also important to investigate which activities and processes are more influenced by the technological revolution. More in depth, the question is how female entrepreneurs include digital artifacts and platforms in their routines. As a consequence, impact of such technologies on female entrepreneurial activities routines needs to be investigated to better align competences of interested actors and to give insights into boundaries of women entrepreneurial processes.

Research stream 2: How. A second research stream is about the incorporation of theoretical concepts and methodological approaches of digital artifacts and platforms into women entrepreneurship initiatives.

Digital infrastructure is regarded as socio-technical systems, involving new categories of actors and stakeholders that now interact with women entrepreneurs. The more the actors' participation, the more the evolution and innovation, the more the performance of digital academic entrepreneurial initiatives. But, at the same time, threats must be envisaged in order to reduce the uncertainty deriving from the entrepreneurial activities.

Research stream 3: Who. The third research stream takes into account the incorporation of theoretical concepts and constructs of digital infrastructures and their underlying sociotechnical processes—for example, digitalization—in women entrepreneurship research.

Finally, architectures of both digital infrastructures and digital platforms must be managed in order to exploit female's ability (knowledge) and willingness (motivation) to act as entrepreneurs achieving novel opportunities, to finalize technology transfer initiatives and objectives. The rationale and the governance of digital technology revolution in women entrepreneurship needs new insight that brings us to the final proposed research stream.

Research stream 4: Why. The last research stream deals with the incorporation of theoretical concepts and constructs to reflect the role of digital technologies in women entrepreneurship research.

These research streams bring substantial new avenues for future research studies with the aim to provide empirical and theoretical knowledge for better understanding this new socio-economic and technological phenomenon.

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