

Female entrepreneurial networks: exploring the activities of Jordanian female technology entrepreneurs

ABSTRACT

This research aims to investigate the nature of the network ties of Jordanian female technology entrepreneurs, during the venture creation and development process. The work explores the nature and role of networks in an Eastern society as little prior research has been undertaken in such an environment. Findings are reported from the qualitative study which used in-depth interviews with 14 Jordanian female entrepreneurs who operate their own technology firms, to investigate aspects which include the nature and content of the network ties through the firm development process. The study reveals some differences in the Jordanian case from findings obtained from studies of western female entrepreneurs, particularly in terms of the type of actors who were utilised to access resources and support at different points in the business development process.

Key words: female entrepreneurs; network; venture creation; new technology-based ventures; Jordan.

INTRODUCTION

Female entrepreneurs face many challenges in their efforts to ensure the successful emergence and growth of their businesses (Hampton et al., 2009), particularly in businesses characterised by a high level of uncertainty and interdependency such as new technology businesses (Moensted, 2007). The main challenge that entrepreneurs face is securing access to the necessary resources, given that the accessibility of those resources can mean the difference between survival and failure of the business (Hite and Hesterly, 2001). An entrepreneur's network ties have been widely acknowledged as a vital vehicle through which necessary key resources for his or her entrepreneurial activity can be acquired (Larson and Starr, 1993). These network relationships are dynamic in nature, and they likely to change through time to meet changes in the firm's resource requirements (Grave and Salaff, 2003; Hite and Hesterly, 2001).

Research indicates that entrepreneurial networks ties evolve over time, with entrepreneurs managing their network relations through a process of exploring, screening and selecting dyad ties (Larson and Starr, 1993). This process reflects a continual cycle of building new ties, maintaining existing ones and ending some old ties, in order to adapt to change in the venture's resource requirements (Rivera et al., 2010).

Research has examined the female entrepreneur's network, but work on the dynamic processes associated with their network ties is very limited and Western centric (Hampton et al., 2009, 2011; Klyver and Terjesen, 2007), with an absence of such research within Eastern societies. There is evidence within the network dynamics literature that the process of entrepreneurial network development is a result of cultural social and institutional contexts (Batjargal, 2010). Evidence, also, suggests that the social context which surrounds the entrepreneur, and includes organised social life, family and the workplace, affects directly his or her entrepreneurial process (Aldrich 1989) and hence it varies between West and East societies (Yetim 2008). In that regard, the network has been described primarily as a cultural phenomenon, 'that is, a sets of meanings, norms and expectations usually linked with

behavioural correlates of various kinds' (Curran et al. 1993: 13). Since the network is conceptualised as being based on social contact, different network approaches for gathering entrepreneurial resources may be applied in different societies (Birley et al. 1991). Thus, the entrepreneur's social context will arguably have an influence on the process of development of their entrepreneurial network and its benefit for venture formation.

In addition, the limited research has overlooked a central issue: the changing content of the female entrepreneur's network in order to help explain the role of the network in accessing the necessary resources for firm creation and survival. The effectiveness of the entrepreneurial process is affected by the content which the entrepreneur's network ties might bring, with these ties gaining new characteristics as a firm grows (Lechner and Dowling, 2003).

To address the knowledge gaps identified above this research investigates the nature of network ties of Jordanian female entrepreneurs in technology firms as a case study of Eastern societies and explores how they develop through time to provide advantages to the entrepreneur and her venture during the new technology firm formation and development process.

FEMAL ENTREPRENEURIAL PROCESS

Female entrepreneurs' firms in Jordan do not have sufficient internal resources to guarantee successful formation and growth. These ventures usually face many difficulties including accessing financial resources as well as other challenges associated with marketing, hiring and retaining good employees (Kharouf et al., 2007). As a result, these ventures have either limited growth potential or a high probability of failure. A critical issue, therefore, is to ensure the success and survival of these ventures and to find secure access to resources in the external environment (Steier and Greenwood, 2000; McEvily and Zaheer, 1999).

The entrepreneurial process of female business founders is influenced by many issues related to their human capital, primarily their lack of work experience, as well as financial capital, with the limited availability of external financial resources to fuel their businesses growth a key issue (Menzies et al., 2004; Coleman, 2002). Along with these types of entrepreneurial capitals, an entrepreneur's social capital represents a crucial resource for building more successful ventures (Nahapiet and Ghoshal, 1998). It provides a basis for the development of the other capitals, both human (Coleman, 1988) and financial (Brush et al., 2002). Through network ties, entrepreneurs secure unique channels to formal and informal investors (Steier and Greenwood, 2000, 1999) and create new human capital (knowledge) (Nahapiet and Ghoshal, 1998).

The entrepreneurial process is an outcome of the entrepreneur's efforts to access the necessary resources which are required to exploit a viable opportunity (McGowan et al., 2008). The important issue in this equation is that entrepreneurship requires a network for linking entrepreneurs to the resource providers (Aldrich, 1989). As such, success in the female entrepreneurial networking process results from the ability of the network to facilitate access to connections which range from those enabling them to acquire the necessary knowledge and strategies relevant to their entrepreneurial entry, opening new contact channels (Leskinen, 2011; Ahmad and Naimat, 2011), providing mechanisms to share information, obtaining business idea validity, to securing resources and support (Hampton et al., 2009). In terms of usefulness, cost and rate of use, networks represent the main source of information that female entrepreneurs rely upon in their business, from the earliest stage of a business (Nelson, 1987).

Female entrepreneurs who establish their business in the technology sector will find themselves in an environment which requires diverse and is male-dominated (McGowan et al., 2008). To achieve the successful start-up and growth of a new entrepreneurial venture in such an environment, female entrepreneurs have to demonstrate their ability to build a network of high quality relationships (Hampton et al., 2011). Network ties are particularly important for technology entrepreneurs, given that they continually enable those entrepreneurs to access new opportunities in a highly uncertain environment (Moensted, 2007). Therefore, the greater the development of these networks through the firm formation process, the more benefits can be gained in terms of the quality of opportunities, resources and information (Gulati et al., 2002).

The limited studies reported in the literature focused on the female entrepreneurial network, particularly on technology-based firms, indicate that those women have proven their ability to develop highly sophisticated entrepreneurial contacts (Hampton et al., 2011, 2009). Within the entrepreneurial network literature, the basic argument is that the entrepreneurial network changes continually (Larson and Starr, 1993). This reflects an image that in searching for new resources to gain more venture growth, new entrepreneurial ties will be added as a result of which the quality of the network structure and its content will change (Gulati et al., 2002; Hite and Hesterly, 2001).

A network is built upon blocks of ties (Jack et al., 2004), where understanding the nature of these ties represents the first step in analysing the entrepreneur's network (Hite, 2005). However, few studies within the female entrepreneurship literature have attempted to explore the development and content of the network ties of the female entrepreneurs (Hampton et al., 2011). Thus far, and despite the importance of the network ties in understanding the female entrepreneurial process, the composition nature and content of these ties has not been fully explored. This paper, therefore, focuses on research which seeks to provide greater insights into these aspects through an analysis of the nature and content of the network ties of female Jordanian technology entrepreneurs. The objective is to enhance understanding of the nature and dynamics of these women's networks and the role they play in the formation process of technology ventures in Middle Eastern societies, where the socio-economic context within which women build their careers has a potentially significant impact on the networks from which they draw resources for venture creation and growth.

Entrepreneurship in Jordan's technology sector

Jordan is among the most open economies in the Middle East and North Africa (MENA) region, having implemented since the early 1990s numerous reforms to restructure the country's economic activities, such as, encouraging privatisation, reducing trade tariff barriers and signing up to a number of trade agreements (Majcher-Teleon and Slimene, 2009). It has a positive environment for businesses growth and is classified as a 'moderately free' economy in the 2011 Index of Economic Freedom (Miller and Holmes, 2011). Based on many indicators, the Global Competitive Report 2013-2014 has categorised Jordan's economy as an 'efficiency driven' economy, with significant opportunity for improvement, due to its current rank in ICT use (Schwab and Sala-I-Martin, 2012).

In the last decade, notable improvements have been seen in Jordan's technology sector, where reforms have been undertaken to improve the physical and intellectual infrastructure of the sector (Majcher-Teleon and Slimene, 2009). Thus, opportunities are emerging, especially, in the ICT sector, as a result of factors including liberalised telecommunications, increased infrastructure accessibility, increased government support and the creation of an enhanced

ICT regulatory framework (Al Jidara, 2006). These efforts have enabled the country, in recent decades, to become the regional leader in adapting, developing and utilising information and communication technology (Jordan National ICT strategy 2013-2017).

Despite developments which have opened its economy and created a favourable business environment (Miller and Holmes, 2011), the available official figures show that Jordan suffers from high unemployment rates, ranging from 10.8 per cent among men to 20 per cent among women (Jordanian Department of Statistic, 2012). Thus, job creation for a youthful population is one of the Jordan's first priorities, with the government National Agenda 2006-2015 aiming to reduce unemployment rates and increase women's labour force participation by 2015. For a country with its level of development, Jordan's private sector participation in economic activities is relatively low. This is an indicator either of 'a more favourable environment for the formalisation of enterprise or a low level of subsistence economic activities' (Miller and Holmes, 2011: 19). This forces policymakers to seek better strategies for creating value added jobs and encouraging the private sector to participate in absorbing additional members of the labour force (Miller and Holmes, 2011).

A broad agreement exists about the key contribution that entrepreneurial activities can make to economic development and job creation (Robb and Coleman, 2010). Increasing the prevalence of entrepreneurial activities is one of Jordan's significant opportunities, where an investment in developing a more entrepreneurial culture among young people and facilitating would-be entrepreneurs' entry and growth could bring significant benefits to the country.

An analysis of the country's engagement in entrepreneurial activities, particularly in the technology sector, reflects some recent improvements. For doing business, the country has introduced regulatory reforms to make business registration for entrepreneurs easier and less costly (World Bank, 2012, 2013). The World Bank 'Doing Business Report' shows that the process aspects that are required for starting an entrepreneurial business have changed and improved, with the greatest improvements being seen in the reduction of the minimum capital requirement and cost to complete business start-up procedures. Other important reforms were undertaken in 2005 by making key information available to entrepreneurs online (World Bank, 2005), as well as in 2010 making a single reception service for business registration (World Bank, 2012, 2013).

The country's technology sector saw progress between 2000 and 2012, particularly in ICT, as its contribution to Jordan's GDP reached 14% (Intaj, 2013). According to Intaj's report (2013), this sector is responsible for a significant share of technology start-ups, with over 50% of Jordan's start-ups in sectors such as IT, mobile and online businesses, electronic publishing and telecom. In addition, around \$15,000 million of foreign direct investment was attracted by the ICT sector in 2010 (Intaj, 2013).

In terms of the development of individual entrepreneurs, the sector has witnessed recently involvement from a number of government and non-government bodies¹ focused on developing technology entrepreneurship in the country. These bodies have helped to enable technology start-ups in different areas through support of informal education sources, such as seminars and networking events, and related training, consultancy and mentoring. These developments make the country a more supportive environment in which to launch a

¹ Such as the Business Development Centre (BDC), Ipark, Endeavor, Oasis500, N2V, Queen Rania Center for Entrepreneurship, Mowgli, Meydan, AlUrdonia Lil Eba, Young Entrepreneurs Association, Jordan Enterprise, IV Holding.

technology start-up². According to the World Economic Forum Report (2011), Jordan is recognised as a 'haven' for entrepreneurs in the MENA region due to the developments in its entrepreneurial ecosystem. However, Jordan's engagement in entrepreneurial activities is still relatively new, and many aspects of the technology entrepreneurial ecosystem are still underdeveloped and present challenges, including formal education, the availability of equity investment and bank finance and low levels of female participation.

Entrepreneurship education in Jordan: Jordan has a significant opportunity to take advantage of its highly educated, youthful population; a high percentage of students graduate from the science, engineering and technology schools. It is clear those young people, if successfully provided by the curriculum with knowledge and practical skills and tools in entrepreneurship fields, may help support development of the entrepreneurial culture within the country (Masri et al., 2010). Studies show that less than 4% of the young population receive a formal education in how to start a business (Miller and Holmes, 2011). The Arab States Report suggests that the policy framework for entrepreneurship education in Jordan is well developed, but more still needs to be done at the level of policy implementation (Masri et al., 2010). This represents a wake-up call for the country as the entrepreneurial spirit is partly stimulated and motivated by the education system and should be developed and nurtured at an early age (World Economic Forum, 2011).

Financial capital availability and accessibility in Jordan: On the other hand, financial capital availability and accessibility are frequently cited as the main challenges faced by would-be entrepreneurs face in Jordan and in other Middle East countries, and are perceived as primary barriers to entrepreneurial venture start-up and growth (World Bank, 2012; Chamlou, 2008; Kharouf et al., 2007; World Bank, 2005).

The reality is that Jordan's entrepreneurial enterprises experience many financial difficulties including: first, the limited availability of private finance for starting new ventures, which is constraining those in some fields, especially the technology sector (World Bank, 2012). Second, dependence on personal savings to secure finance for start-up or growth sometime is difficult as a result of the low per capita income in Jordan (World Bank, 2012; Women's Business Forum, 2011). Third, the credit environment affects the availability of funds for entrepreneurs in the MENA region, which is ranked among the lowest developed capital markets of all regions (Women's Business Forum, 2011)., The World Bank's Report (2012) suggests that despite the improvement in the accessibility of credit in Jordan, there are still challenges regarding the difficulty of accessing credit information in both public and private sectors, as well as in protecting investors and enforcing contracts. Fourth, external finance that is provided mainly by banks is still limited and insufficient to cover the local demand. Also, the availability of external finance is affected heavily by the financial institutions' programmes (Women's Business Forum, 2011), in terms of the amount of funds available and the procedures and the guarantees required to obtain those funds. Fifth, the availability of business angels in the Arab World in general is still limited and in an early stage of development; in Jordan, for example, there are 23 angels, 17 of them are business men, three are business women and the other three are companies (Siam and Rifai, 2012). Those angels

² Considering criteria such as the legal environment, availability of infrastructure and entrepreneurial spirit and talent, Jordan's capital Amman has ranked recently as one of the top world cities to launch a tech start-up. This rank was developed by the founder of a venture capital firm, Richard Sefrioui and his team (<http://rachid-sefrioui-venture-capital.blogspot.co.uk/2012/01/top-10-cities-to-launch-tech-startup.html>).

are providing finance to the value of about one million dollars to several projects which are in the emergent stage (Siam and Rifai, 2012).

Female technology entrepreneurs in Jordan: Another obvious feature of the Jordanian technology sector is the low participation rate of female entrepreneurs: generally 5.3% of businesses are owned by women, compared to the 94.7% owned by men (MPIC and UNDP, 2011). The fact is that the rate of women's economic participation in the country does not match the level of the world standard, which is between 25%-33% or even the women's economic participation rate in some other Middle Eastern countries, such as in Egypt where this rate reaches 18% (MH and ODT, 2007). The low rate of female economic participation in Jordan represents significant waste of human and national resources, particularly as sizeable number of economically-inactive women are well-educated (Peebles et al., 2007). Thus, one of Jordan's important challenges is empowering women, especially in the area of economic life (World Bank, 2005).

In addition to the above mentioned obstacles in Jordan's entrepreneurial ecosystem we find that would-be female entrepreneurs suffer to a great extent from the limited availability of financial resources. The reason behind this is that most studies show that female entrepreneurs depend on formal financial resources such as banks, personal and micro-finance loans to fund their businesses, and at a higher percentage rate than men (Chamlou, 2008). A World Bank Report found that 14% of new investments into entrepreneurial firms' established by women in Jordan are financed by commercial banks or through other formal resources, such as leasing arrangements, investment funds, or credit cards, compared with just 4% of male-owned businesses (Chamlou, 2008).

On the other hand, Jordanian women lack experience in technology sectors, as a result of their low participation in the workforce, particularly in managerial positions (Al Jidara, 2006). This affects women's ability to build their human capital and acts to exclude them from relationships which connect them with the industry resource providers who may help them to start their businesses (Mayer, 2006). Women's presence in managerial positions in technology sectors is under-represented across countries, due to the uni-dimensional role that tends to be common in such a managerial career, rather than a dual role frequently held by women (Evetts, 1993).

Family commitments are a perennial issue when examining the obstacles that female entrepreneurs face. With regard to family/work-life balance and despite the improvement in this aspect, Kharouf et al.'s (2007) study found that this balance still represents a social challenge for Jordanian female entrepreneurs. Indeed, female entrepreneurs around the world are still responsible for many family commitments and make a greater contribution to the family-work balance than men (Hampton et al., 2009; Evetts, 1993; Aldrich, 1989). The degree to which this challenge affects the entrepreneurial process for women varies from one region to others, and working for long hours as the new venture requires countless hours and traveling in order to grow the business is difficult for a married woman in Jordan.

Having business and family commitments requires extra effort from the female entrepreneur to succeed in her business and influences her performance as she may be required to spend time on family commitments which interrupt her work. For example, according to these roles, women in the Arab World do not have much opportunity to spend time in building networks (Dajani, 2012) which would help them to develop their businesses. Thus, women requires more recognition and support in their family role particularly in Arab societies (Dajani, 2012), where they are principally entrusted with this role.

Despite these challenges, there have been changes and more new technology firms are expected to be developed by female entrepreneurs resulting in their increased participation in the sector. One of the important developments that might help increase women's economic participation is the new law which permits obtaining a business license to work from home. Also, Jordan's recent human development report shows that female entrepreneurs have become more recognised and respected inside their families as reliable and productive members (MPIC and UNDP, 2011). This report found that 83 per cent of female entrepreneurs in Jordan see that their life has improved through owning their business, as a result of different factors including 'increased income, control over one's life, a better position within the family and an improved family-life balance' (MPIC and UNDP 2011: 116).

Figures from a number of technology business associations and accelerators provide an indication that female entrepreneurs' participation in the technology sector has started to increase (Oasis500, 2012), helped by the fact that Jordan has a good talent pool of educated science and technology women. For example, figures from Jordan's Oasis500, the first technology start-up accelerator and seed investment company of its type in the region based in Jordan, indicate that 35% of its companies in 2012 were founded/co-founded by women. Oasis500 also expects that this number will increase in the next few years.

In summary, women entrepreneurship is a result of economic, institutional and social structures in which the individual is embedded (Yetim, 2008). Thus, the extent of society's cultural and financial support can provide an indicator to the level and nature of entrepreneurship in the society (Xavier et al., 2012). Increasing the level of female entrepreneurship is seen as a vital factor in enhancing levels of economic development as a result of its potential contribution to employment and wealth creation. Opportunities are greatest where current levels of engagement by women are low: Jordan is characterised by its high unemployment rate, especially among women. The encouragement of women-owned ventures has become an important policy tool to overcome these high unemployment rates and achieve more economic growth, particularly, in those entrepreneurial ventures that add value to society's economic development, such as technology-based ventures.

RESEARCH FOCUS AND METHOD

Research design: Calls for more qualitative studies have been made within the entrepreneurship area, particularly in the field of network-based research (Jack, 2010; Hoang and Antoncic, 2003). Literature argues that studies which adopt a qualitative approach are better placed to provide a richer understanding of entrepreneurial networks (Jack 2010). Although this research investigates the network composition characteristics of Jordanian female entrepreneurs, the research focus is relational in nature and includes study of network ties, content and development process (Hoang and Antoncic, 2003). Such a study benefits from a methodology which allows the researcher to obtain data and undertake in-depth analysis to help understand the nature of network ties rather than measure these ties (Jack et al., 2004). The exploratory nature of this research considers the qualitative methodology as a more appropriate approach (Blaikie 2009; Miles and Huberman, 1994) than a more quantitatively-based method, employing, for example, Social Network Analysis software. The study reported here, therefore, adopts an approach which uses data gathered through

semi-structured, in-depth interviews, to explore the composition, content and dynamics of network ties of Jordanian female entrepreneurs in a sample of technology firms.

In qualitative research studies have indicated that there is no universal standard for the number of the research interviews (Mears 2012; Dworkin 2012; Blaikie 2009). Indeed, qualitative researchers are often concerned with producing deep meaning, analysis and interpretation, where a considerable time is spent with each participant (Blaikie 2009). At the same time, given that each participant adds value to the study (Yin 2003), an attempt was made to include a sizeable number of participants in the research. However, as mentioned earlier the levels of female participation in Jordan's economy is relatively low, and concentrated in traditional economic activities, such as, services and the retail sector (MPIC and UNDP 2011). Thus, the decision relating the number of the entrepreneurs to study is restricted by the small number of the female entrepreneurs who own new technology-based firms and met the research criteria.

Sample and selection criteria: Up-to-date listings of women-owned business are difficult to obtain in Jordan, where there are no accurate databases to help find those women. Thus, a list of possible interviewees was developed based on significant groundwork scanning the business press and the internet, and by connecting with economic agencies, support organisations and individuals³. Following extensive search activities a list of 64 firms was developed.

The research design called for two interviews to be undertaken with each woman who met the selection criteria and agreed to participate in the research study. The women were chosen for interview on the basis of several conditions that have theoretical and empirical importance of this study⁴. All the female entrepreneurs owned, created and managed technology-based ventures and they had hired their first employee and sold their first commercial product/service. All of the 64 female entrepreneurs identified were email/telephone screened to determine their eligibility for the study and their willingness to participate during the data collection period. The majority of firms were identified as not meeting the selection criteria. The final screening process generated 19 relevant firms; however, three entrepreneurs did not agree to participate during the survey period. Of the remaining 16 firms, two firms were selected for the pilot study and thus, the final number of participants consisted of 14 firms eligible and willing to take part in the study. Thus, fourteen two-stage interviews were conducted with the selected. Table 1 illustrates the characteristics of technology firms and their founders participating in the research.

³ These avenues include government organizations, technology associations, and technology business accelerators, some technology entrepreneurs within the Jordanian market, businesswomen associations and enterprise development organizations.

⁴ Firstly, a **female entrepreneur** is defined as a founder and owner/operator of a new technology firm in Jordan. Second, a **new technology firm** is defined as a firm which is eight years old or less in software, digital media, mobile application, web/internet service, animation, engineering activities and technical consultancy, ICT consultancy, energy, biotechnology, life science, pharmaceutical research and development, computer equipment and medical equipment. Third, **business development stages** this research uses the first sales and (or) the time of first hiring beyond the founder's commitment (Reynolds and Miller's 1992) to differentiate the end of venture's start-up stage and start of the venture's early growth stage.

The female-owned technology firms in this research range from the start-up to early growth stage: all had operated for less than eight years. These ventures represented different technology areas including software, animation, digital content, mobile applications, web services, engineering activities and technical consultancy, equipment manufacturing and ICT consultancy. The participants' age when they started their business ranged from 23 to 49 years, and most of them had related prior experience.

Table 1: The characteristics of technology firms and their founders participating in the research

Firm	Age of firm	Technology sector	Education subject	Age of founder at start-up	Pre-entrepreneurial experience (in the same field)
1	7	Digital content	Media and art	29	Yes (Yes)
2	7	Digital content	Engineering	39	Yes (No)
3	6	ICT consultancy	Computer science	44	Yes (Yes)
4	6	Web/internet services	Computer science	35	Yes (Yes)
5	4	Software	Engineering	30	Yes (Yes)
6	4	Personal electronic device	Engineering	23	Yes (No)
7	2	Digital content	Art	30	Yes (Yes)
8	2	Digital content	Information technology	30	Yes (No)
9	2	Digital content	Engineering	32	Yes (Yes)
10	2	Digital content	Information technology	30	Yes (Yes)
11	2	Digital content	Business	49	Yes (No)
12	2	Digital content	Science	37	Yes (No)
13	1.5	Engineering technical consultancy	Engineering	35	Yes (Yes)
14	1.5	Animation	Information technology	23	Yes (Yes)

Utilising a two-stage, semi-structured interview approach, each female entrepreneur was interviewed in person, in Jordan, for 45-90 minutes at each stage of the interview process. Issues investigated during the first and second stage interviews included the nature, content and evolution of the female technology entrepreneur's network ties.

Data analysis: Analysing and eliciting the essence of a huge amount of data represents the main issue in qualitative data analysis (Patton, 2002). This requires a process of dividing the

data into subgroups according to a logical system to facilitate the process of data analysis (Whittemore and Knafl, 2005). Reducing the amount of raw research data involves a process of data 'selecting, simplifying, summarising and transforming' (Miles and Huberman, 1994:10). This process of data reduction helps to sharpen and manage the data in a way which facilitates the drawing of conclusions and verification. When the data were collected the research interviews were taped, transcribed and then analysed to determine the categories and themes. The collected data were analysed by using open coding, which was facilitated through use of the Nvivo data analysis tool. Thus, initial themes from the data were generated to help understand the networking activities of the female entrepreneurs. These themes were then clustered into nodes which helped the identification of connections pointing to core insights around key themes of network structure, content and process.

FINDINGS AND DISCUSSION

Understanding more about how women in Jordan engage in networking for venture creation and growth has the potential to inform our understanding through exploring networking process in a different social and economic context. In this section we present a discussion of the research findings focused around two main themes: the nature of network ties of Jordanian female entrepreneurs in technology firms through which the businesses obtained resources during the business development process; the main network paths that those female entrepreneurs utilised to reach their resources during the business development process. The findings here are presented at the level of the founder and her ties to others (persons or firms) (Witt, 2004).

The nature of network ties

The main types of tie are identified as business and personal in nature. Of interest was the extent to which different ties played different roles as the new venture was established and grew. A key finding concerned business ties as a main source to obtain the required resources. Results indicated that the business connections of those female entrepreneurs played an important role since the start-up stage. Indeed, when the female entrepreneurs searched for the necessary resources to start and grow their businesses, they identified business ties as the most suitable source to obtain the resources they lacked.

The type of actors these female entrepreneurs relied on at the start-up stage was dominated by ties including organisations, mentors, professionals and other entrepreneurs, CEOs and managers. As F11 explained, 'when I started I was dealing with groups of engineers, I went to [X organisation] ... then we pitched our idea at [Y organisation] and here we got the first funding and we got to know some mentors, at the same time we participated in the [Z] awards, so, at that time we got contact with some mentors and many entrepreneurs'.

As the businesses move into next stage, the business ties continued to provide support, however, new groups of actors were added to the women's networks. These were the ties with clients, distributors, suppliers and professional service firms. F8 explained the type of ties during the early growth stage: 'it has grown, yes, with time it has grown ... a lot, a lot, I have all my clients added as new networks, I have a lot of people that I have met, so it's a, it's an explosion ... so, clients, partners who I work with, old colleagues who own business and I met them again, people who introduced people to me or people who I met during

events'. Connection made through networking and entrepreneurship events were with actors who became active in those female entrepreneurs' networks after the start-up stage. The following comment from F2 summarises the types of contacts she had in the early growth stage: 'now clients, mainly clients, also, every time I go to seminars or conferences, I get to know many people'.

Entrepreneurial network literature suggests that the personal ties including the family, friends and previous work ties are important at the start-up stage for providing technical (Jack, 2005; Jack et al., 2004) and financial support, where the family investors are important in providing the hard financial resources at the start-up stage (Larson and Starr, 1993). Interestingly, this study found that the family and friends did not play the same role as that described in the literature. Instead, the role of these two types of tie was limited to providing emotional support and some hands-on support. A comment from F10 reflected this: 'they give more normal support but not in-depth for the business. Like my husband and my father, they're a really big support, but they don't actually add value to the business itself'. F9 explained: 'they give moral support, I mean, more emotional support, not financial or technical support, it's more emotional support'.

In terms of the dynamic nature, the emotional support that those female entrepreneurs received from their personal ties was important at the start-up stage. All the women had left secure jobs to start their businesses, which had been difficult, so receiving emotional support and encouragement at this challenging stage was important, until their business ideas were proved in the market. For example, F2's comment indicated that 'at the beginning they supported me a lot by their excitement and you know the family. After that when I started, the community, the entrepreneurs' community supported me a lot'.

Some respondents indicated that the emotional support from their families changed and increased as they proved their business idea after the start-up stage. For example, F3's comment reflected this: 'At the beginning they did not think it's a good idea, I had a good job and they thought that it's better for me if I stay in my job, secure job, secure salary, social security. So, at the beginning they want me to stay in my job. But after I took the step and I started, they have become supportive, very supportive', and she added 'Since I started and after I launched my website and got investment, they believe in it more and they have become definitely more supportive'. Other female entrepreneurs confirm this also: F8 explained: 'they've changed, they support me now more, it is different, because I proved it, that it's a good thing and so on, but for them it was a new thing at first, for their daughter to start her own company, they were looking for a secure job, you know, and it's the same story with females and males and everyone in this part of the world'.

The situation in Jordan, socio-culturally has some characteristics which might have affected these findings. As described in the GEM-MENA's report, fewer Jordanians consider entrepreneurship as a good career choice, with fear of failure representing the main reason (Stevenson et al., 2010). A comment which helped to clarify this situation came from F11, who claimed 'the entrepreneurship concept itself was not very well known, so the support was not very strong and instead of encouraging us, they, either family or friends or the people that we know, they were scared for us taking this step'. Similarly, F8 indicated that 'my family comes from, um, they have secure jobs, there are not many entrepreneurs in my family. My dad is not an entrepreneur, all of my relatives are employees, they have jobs, they

have secure jobs. So, I did not get much emotional support, I got, usually what comes from my family like, are you sure, are you crazy and so on. It's common in this part of the world'.

Lack of knowledge that those female entrepreneurs needed among these types of ties pushed them, also, to seek help from other actors. Reflecting this, F14 commented: 'my family, I mean, in term of business, they don't, no, because none of them has a business, so, when I come to ask them about a case, like, should I deal with this client in this way or not, or any other thing, they will not benefit me'. Another comment came from F3 on her friendship ties: 'my friends, they're employees most of them, so, I think ... there is a gap between us, it's difficult for them to understand what I go through every day at work'.

On the other hand, a woman as an entrepreneur still feels the effect of social stereotyping which sees her economic role as a traditional rather than professional one. This may suggest that female entrepreneurs in Jordan seeking resources and help prefer formal and direct introduction through business ties. F6's comment reflected this: 'I typically don't like social introductions too much because I feel like, ...um I don't like to be introduced to someone within a social structure, because they were kind of, um, although I know this is how businesses are formed, I feel like as a woman we're more, um, we have a little bit more, um, something we have more to prove, we need to appear even more professional than the average man to get the same amount of respect. So, I try very often ... if somebody just says, Oh, I know so and so, I can introduce you, I prefer that we are introduced for example in a meeting or if he sends him a direct email and then I can follow up. Yes, I don't like to be introduced in a social event, because I feel like it's, I don't know'.

Network gender composition of the Jordanian female entrepreneurs in technology firms

In an analysis of the network, this study showed that the network ties of the Jordanian female entrepreneurs in technology firms were largely male-dominated. A comment by F6 explained, 'most of those that we know are males' and F2 commented, 'I was talking to many entrepreneurs, ladies, but most of them were guys'. This clearly appeared by analysing the narrative of each case with similarity among all cases demonstrated in term of the gender, where most of the ties that those female entrepreneurs have connection with were males. What was found within these cases was that the male-dominated network emerged in the very early stage and it also appeared to be dominated by male connections as the firms evolved into the early growth stage.

The male dominance in the network of those female entrepreneurs comes back to the influence of the nature of this sector, where it is well known that the technology sector is a male-dominated sector. In addition to that, Jordan's technology sector has a very low level of female participation in the workforce. F3's comment reflected this noting that the economy 'is dominated by males, specifically this industry, other than that the workforce in Jordan or the female representation in the Jordanian workforce is only eleven percent ... is very low. So, already we have too few females working and we have even fewer females working in the ICT industry'. This view was also reinforced by F7's comment: 'I think most of the females they don't like, or, ok, you will find a lot of females who are programmers ... because they don't like to go out a lot, a lot of females, they will say, I will have to go and so on, I don't need this hassle, it's really a hassle, our work is a hassle, it is up to you if you

want to take this challenge or not as a person'. This suggests that starting and growing a business in this sector, where most sources of knowledge are dominated by men, requires female entrepreneurs entering the sector to build and work within male-dominated business networks.

Indeed, diversifying their network in term of gender was difficult for those female entrepreneurs, where even finding another female entrepreneur could be an empowering experience. F6 explained, 'it has been pleasant that there are some female entrepreneurs in [X organisation], which has been beautiful ... we became friends and we support each other'. Some female entrepreneurs who participated in this study indicated that their network was made up of male-dominated ties, although they were looking for help from other businesswomen in their sector, but they could not find many. F12 commented 'most of them are males ... I see the same female entrepreneurs whenever I go, but how many are we? Few ... go and check the websites of all organisations which support entrepreneurs in Jordan, how many businesswomen are acting as a mentor? There are a few ... women's presence in this sector is just nothing'. In another comment, F14 indicated, 'I tried to find a female mentor, of course, there is no one, I have been in the market for four years, there is no female mentor, I mean, there is no businesswomen you can go and talk to, I can't find one'.

Entrepreneurial network literature suggests that the networks of many female entrepreneurs are all-female as they launch their business and that they tend to pursue a mix gender network approach during the development stage (Hampton et al., 2011, 2009; Klyver and Terjesen, 2007). An analysis of the female entrepreneur cases in Jordan's technology sector indicated that the male connections dominated their network ties during the process of starting and growing a business. The male-domination and low rate of female participation as a business owner and employee in Jordan's technology sector appeared to be at the root of building this type of network.

The introduction of new connections into the network

The development of the women's networks to gain access to new connections and resources was based strongly on their business ties which enabled them to reach beyond their first level of contacts to build links to new actors. The study finds that the female entrepreneurs reach beyond their direct ties to access new resources. Here they use mainly ties which include those with support organisations, business partnerships, other entrepreneurs, CEOs, mentors, other firms, professionals and business partners. The use of other groups to gain entry to new resources, via clients, family and friends was relatively low. Clients, in some cases, did provide connection to other clients, while family, friends and previous work ties mainly helped make connections to additional employees and freelancers.

The data showed that direct contacts with those in organisations to whom women went for support or help, and direct business contacts with distributors or suppliers, were the most important source of indirect ties with other actors. Some of the original direct ties were built up initially as a result of contact made via e-mail or social media, rather than through face-to-face meetings.

As such, direct contact serves as a main source for reaching new actors who helped, in turn, to reach further new actors. This helps to explain the dominance of business ties as a main channel to reach beyond the female entrepreneurs' direct ties. Thus, business ties, particularly to the entrepreneurship institutions, incubators and accelerators, and the IT associations, appeared to play an important role in building the networks of those female entrepreneurs. F9's comment reflected this: 'I'd never met the guy before, when I started I was introduced to him by [X] company, so, I asked if he could mentor, I mean, be one of my mentors'. These ties were the principal entry route to other business ties, such as those with another organisation, mentors, entrepreneurs, professionals and potential resource providers, which in some cases also connected these women to new actors.

The analysis also showed that even those firms which were not involved with business incubators still relied on business ties to reach beyond their current network. F13, who was not involved with any business association, gave an example on how she used a tie with a firm to reach many another ties: 'we did a presentation in the [X event] in 2011, they invited us, they selected us as a content company. From there we got to know [Y], he is the [Z company] manager, he introduced us to two companies or business venture capitalists as investors, but it did not work. One of them was [R Company]. From [R company] there was a person, his name was [S] and he ran the [E] Conference in October, 2012. Most of those who arranged this conference were [R company] personnel and we were well known in [R Company]. From this Conference, [N institution] came to know us and they told us come and we need you in our society ... '

The analysis indicated that those female entrepreneurs were able secure access through different third parties; however, they depended on specific ties as a main gateway to reach through to other actors/resources. F7 explained how she reached new contacts through her business partner: '[X company] ... what usually happens is that if you are a software company that would like to be introduced to new market, you will go to them. For example, you will tell them 'I would like to go and work in Jordan, whom would you recommend us as partners that can work with me?' OK, this is how the connection comes. So, they introduced me because they knew me, they introduced me to two companies that I'm currently working with now'. Similarly, F10 stated 'it's also through [X company], because I don't know who exactly can help me out and they can point them out for me'.

To obtain a good picture, the analysis of the entire narrative for these cases indicated that the reachability of those female entrepreneurs increased gradually after they started. This ability to reach out to others originated from a few direct contacts with actors at the start-up stage, where these actors they provided access to numerous other contacts as time went on. A comment from F8 explains this: 'a lot of that happened when I started because I was working with the contact list of [X], my business partner, he would introduced me to many clients or potential clients and I worked on the deal or on getting this project ...'. Similarly, F11 mentioned: 'what happened was that the people that I got to know at the beginning, here in Jordan, they started to introduce me to other people and even to people at the regional level'. An analysis of the network brokers used across the cases also shows that those brokers provided access at the start-up stage mostly to mentors, other entrepreneurs or business support organisations. As the firms grew, the ability to use different actors to reach third parties increased: they were able to reach new actors, including clients, potential clients, investors, business partners or other regional and international ties.

In increasing the reachability through their network ties during the firm formation process, participants pointed to some important actions to underpin these activities, such as being proactive in building and maintaining relationships and attending networking events. A comment by F3 explained that reachability: 'It's not very difficult because if you are active, if you attend events, if you talk about your idea and you listen to other people, it's not difficult. You have to make sure you maintain that ... but if they see that you are listening to their advice and you are taking it and implementing it, they will be more willing to actually share more of their experiences with you and introduce you to other people. But if you just meet them and you listen and you walk away and you never, you do not stay in touch, no one is going to bother to listen to you again'.

F9 indicated the importance of proactivity in building relationships which can secure access to new channels: 'it really depends on the entrepreneur himself or herself and how proactive they are, how ready they are to embark on this sort of the journey, how open they are to meeting new people, making new contacts, capitalising on the contacts that they have got ... the opportunities are there, the channels of communications between us and other networks in Jordan are available, but we have to be more proactive, we have to take the initiative'. F13 explained that being introduced to other actors is more related to attending events: 'this is more related with events, when we go to events, for example, when we went to the Arab Content conference, [Y] came and he introduced himself ... when he came to Jordan, we met and then he introduced us to an investor from Lebanon'.

As a result, the findings suggest that, through other actors, the female entrepreneurs under study utilised direct and indirect network ties to secure access to other different actors. In reaching beyond their network, business ties provided a main entry to different types of opportunity to reach beyond the participants' direct contacts. Although it appeared that the participants were able to reach out to other different actors, they were relatively reliant on reaching others through the network of some specific actors within their network.

CONCLUSION

This study confirmed the traditional findings that the entrepreneur's network is dynamic in nature. However, in terms of whom those female entrepreneur participants had contacts with to reach and obtain their start-up and growth resources, the research indicated that the business ties instead of personal ties were the main dominant ties in their network from the start-up stage onward. The research revealed that the business connections of the female entrepreneurs have an important role in providing diverse resources and securing an entry to reach beyond their direct contacts. The study found that personal ties, including those with family and friends, were important in providing emotional support, however, they were less useful for the business, particularly in the start-up stage, in terms of providing financial or technical support.

Entrepreneurial network literature recognises the family, friends and previous work ties as an important source at the start-up stage for accessing the hard financial (Larson and Starr, 1993) and technical resources (Jack, 2005; Jack et al., 2004). In this research, there was little use of family, friends and previous work ties at the start-up stage: therefore, business connections appeared to be filling the gap and replacing the role of these ties. In obtaining finance, the situation in Jordan indicates that Jordanian would-be entrepreneurs are less likely to secure finance from informal investors, include their family members and other relative

(Stevenson et al., 2010). This generate an important financing gap, which leave entrepreneurs depending either on their personal savings or seeking financial support from formal resource providers and this is exactly what happened with the most of the research participants. Female entrepreneurs felt that the social stereotype regarding women's economic role as a traditional rather than professional role, pushed them to prefer the formal path in process of building and growing their businesses.

This study revealed, also, that in defining the composition of the Jordanian female technology entrepreneurs' networks gender, the network ties of these research participants, as they sought to create and develop their businesses, is largely male-dominated. The more Western-based network-based literature indicates that women entrepreneurs are largely networking with other female entrepreneurs as they launch their businesses and many pursue a mixed gender network approach during the development stage (Hampton et al., 2011; 2009; Klyver and Terjesen, 2007). One of the explanations of what happened in the Jordanian case is that the Jordanian female technology entrepreneurs have depended since start-up on their business connections, such as mentors, other entrepreneurs and CEOs, and these ties are largely male-dominated, as women's presence in the workforce and economic activities is relatively low in Jordan, thus, this has an effect on the gender composition of their network ties.

The findings of this study reflect some valuable insights and address some of the literature gaps into the issue of network ties and the content of the participating female entrepreneurs' networks, particularly in non-western contexts. Implications of this study at a policy level suggest that more needs to be done to enhance the level of women's entrepreneurial experience within technology sectors as well as encourage women in new venturing. For example, given the attitudes to the risk of failure that is related to the entrepreneurial activities among Jordanian youths and their families, adopting strategies at different levels will be needed to shift the entrepreneurial culture and modify the image of entrepreneurship as a career choice.

The male-dominated networks of Jordanian female technology entrepreneurs identified in this study may be limiting the potential to build more diverse networks and the ability to access diverse knowledge from the mixed gender network. Indeed, building networks with the same gender could have advantages in developing female entrepreneurial self-confidence (Hampton et al., 2011) as well as assist learning from other women's experiences, especially those who have established their businesses. Greater exposure to successful female entrepreneurs, particularly those who have high quality network relationships which support their business development, may assist would-be and early stage ventures as they establish and grow their businesses. As more women build successful ventures the easier it will be for those women to act as role models and mentors, helping shape a positive image of entrepreneurship as a career, particularly for women, in a society where female entrepreneurship is not the norm, let alone in the technology sphere. Ultimately, given this study is one of the first of its type outside western systems, additional research is needed to confirm or contrast with these study findings in similar non-western environments.

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