

STEM Educated Women Entrepreneurs in Denmark, Latvia and Turkey
A context-based explorative study
Ármane, Sanita; İrem Gärtig, Seda; Tegtmeier, Silke; Brem, Alexander

Published in:
International Journal of Entrepreneurial Venturing

DOI:
10.1504/IJEV.2021.114409

Publication date:
2021

Document version:
Accepted manuscript

Citation for published version (APA):
Ármane, S., İrem Gärtig, S., Tegtmeier, S., & Brem, A. (2021). STEM Educated Women Entrepreneurs in Denmark, Latvia and Turkey: A context-based explorative study. *International Journal of Entrepreneurial Venturing*, 13(2), 186-216. <https://doi.org/10.1504/IJEV.2021.114409>

Go to publication entry in University of Southern Denmark's Research Portal

Terms of use

This work is brought to you by the University of Southern Denmark.
Unless otherwise specified it has been shared according to the terms for self-archiving.
If no other license is stated, these terms apply:

- You may download this work for personal use only.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying this open access version

If you believe that this document breaches copyright please contact us providing details and we will investigate your claim.
Please direct all enquiries to puresupport@bib.sdu.dk

STEM EDUCATED WOMEN ENTREPRENEURS IN DENMARK, LATVIA AND TURKEY
– A CONTEXT-BASED EXPLORATIVE STUDY

Sanita Ārmane
University of Southern Denmark
Alsion 2, DK-6400 Sønderborg, Denmark

Seda Gärtig
University of Southern Denmark
Alsion 2, DK-6400 Sønderborg, Denmark

Silke Tegtmeier*
University of Southern Denmark
Alsion 2, DK-6400 Sønderborg, Denmark
tegtmeier@mci.sdu.dk, ORCID: 0000-0003-2807-5779
*Corresponding author

Alexander Brem
University of Stuttgart,
Pfaffenwaldring 19, 70569 Stuttgart, Germany
and
University of Southern Denmark,
Alsion 2, DK-6400 Sønderborg, Denmark
Email: alexander.brem@eni.uni-stuttgart.de

Abstract

The number of women entrepreneurs has increased significantly over the past years. However, literature suggests that women from STEM (Science, Technology, Engineering, and Mathematics) fields are inadequately represented in this growing trend. Meanwhile, the circumstances which cause this underrepresentation have not yet been sufficiently analyzed. To help fill this gap, this paper focuses on women's entrepreneurship in specific educational and country contexts, acknowledging that relations between these factors play a crucial role in entrepreneurship. By means of an explorative approach, 21 interviews with seven STEM educated women entrepreneurs from Denmark, Latvia and Turkey have been conducted and analyzed with a qualitative content analysis. The results show the main motivations, challenges, and support sources for the women entrepreneurs, and provide important advice for future women entrepreneurs as well as for policy makers to increase the number of STEM educated women on the national level.

Keywords: women entrepreneurs, STEM, context, Denmark, Latvia, Turkey

INTRODUCTION

In 2014, the European Commission published a report about women entrepreneurs in Europe, which revealed that only 29% of 40.6 million examined entrepreneurs were women (European Commission 2014). These numbers appear to be in line with Ahl's (2006) argument that entrepreneurship is a long-standing male-dominated field. In addition to a general lack of women in entrepreneurial activities, literature suggests that women entrepreneurs especially lack representation within the fields of Science, Technology, Engineering, and Mathematics (STEM) (Aidis et al. 2016; Baughan et al. 2006; Dautzenberg 2012; Hampton et al. 2009; Marlow and McAdam 2012; Reynolds et al. 2004; Verheul and Thurik 2001; Wilson and Tagg 2010). Although the number of women entrepreneurs has increased in recent years (Allen and Langowitz 2011; Kelley et al. 2011; Lee and Marvel 2014; Minniti et al. 2005), most companies run by women, focus on non-STEM related areas (Carter et al. 2001; Hampton et al. 2009; Marlow and McAdam 2011; Martin et al. 2015).

Only about 5% to 15% of technology entrepreneurs in Europe are currently women (Marlow and McAdam 2015; Walby et al. 2009; Wynarczyk and Marlow 2010) while experts argue that women entrepreneurs in STEM-related fields are of high importance for the economic growth and social status enhancement of countries (Aidis et al. 2016; Baughan et al. 2006; Dilli and Westerhuis 2018; Hampton et al. 2009; Marlow and McAdam 2012; Reynolds et al. 2004; Verheul and Thurik 2001; Wilson and Tagg 2010). In addition, technology-based firms play an important role due to their emphasis on R&D, which furthers innovation and benefits local job markets and regional development (Dautzenberg (2012). Díaz-García et al. (2013) highlight the importance of having a gender diverse team to attract employees and to support a company's innovation ability. The contrast between the low participation rates of women in entrepreneurial activities, and the obvious benefits this could bring to countries, raises the question of why the levels of engagement are low.

Although there is already a great body of research on women's entrepreneurship (see e.g., Ahl 2006; Aidis et al. 2016; Alsos et al. 2013; Baltrušaitytė-Axelson et al. 2008; Becker-Blease and Sohl 2007; Benzing et al. 2009; Bianco et al. 2017; Coleman et al. 2019; Dean et al. 2019; Guzman and Kacperczyk 2019; Foss et al. 2019; Maden 2015; Manolova et al. 2008; Marlow and McAdam 2015; Petterson et al. 2017; Roos 2019; Shinnar et al. 2012; Tegtmeier et al. 2016; Tegtmeier and Kurczewska 2017) and several studies on women's participation in STEM (Beede et al. 2011; Heilbronner 2013; Simon et al. 2017), only recently the field of women's entrepreneurship in STEM starts to emerge (see e.g. Birkner 2019; Demiralp et al. 2018; Dilli and Westerhuis 2018; Dautzenberg 2012; Hampton et al. 2009; Joshi et al. 2017; Lee and Marvel 2014; Neumeyer and Santos 2019; Poggesi et al. 2019; Sullivan 2016; Xie and Lv 2016; Xie and Lv 2017). While first research projects on this matter are in place (e.g., Schnittker et al. 2018 related to Germany), only

one report was found to be studying women entrepreneurs with an education in STEM in the country specific contexts of Denmark, Latvia or Turkey (European Commission 2008).

To fill this gap and to acknowledge the importance of context for entrepreneurial activity (Boettke and Coyne 2009; Welter 2012), this explorative research aims to analyze STEM educated women entrepreneurs in the country contexts of Denmark – part of the Nordic welfare model, Latvia – a transition economy, and Turkey – a country with a considerably high gender gap. In Denmark, Latvia, and Turkey, the percentage of women entrepreneurs are at 28%, 40%, and 15% respectively (European Commission 2014). Motivations, challenges, and support opportunities for women to start their own businesses in STEM will be analyzed and suggestions will be provided for future entrepreneurs and policy makers in the respective countries.

ENTREPRENEURSHIP IN CONTEXT

To explore entrepreneurship, the context in which entrepreneurial activity emerges needs to be considered as it plays a central role (Boettke and Coyne 2009; Welter 2012). The context can be a liability and an asset at the same time (Welter 2012). While context sets limits to entrepreneurial actions, it also provides the entrepreneur with opportunities. The influence of the context works in two-ways: While it influences entrepreneurial activities, entrepreneurs are also actors that can influence the context (Welter 2012).

Entrepreneurship is a social action and it is impacted by many factors at once (Jack and Anderson 2002). Welter and Kolb, in their studies on the Post-Soviet transition economy and women's entrepreneurship development, suggest that an increasing number of entrepreneurs are influenced by the environment (Welter and Kolb 2006). Welter defined institutional, social, historical and time contexts as the main factors that influence and create entrepreneurial opportunities (Welter 2011).

In a broader study, Yousafzai et al. (2015) analysed the effects of regulatory institutions, the entrepreneurship environment and social norms in 92 countries, based on data provided by the Global Entrepreneurship Monitor (GEM). The results of their study reveal that different institutions and people's entrepreneurial awareness have both direct and indirect effects on the emergence of women entrepreneurs in a country. New technological breakthroughs, changes in regulations, societal standards, and cultural and moral boundaries (Anderson and Smith 2007; Steyaert and Hjorth 2006; Smallbone and Welter 2009) are also influencing the in-country environment and, thus, the emergence of entrepreneurship. Moreover, according to Levie et al. (2015), healthy entrepreneurship policies need to consider country-specific factors, such as the economy, cultural norms, gender, and education.

Entrepreneurship should not be seen as an isolated process (Jack and Anderson 2002). Social interactions between different people, genders, and cultures are found to be generally important factors for entrepreneurship. Cultural values can also influence men's and women's entrepreneurial behavior. Gender roles and consequential gender stereotypes in a specific country, culture, and family have a significant impact on the image of entrepreneurship. Entrepreneurship has traditionally been a male-dominated field (Ahl 2006), with men owning more businesses than women (Marlow 2002; Shinnar et al. 2012). Gender roles can vary, even within different regions of a country, which can influence women's perceptions of entrepreneurship, as Ettl and Welter (2010) reveal in their study on East and West German women entrepreneurs. Gender stereotypes thus constitute a significant context for the emergence of entrepreneurship among women. They can support or hinder women's willingness and courage to become entrepreneurs (Heilman 1983; Shinnar et al. 2012).

Education is of major importance in the entrepreneurial process. For instance, Arthur et al. (2012) show that in order to promote entrepreneurship in general, study programs need to include entrepreneurship related courses. Entrepreneurship programs build up entrepreneurial attitudes and, as the main value, build up motivation for starting one's own business (Souitaris et al. 2007). Depending on the individual resources, different models are in place to offer such entrepreneurship education programs. In any case it is key to offer interested students a central contact point to get started (Licha and Brem 2018). Moreover, a study comparing entrepreneurship education and social norms on men and women unveiled that these have influence on the women (Feder and Nițu-Antonie 2017).

Changes in technologies impact the recognition of new opportunities (Smallbone and Welter 2009). New technological breakthroughs often support the growth of businesses. Other research on students shows that 'entrepreneurship' courses increased participants' entrepreneurial self-efficacy and the likelihood of entrepreneurship becoming a valid career option (Díaz-García and Jiménez-Moreno 2010). Especially women entrepreneurs with a background in science can be considered a predestined group to spot business potentials within a technological breakthrough. Hence, education in entrepreneurship and science is vital for opportunity creation. Considering the unique class of women entrepreneurs with STEM background, it is evident that education plays a crucial role in forming an entrepreneurial mindset.

In this paper, we follow a recent line of research that pays specific attention to context in entrepreneurship (Welter 2011; Wright 2012; Zahra and Wright 2011). Our focus is on women entrepreneurs with STEM education and the contexts that affect this specific group of people in three countries, based on institutional and social norms, the gender gaps, existing stereotypes, and education.

(STEM EDUCATED) WOMEN ENTREPRENEURS IN COUNTRY CONTEXTS

According to the GEM (Herrington et al. 2017), Denmark takes one of the highest ranks (74.1) in having an entrepreneurship welcoming economy, followed by Turkey (43.7) and Latvia (43.0). From 14 sets of performance data, Denmark shows the highest numbers for entrepreneurship performance. In Latvia and Turkey, the performance numbers vary, but they are generally lower compared to Denmark. The most important performance indicators for all three countries include people's startup skills, technology absorption, and the availability of a high growth economy and risk capital.

A comparison of the entrepreneurship ecosystems based on the data provided by the GEM (Singer et al. 2015), reveals that there is a greater availability of financial resources in Denmark than in the other two countries. This also applies to most of the other factors of the entrepreneurship ecosystem. However, commercial and professional infrastructure are more developed in Latvia. Internal market dynamics are significantly better in Turkey. Among the studied countries, social and cultural norms have a comparably high impact on entrepreneurs in Turkey.

Interestingly, Latvia shows good results when looking at the gender gaps (~75%) of the three countries. Comparing data from 2018 with the data from 2006 shows that all three countries have improved their gender gap situation. The Global Gender Gap report (World Economic Forum WEF 2018) reveals that Denmark ranks 13th, and Latvia ranks 17th, while Turkey has one of the highest gender gaps and only ranks 130th among 149 countries.

In Denmark, the female to male ratio of graduates in Science, Engineering, Manufacturing and Construction is 0.40 while in Latvia, the female to male ratio is 0.20. For Turkey, the female to male ratio is 0.59, which indicates the highest female percentage among all three countries (WEF, 2016).

People in Turkey have a more positive opinion of entrepreneurship than in Latvia (Kelley et al. 2016). They have higher entrepreneurial intentions, perceived capabilities and lower fear of failure. In Turkey, entrepreneurship is considered a good career choice (72.1%) and a high social status is assigned to entrepreneurs (80.8%). In Latvia, this perception is more moderate (57.8%; 55.2%). However, the female to male ratio of entrepreneurs in Turkey is lower (0.45) in comparison with Latvia (0.51). In addition, expert ratings on the entrepreneurial ecosystem in Latvia are higher.

Data on the distribution of women across different science disciplines in 2009 shows that women in Denmark are mostly active in the medical field and the humanities. In Latvia, women are most focused on natural sciences and agriculture, and in Turkey on technology and engineering. In contrast to that, fewer women in Denmark are involved in the natural sciences, as well as engineering and technology. In Latvia and Turkey, women are less involved in the humanities, and medical and social sciences (European Commission 2012).

Compound growth rates of women researchers, particularly in the natural sciences, technology and engineering fields from 2002 to 2009, show that the percentage of women in Denmark who are occupied in the field of natural science, decreased by 16% and even a higher decrease of 37% is visible in the area of technology and engineering. In Latvia, the number of women in natural sciences decreased only about 1% and has seen a significant increase of 30% in technology and engineering. In Turkey, the numbers increased by about 11% in natural sciences and 5% in technology and engineering (European Commission 2012).

Motivations of Women Entrepreneurs

Researchers have identified push factors that motivate women's entrepreneurship, such as frustration, job dissatisfaction and boredom with previous jobs (Hisrich and Brush 1985; Sexton and Vesper 1982; Shapero and Sokol 1982; Sullivan 2016), as well as pull factors such as independence, autonomy, respect, or an increased flexibility in creating a more balanced life (Fierman 1990; Ivancevich et al. 1997; Taylor and Brown 1988; Sullivan 2016; Zellner 1994). Sullivan (2016) has analysed several women entrepreneurs' life stories and found that parents had a major impact on the motives for becoming entrepreneurs in technology. Ettl and Welter (2010) support the importance of the family background, which women can draw upon for entrepreneurial role models. They find that entrepreneurial opportunities are captured within the family context. Díaz-García et al. (2013) confirm that subjective norms, entrepreneurial attitude and self-efficacy relate to entrepreneurial intention, which is consistent with the findings of previous studies with student samples (Lüthje and Franke 2003; Liñán and Santos 2007). Moreover, Ettl and Welter (2012) find that men and women have different goals; For example, entrepreneurial success for women is often connected to motherhood.

Particularly for Turkey, Benzing et al. (2009) surveyed 139 men and women entrepreneurs in Ankara and found that their primary reasons for starting a business are to increase their income, obtain job security, and secure independence. Similarly, Keskin (2014) indicates that the main motive is to generate profits (with reference to İş ve Meslek Sahibi Kadınlar Derneği [Association of Business and Profession Owner Women], 2010). She also mentions other reasons such as starting a business as a result of the glass ceiling syndrome, realizing goals, being independent, and not being able to find a job (Fidan and Yılmaz 2006; Keskin 2014; Maden 2015; Tunçsiper et al. 2008). Furthermore, Maden (2015) emphasizes the willingness to benefit society as a motivation.

The European Commission (2012) shows that Latvia has one of the highest proportions of women entrepreneurs in Europe. This is said to be caused by the vulnerable economy after the economic crisis in 2007, which led women to start their own businesses to generate profit (European Commission 2012) and due to an inability of finding a job (Baltrušaitytė-Axelsson et al. 2008). LIDERE (2012) mentions that independence, self-realization and opportunity recognition were among the most significant motives. This is in line with personal fulfilment and satisfaction being

the most prevalent motives of women entrepreneurs (Baltrušaitytė-Axelsson et al. 2008; Tegtmeier et al. 2016). The authors also refer to the dominant wish to combine family and work life.

For Denmark, it became apparent that women entrepreneurs are more improvement-driven and opportunity focused compared to Latvia and Turkey. Around 80% of them named “opportunity” as their main motivation for entrepreneurship. In contrast, almost 70% of the Turkish women entrepreneurs named “necessity”. Meanwhile, both reasons were chosen equally often by the women entrepreneurs in Latvia, positioning the country between Denmark and Turkey (Allen et al. 2007). To the authors’ knowledge, no study has been conducted so far that specifically investigates the motivations of women entrepreneurs with STEM-related educational backgrounds in Denmark, Latvia or Turkey.

Challenges of Women Entrepreneurs

Although it may sound hackneyed, literature repeatedly suggests that women may perceive their environment to be unsuitable for entrepreneurial activities due to challenges such as a difficult access to resources (Shinnar et al. 2012), balancing motherhood (Green and Cohen 1995; Gopal and Shobha 2012) as well as experiencing a lack of support from different sources such as organizations or family (Heilman and Chen 2003). Some studies also suggest that a fear of failure and lack of competency are barriers to women’s entrepreneurship (Shinnar et al. 2012).

Benzing et al. (2009) reveal the most important problems that entrepreneurs in Turkey face. This includes complex bureaucracy and laws regarding business registration, taxation systems, unreliable employees and a weak economy. The majority of challenges that women entrepreneurs face, are based on the traditional view of women in society (Ufuk and Ozgen 2001). Keskin (2014) also lists stereotypes, insufficient education, a negative family reaction, excessive workload, the struggle to acquire funds and general financial difficulties to be among the challenges (Maden 2015; Kutaniş and Hancı 2004). She also acknowledges the conflict between entrepreneurs’ work and private life (Keskin 2014).

For Latvia, LIDERE (2012) identifies a high tax policy, bureaucracy, and low purchasing capacity to be the main challenges of women entrepreneurs. The European Commission (2008) finds insufficient family support, low self-esteem, lack of business knowledge and the difficulty to access the male dominated network in the engineering and tech branches to be among the most difficult challenges. The acquisition of financial means via business support programs was considered a barrier due to long waiting times (LIDERE 2012). Conversely, Latvia’s institutional profile was found to be the most favorable in comparison with Bulgaria and Hungary (Manolova et al. 2008).

According to Pettersson (2012), the Danish discourse on challenges for women entrepreneurs, does not recognize any specific challenges for women’s entrepreneurship, due to a lack of research.

However, Neergaard and Thrane (2009) find challenges related to maternity leave which compel women to find solutions to gap the bridge between family and business life.

Regarding specific challenges for women with entrepreneurial intentions in STEM, Rosa and Dawson (2006) state that academic entrepreneurs face conflicts between work, private life and networks. Access to finance as well as support networks are also found to be problematic. Recent studies reveal that resource shortages, gender discrimination and reputation challenges negatively affect new venture performance of women technology entrepreneurs (Xie and Lv 2016; Xie and Lv 2017). Concerning the low number of women in STEM jobs, a lack of female role models, less flexibility, which can impact the family life, and gender stereotyping are emphasized (Beede et al. 2011; Sullivan 2016). Lastly, Hampton et al. (2009) regard networking as a challenge that women face during entrepreneurial activities in the STEM disciplines while Sullivan (2016) identifies external perceptions and stereotypes as a hindrance for women to pursue degrees or careers in tech.

Support Sources for Women Entrepreneurs

Marlow and McAdam (2012) stress the importance of family support for women when launching a company in IT. Becker-Blease and Sohl (2007) examine women's access to angel capital in the US, and find that fewer women seek finance from business angels and receiving on average less investment compared to men.

For Turkey, Germir (2015) and Maden (2015) find that the KOSGEB (Small and Medium Enterprises Development Organization) is one of the most consulted organizations for business founders as it provides entrepreneurship support and training programs. Benzing et al. (2009) show that most female entrepreneurs expressed to seek advice from their families before founding a business. Organizations that support women entrepreneurs include KGSM (Prime Ministry General Directorate on the Status of Women), NGOs such as KAGIDER (Women Entrepreneurs Association of Turkey), TUSIAD (Turkish Industry and Business Association) and TOBB (The Union of Chambers and Commodity Exchanges of Turkey) as well as banks such as the Garanti Bank, TEB and Halkbank (Maden 2015; Toksöz 2007; Soysal 2010).

For Latvia, the European Commission report (2008) concludes that the country does not have official policies that specifically target women. However, several mostly Europe based projects and initiatives exist which provide information and support for women entrepreneurs, e.g., the ALTUM Start Programme (OECD 2015). Moreover, organizations such as the Rural Support Service, the Latvian Investment and Development Agency or the Mortgage and Land bank of Latvia as well as friends, family, and mentoring programs (LIDERE 2012), e.g., those that are organized by the NGO "LIDERE" (European Commission 2012), provide support in this area.

According to Pettersson (2012), Denmark does not have specific policies for supporting female entrepreneurs. However, the entrepreneurship environment is enriched by several networks (e.g.

CONNECT Denmark), specific networks for women (e.g. SPICE Women's Entrepreneurship, CURIE), incubation centres, engineering clubs (e.g. IDA), and several development programs such as Væksthus Denmark and Venture Cup (www.startvaekst.virk.dk, www.venturecup.dk). Moreover, the Danish Enterprise and Construction Authority's website (www.virksomhedskvinder.dk) provides information for women entrepreneurs to start and grow their businesses and the Danish Foundation for Entrepreneurship supports female students to bring more women into entrepreneurship (European Commission 2012). For the Nordic welfare state, Ahl et al. (2015), observe that neo-liberal policies moved a part of the welfare state's responsibilities to the market and as a result encouraged women's entrepreneurship.

METHOD AND MATERIAL

Data Collection

We apply a qualitative, interpretive approach which ensures to get a comprehensive view of the phenomenon investigated here (Eisenhardt 1989; Yin 2009). Semi-structured interviews were conducted with a total of 21 women entrepreneurs from Denmark, Latvia and Turkey, who have an educational background in different STEM fields. The term "entrepreneur" was adopted from Martin et al.'s (2015) definition who states that entrepreneurs are people who create businesses that are beyond the initial setup phase and who are actively involved in management processes and own the majority of shares. Thus, two years of company existence were considered to constitute a business beyond the startup phase.

Several social media channels as well as private email lists were used as mediums for reaching out to women entrepreneurs. The same number of respondents was interviewed from each country to ensure a high quality of the data analysis and enable country specific comparison. For a characterization of the sample see Table 1 in the appendix.

Semi-structured interviews were conducted via face-to-face meetings (2), Skype (15) and telephone calls (4). All interviews were recorded and transcribed. The key topics included the decision-making processes in starting a business and the role of motivation and support of the external environment (e.g. organizations, EU programs, government) before and after setting up a business. Moreover, a main focus was directed towards the challenges of founding and managing a company for women entrepreneurs with STEM backgrounds, as well as their suggestions for future entrepreneurs and policy makers.

Data Analysis

Interview coding was conducted in the form of a content analysis (Burla et al. 2008; Mathias et al. 2015). The combination of deductive and inductive coding procedures is based on Mayring's

(2014) qualitative content analysis approach. The interviews were coded using NVivo 11. The coding process started with categories that were retrieved deductively from the literature. The interview results for each question are presented under the categories: motivations, challenges, and support sources. The motivations were divided into pull factors that stimulate people, and push factors that compel them to start their own businesses (inspired by Sullivan 2016). The challenges were divided into the categories institutional (external factors related to institutions and organizations, including challenges that occur when organizing and managing a business) and socio-cultural (combining challenges society poses for female entrepreneurs). Lastly, sources of support were separated into tangible (monetary) and intangible (nonfinancial).

An overview of the categories from the interview coding can be seen in Table 2 of the appendix. Separate categories that entail suggestions for future female entrepreneurs and policy makers were created, which were derived from the interviewees' propositions. The quotes from the transcripts were subsequently gathered under each suggestion category.

RESULTS

Motivations

Interviewees from all three countries base their decisions on their experience and the recognition of opportunities, although at different levels. Turkish women with STEM education make more use of their competences and knowledge to start a business than others in this field. Although all the Danish women likewise used their expertise in founding a company, they did not specifically elaborate on this in the interviews. In contrast, a small number of Latvian women saw opportunities in other areas of entrepreneurship, thereby taking advantage of a “*gap in the market*” (LD).

Interestingly, Danish women entrepreneurs did not emphasize their willingness to become entrepreneurs as much as women from Turkey or Latvia. For the latter, the key factor was mostly the value of an idea or opportunity. The results show that they considered founding a business mostly when a promising idea was recognized. On the contrary, Turkish entrepreneurs frequently mentioned their personal willingness to become entrepreneurs when talking about their motivations. Independence in decision-making was also found to be of high importance for women entrepreneurs in all countries. According to one of the interviewees (TF): “*It is much more fun to work independently, instead of under others' command*”.

A total of five respondents saw opportunities in social entrepreneurship, and two women from each country mentioned the pursuit of profit as being a motivating factor. An example for a motivation behind social entrepreneurship was to help children with ADHD syndrome: “*Our vision is definitely to be able to help people*” (DC). Regarding the pursuit of profit, several reasons were named. One is to sustain the family after the loss of one's job: “*It is because we had to survive*

somehow, to have something for a living” (LG). Other interviewees named the motive of becoming rich, because they were specialists in a promising industry.

Three women named self-actualization as their motivation to start their own business and four mentioned an improved work-life balance. *“Having own business was an option for me. [...] I had little children. I wanted to see how they grow”*, according to interviewee (LD).

One Danish and one Turkish respondent believed that having their own company provides stable employment. Moreover, only one respondent from Denmark (DD) mentioned dealing with gender discrimination at work. She named the difficulty *“to get to the top of Danish work life being a woman”* as a motivation to start her business. In addition, two respondents from Turkey mentioned respect from their family, society and own children as one of the factors. According to (TE), founding an own company: *“puts you in a position in front of your family, spouse, friends, and everyone else”*.

Latvian women were more influenced by high levels of unemployment. Not being able to find a job which was the result of the Soviet Union’s collapse or the Financial Crisis in 2007, (LG) mentioned *“here with our profession was nothing available”*, thus, motivating her to find new sources of employment.

Several entrepreneurs were impacted by job frustration and dissatisfaction, most respondents in this case were Turkish. A factor that can cause frustration is the work culture; (TG): *“I realized that they were behaving in a very weird way and that I could not do anything about it, I left the company”*. Talking about job satisfaction, interviewee (TE) commented: *“It was not a nice atmosphere for a young graduate who is full of energy and wants to accomplish many things”*. These factors resulted in unpleasant personal experiences and led to starting their own company. Note that none of the interviewed entrepreneurs saw boredom in their everyday job as a push factor for entrepreneurial activity. An overview of all motives, challenges and support structures can be found in table 1 below.

Challenges

The challenges are split into the categories institutional, organizational and socio-cultural, and vary among the countries. Combining motherhood with managing a business was one of the most frequently mentioned problems that women had to face in all countries. *“You have a kid at home, waiting for you. You need to meet her needs. That is why it is actually a very tough life”*, one of the entrepreneurs from Turkey (TC) explained.

In general, Danish entrepreneurs did not mention as many challenges in starting an own business as Latvian or Turkish entrepreneurs. However, it is important to highlight that tax regulations were

a sensitive topic for all respondents. Females from Turkey were the only entrepreneurs who mentioned problems resulting from the country's weak economy and unqualified employees.

Turkish and Latvian entrepreneurs frequently mentioned problems related to gender stereotyping and the traditional view of women in society. Women still have to prove their abilities if they want to acquire a high position within a company or run a company themselves. However, none of the respondents had difficulties with finding female entrepreneur role models.

One Turkish entrepreneur experienced a different social view on women in contrast with the other respondents. She stated that her willingness to be independent is rooted in her heritage: "*Where I am from, women do not stand behind men. Quite the opposite, we are one step ahead of the men. That is why, I think, this region can relate to me being daring*" (TC). This implies that her social environment and local traditions influenced her decision in founding a company.

Moreover, one Latvian IT company co-founder had experienced "*positive discrimination*" (LB). Since there are not many female entrepreneurs in the IT sector, pitching ideas as a woman has helped her team to stand out from the crowd at startup competitions. According to her, "*it is because there is not enough diversity. There are some things that men would never think of*".

Latvian entrepreneurs faced challenges due to their lack of knowledge in business management. However, most of them regard it as a possibility for personal development. Furthermore, family-life balance was an important subject for the entrepreneurs, considering that they, especially in the first years of their company foundation, had to work "*14 or 18 hours per day*" (LA).

Interviewees also frequently talked about financial difficulties. This can be due to disadvantageous legislation for startups, as well as high taxes, even if the company was just recently founded. Latvian interviewees seemed most affected by financial problems, although four participants from other countries also experienced these difficulties. For Danish women, it was the second biggest challenge, because according to (DG) "*it is very expensive in Denmark to start a company*".

Taxation, policies and bureaucracy were mostly mentioned as challenges by Latvian entrepreneurs, due to "*quite fuzzily formulated laws that you can interpret in many different ways*" (LC) and taxes "*changing every year*" (LC), while Turkish and Danish women were quite different in their answers. For Turkish women, it was more problematic to deal with Turkey's complicated policy structure.

Surprisingly, the interview results reveal that many interviewees were not willing to distinguish between men and women entrepreneurs: "*I think it is a shame if women think that they cannot do it because they are a woman. [...] People do not think things like that anymore.*" (DC) "*I do not*

discriminate between man and woman. Anyone who wants to start a business needs to find something that they are really interested in.” (TG)

Support Sources

The interviews made it apparent that the environments in Denmark, Latvia and Turkey are considered to be beneficial for entrepreneurial activities. According to the entrepreneurs with companies that are more than 20-years old, modern technology breakthroughs and the growth of the startup culture have made the process of starting a company easier.

Differentiating between intangible and tangible support sources, there are several categories that prevail in the examined countries. Most of the mentioned support sources are intangible, such as business partner support, family and friends or mentoring programs.

Business partners are not only useful for alleviating everyday stress, but also to complement each other's skills. Therefore, some of the women invited their former mentors for starting a new business together. Also, “*word of mouth*” (DA) from customers is a valuable asset among Danish entrepreneurs as it helps to spread the company's reputation and gain new customers.

Besides support from parents and spouses, children are also sometimes involved in their mother's entrepreneurial activity. “*I am really involving my kids. They see how I am developing, what I am doing*”, one of the Latvian interviewees (LE) explained.

Mainly Turkish interviewees made use of women specific entrepreneurship support programs. Tangible resources like investments by family and friends were more mentioned by Danish entrepreneurs. Governmental support sources appear to be very important for all respondents. Organizations that provide funds for entrepreneurs were less used by Latvian entrepreneurs compared to their peers. Interestingly, three entrepreneurs from Turkey and Latvia had to work to finance their lives while starting their own businesses whereas this was not the case at all for Denmark.

Suggestions for Future Women Entrepreneurs

Three of the interviewed entrepreneurs suggested “*to work in that sector to gain some experiences*” (TF) before starting an own company, as this will help to build an understanding of the company's structure, processes and the industry itself. Moreover, it became apparent that during years of employment, interviewees also broadened their networks which played an important role in starting a company.

The interviewees mentioned that the exploration of one's own competences will help in building a successful business. In addition, they suggested to stay open-minded and keep up with the latest trends. After a promising idea is recognized, the interviewees suggested that the focus should be

on finding the right team and “*a partner to complete her missing skills*” (TE) for bringing the idea to life.

Eight women mentioned the importance of taking risks, five suggested that more women should have the courage to start a company. Four recommended to keep being brave in decision making on a daily basis. If an entrepreneur faces problems during the foundation of her business, the interviewees suggested “*to know all of these (funding) possibilities that Europe and other countries provide*” (LD).

Interviewees stressed the importance of networking with friends, partners, employees and customers, but also of establishing a good collaboration with various organizations. Media can help in promoting the own company and “*to attract some talent*” (LB) as well as keeping good relations with a bank (DD).

Several entrepreneurs suggested, in addition to fostering one’s professional knowledge, to develop other business-related skills like bookkeeping, the handling of finances, marketing or human-resource management to further their understanding of all parts of entrepreneurship.

The interviewees did not mention any specific female entrepreneur with a STEM background who inspired them to choose their career, “*because there is none*” (DB). Two women from Denmark, two from Turkey and two from Latvia uttered that there are only a few female entrepreneurs in the STEM industry; Thus, not many role models are available. Nonetheless, while some entrepreneurs mentioned successful business owners within their family as a major inspiration, others stated that they found role models through “*reading a lot of biographies of women in science*” (LG).

Several women had personal mentors, both men and women, who motivated them to become entrepreneurs and assisted them with advice along the way. One woman mentioned that their role models changed when they became mothers, and they started to look for examples of “*successful women leaders - mothers*” (LB), entrepreneurs who can combine work and family life.

A lack of female examples in the STEM industries encouraged some of the interviewed entrepreneurs to become examples themselves. Therefore, they participate as mentors in women’s entrepreneurship associations or founded these organizations to support other women in business and STEM. Furthermore, their friends got “*inspired*” (DF) by their success in entrepreneurship. Thus, showing and increasing the number of successful role models or “*examples of happy entrepreneurs*” (DA) could be helpful in getting others engaged in entrepreneurial activities.

Suggestions for Policy Makers

Almost every entrepreneur supported the idea of passing laws to improve the tax environment for female entrepreneurs. The main problem mentioned was the high burden of taxes in the first years

of the company's existence. Thus, to encourage more entrepreneurs to start businesses, respondents suggested a "*special tax plan*" (LB) to receive reductions or lower rates for small companies for the first 5 years or until they reach a specified turnover. Another suggestion stated that "*bureaucracy should be reduced*" (LC), to enable smaller companies to manage their administrative work more easily. This should also be applied to the time span over which organizations lend money as these are too long (LD, TA). Overall, "*a law that defines startup as a special form of a company*" (LB) was mentioned as a solution to these policy issues.

Resulting from the difficulty of combining business management and motherhood, (most) women entrepreneurs referred to the need for more support programs for female entrepreneurs who are or want to become mothers, like "*more non-taxable minima*" (LG), "*possibility to have a smoother lifestyle*" (TB), and "*women should help other women to start their own companies*" (TA). Moreover, women in Denmark are eligible to receive "*barselspenge*" (DE), a maternity allowance from the state unless they are not working at the company.

Traditional social views on entrepreneurs especially affect Turkish women. Therefore, their suggestion is to use media channels to raise awareness for successful women entrepreneurs and provide more governmental programs that aim to engage more women in business management. In addition, the STEM industry should appear as a more appealing and promising career choice for young girls, which could contribute to increasing their numbers in the STEM disciplines.

In line with the problem that "*the image of the industry is not as appealing*" (LB), the interviewees proposed that the education system should provide a more modern and advanced education program in STEM related classes. Another suggestion was to provide more attractive examples of STEM related working possibilities, because, e.g. the image of an IT person was portrayed to be "*somebody who is very geeky*" (DA). This needs to be changed to bring more women into these industries. Furthermore, it was mentioned that university education programs should focus on entrepreneurship, because "*people who have an idea have no idea how to present it, how to develop it and how to put it into operation*" (TA).

DISCUSSION

This study unveils the state of the entrepreneurial environment for women with an education in STEM based on the results of the interviewed entrepreneurs from Denmark, Latvia and Turkey. It shows that the motivations of women with STEM backgrounds to start businesses were often similar but also displayed a certain degree of variation between the analysed countries. **Danes** stated that their biggest motivators included recognizing opportunities, making use of their expertise, and gaining independence. Similarly, for **Latvian** entrepreneurs, the main motivations are a strong wish to become an entrepreneur, being confident in their area of expertise, recognizing opportunities, being independent in decision making, and having a good work-life balance. When

it comes to **Turkey**, all of the entrepreneurs had the incentive to make use of their expertise, combined with the willingness of becoming an entrepreneur, and recognizing opportunities.

Motives	Challenges	Support sources
Area of expertise	Bureaucracy	Business partner
Opportunity recognition	Economy	Family and friends
Pursuit of profit	Funds	General mentoring programs
Social entrepreneurship	Networks	Women specific programs
Deal with gender discrimination	Policies	Word of mouth
Independence	Taxation	Current employment
Job security	Education	Family and friends' resources
Respect	Employees	Government
Self-actualization	Financial difficulties	Organizations
Willingness & entrepreneurial intention	Workload	
Work-life balance	Family life	
Boredom	Gender stereotyping	
Frustration	Lack of role models	
Job satisfaction	Motherhood	
Unemployment	Traditional view	
	Unsupportive family	

Table 1: Motives, challenges and support structures of women STEM entrepreneurs in Denmark, Latvia and Turkey

These findings are not exactly consistent with Martin et al. (2015), since it becomes apparent from the results at hand that having limited opportunities at the workplace, or not feeling welcome, are not among the main motivations for the interviewed entrepreneurs. An exception has been identified for women from Turkey who often mentioned that having an unsatisfying job, ultimately created their desire to become independent. This finding indicates that job satisfaction among Turkish women is lower compared to their Latvian and Danish peers, which puts Turkish women in a different starting position when it comes to starting a company.

Generally, all respondents mentioned several pull factors which triggered them to start their own companies. One example is the independence factor (Keskin 2014; Benzing et al. 2009), as half of the interviewees from each country showed a great desire to have the authority over business decisions. However, being respected appeared to be only important for two Turkish women, which emphasizes their unique position when compared to their peers. It can be argued that this result is caused by the difficulties Turkish women face with respect to their rights and possibilities, stemming from traditional views about women as well as gender stereotypes that are embedded in Turkish society. In contrast, gender discrimination as a motivator was mentioned only once by a

Danish entrepreneur who had the intrinsic goal of disrupting the negative image of business women, and increasing the number of women entrepreneurs with her actions.

Having a strong intention to become an entrepreneur could be identified as a core motivation for women with a STEM background in Turkey and Latvia. This appears to be in compliance with Stenholm et al. (2013), who argued that this is a crucial element of being an entrepreneur. The fact that almost none of the Danish interviewees mentioned this intention is supported by Allen et al. (2007), who specify that Danish entrepreneurs are more improvement-driven and opportunity focused compared to Latvian and Turkish entrepreneurs.

A prominent motivator for respondents of all countries was found to be the application of the knowledge gained in their education and experience in their specific area of expertise. This factor, however, was not recognized in former literature. While Turkish women mostly planned to start their businesses in the industries they were educated in, some Latvian women had started in industries which were not directly in line with their education. This difference can be explained by a higher failure-avoidance behavior (Shinnar et al. 2012) of Turkish women, even though many of the interviewed women described themselves as risk-takers. Danes also made use of their skills and experiences in their area of expertise. However, they did not elaborate explicitly on this fact, making it appear as if they perceive their know-how to be a self-evident tool for founding a company.

This study confirmed intrinsic motivations to be more powerful for women to become entrepreneurs than the pursuit of profit. This finding is in line with Jayawarna et al. (2011) and Rosa and Dawson (2006), while it contradicts Benzinger et al. (2009), the European Commission (2012) and Keskin (2014), who found that profit generation was the main motive for female entrepreneurs in STEM areas. A prominent point made by several interviewees is that the foundation of their own companies gave them the freedom to be with their family, thus creating a healthier work-life balance (Baltrušaitytė-Axelsson et al. 2008). Although there is only one study that documented the case of social entrepreneurship (Maden 2015) and no study highlighted self-actualization as a key factor for founding a company, several interviewed women declared that they had these motivations. This could indicate that women have arrived at a point where they wish to find fulfilment while at the same time creating something that could benefit society. In addition, the focus on self-actualization could be interpreted as a message that the women of today see themselves as more powerful and have a stronger determination to succeed.

Compared to the higher number of pull factors mentioned by the interviewees, only a few push factors could be identified. Mostly Turkish women mentioned that one motivation for starting a business was the existence of conflicts at their previous workplaces or the feeling of professional unfulfillment. This is in accordance with the findings of Sullivan (2016) and reflects the lower job satisfaction of Turkish women compared to their peers. At the same time, none of the interviewees

stated that boredom during previous work activities served as a motivation for creating their own company. Even though Benzing et al. (2009) suggested that obtaining job security was among the primary reasons for founding a business, this did not seem to be the case for most of the STEM educated women in this study. Only two Latvian women mentioned that they founded their company because they were unable to find a job in their areas of expertise, in accordance with Baltrušaitytė-Axelsson et al. (2008) and Keskin (2014).

As organizational challenges, Latvian women named a lack of proper skills, in particular a lack of knowledge concerning the foundation of businesses, leadership, and human resources. Similarly, Turkish women also mentioned difficulties regarding the foundation of a business, which is in line with Keskin (2014). In contrast, only one Dane said that founding her business was a significant challenge. It can be argued that this difference is a result of a more established startup culture in Denmark, which in turn might be the result of a more stable political and economic system when compared to Turkey or Latvia. Moreover, the availability of several entrepreneurship mentoring programs in Denmark could make the foundation of businesses easier and more accessible for women.

According to Sullivan (2016), the problem of combining career and motherhood contributes to the impression that the environment is unsuitable for entrepreneurial activities. This in turn can be considered an obstacle for women, which could prevent them from choosing STEM careers. Latvian respondents seemed to have the biggest difficulties with balancing family and work life, followed by Turkish and Danish women. However, this relation appeared to change when motherhood was considered. While Turkish and Latvian women deemed other matters to be more pressuring, it seemed that Danish entrepreneurs perceived motherhood to be a major challenge when organizing a business. A reason for this could be that Danish women do not feel as threatened by economic or societal problems since Denmark has a more stable political and social system than Turkey or Latvia. As a result, Danish women can concentrate more wholeheartedly on being a mother and perceive this challenge to be more relevant than others.

High workload connected to managing a business was identified to be a moderate challenge for Turkish and Latvian entrepreneurs. This was also identified by Keskin (2014) and, according to Sullivan (2016), is particularly prominent in STEM related jobs and can lead to negative consequences for family life. Similar to problems regarding the combination of career and family life, high workload was less often mentioned as an obstacle by Danish women when compared to their Turkish and Latvian counterparts. One reason for this could be that Danish women are better at finding a healthy balance between their work and private lives, which enables them to better cope with stress and high workloads.

Socio-culturally, gender stereotyping was named as the biggest challenge (Beede et al. 2011) faced by Turkish entrepreneurs and was to some extent also mentioned by their Latvian counterparts.

Sullivan's (2016) statement that gender stereotyping is hindering women in pursuing careers in STEM is thus in line with their experiences. While Turkish interviewees said that discrimination against women was a problem, the answers of their Latvian peers appeared to change depending on their industry. Interestingly, one Latvian woman mentioned that she experienced a positive kind of discrimination, stating that being a woman in the IT industry brought her more attention and made her stand out positively. When it comes to the Danish respondents, only one of them mentioned stereotyping to be a challenge. This contrast could indicate that Denmark is more suitable for female entrepreneurs, since a devaluation of women by men is not as deeply rooted in society as in Turkey. However, some Danish women also mentioned that they did not get promoted as quickly as men, which is an example for the glass-ceiling syndrome (Keskin 2014) and makes the previous statement debatable. One woman from Turkey and one from Latvia declared that the traditional view of women's role in society was a challenge. This was also analysed by Benzing et al. (2009). In addition, several Turkish participants uttered that the ingrained perception that women should only be mothers and housewives significantly hinders women to start a business. It appears that challenges based on stereotypes and discrimination are most prevalent in Turkey, followed by Latvia and Denmark.

The last category of challenges is connected to external factors related to institutions and national politics. Vaguely formulated and unstable policies are seen as an obstacle (Benzing et al. 2009). In this study, particularly Latvian women had an unclear vision of their home country so that they could not make predictions about the future. Similarly, Turkish women pointed out unsystematic domestic policies, and unreached trade agreements, which further complicate business for internationally operating companies. In contrast, Danish entrepreneurs did not appear to be impacted by similar challenges. To explain these differences, it can be argued that, due to their membership in the European Union, Latvia and Denmark are embedded in a more stable political system which positively influences the business environment for entrepreneurs. At the same time, Latvia might still be suffering from its unstable past since they have been a part of the Soviet Union and only became an independent country in 1990, which means that Latvia had a shorter period of time to develop a stable economy, unlike Denmark. Turkey has experienced major uncertainties regarding its political situation over the last years, which have negatively impacted business conditions.

As a part of the legal situation, Latvian respondents seemed to be most troubled with complex taxes and the paperwork related to, e.g. hiring employees. Surprisingly, none of the Turkish entrepreneurs named a similar challenge, although Benzing et al. (2009) found bureaucracy and complex taxation systems to be challenging for women entrepreneurs in Turkey. The results for the Latvian interviewees appear to comply well with LIDERE (2012) who mentioned a high tax policy and bureaucracy to be among the main challenges of female entrepreneurs in Latvia. The low problem awareness among Turkish women is surprising. This could be due to the fact that other challenges, such as gender stereotypes and discrimination, preoccupy Turkish women, so

that bureaucratic difficulties seem to be less important. In addition, Danes did not appear to perceive their legal environment as problematic either. However, this might be caused by Denmark's overall more startup friendly business environment and not by discrimination.

A further problem that Latvian interviewees stress is the lack of financial means when managing their company as LIDERE (2012) and Keskin (2014) pointed out. The fact that this challenge seems to be most apparent among Latvian women correlates with the perception that the domestic tax system demands too much from them. Even though Turkish and Danish entrepreneurs did not explicitly refer to tax problems, they nevertheless referred to financial difficulties as challenges. This leads to the conclusion that a lack of financial means is a general difficulty that entrepreneurs in all countries face. However, while interviewees from all of the examined countries uttered that they experienced financial difficulties, it became apparent that only one woman from Latvia and Denmark mentioned having funding difficulties at the beginning of their companies' foundation, which contradicts Keskin (2014).

Support Sources for Women Entrepreneurs

Regarding tangible sources, the interviewees predominantly mentioned governmental as well as friends' and family's financial support to be utilized the most. This finding is in agreement with LIDERE (2012) who mentions this to be prevalent among women in Latvia. Private organizations were also mentioned to be a source of financial means for interviewees from the investigated countries with Latvian entrepreneurs making overall less use of them. The reason why Latvian entrepreneurs do not consult private organizations as much could be because the culture of funding organizations is not very well developed in the country. At the same time, LIDERE (2012) has shown that Latvian women tend to use personal savings, bank loans and government support rather than other sources for covering expenses. Women specific programs appeared to be consulted more by Turkish entrepreneurs. Traditional views often pressure Turkish women to avoid entrepreneurship, thus they find the support they need in women focused programs.

In addition to external financial means, entrepreneurs from Turkey and Latvia expressed that it was a necessity for them to continue with their current jobs in order to secure a stable financial income until their own businesses began to make profits. This fact has not been mentioned in the literature so far and was also not mentioned by Danish interviewees. It can be argued that this is the case because the social security system in Denmark is better developed compared to Turkey and Latvia, which gives Danish women a higher financial security so that they do not have to fear for their existence.

Women entrepreneurs from all countries appeared to perceive the presence of intangible sources as more important compared to tangible sources of support. They made use of advice from coaches, family members, general mentoring and women specific programs. Mental support from family

and friends was assigned a high importance by Marlow and McAdam (2012) as well as Benzing et al. (2009). While this opinion was echoed by the respondents, one Latvian entrepreneur mentioned her children's support to be crucial and several women agreed on the important function of their business partners, e.g. regarding the management of stress and complementation of skills.

How to Increase the Numbers of STEM Educated Female Entrepreneurs

It becomes apparent that the usage of one's own expertise was by most women perceived as a key factor to realize opportunities and take the step to starting a business. Accordingly, awareness of one's own competences and opportunities within the own education/sector is a primary starting point for future women entrepreneurs in the STEM fields. It is also important to educate oneself further, as well as analysing the market opportunities that can be exploited by using own competences.

This study reveals that the majority of entrepreneurs consider a strong willingness or entrepreneurial spirit to be a necessary prerequisite for starting a business. To manifest and strengthen this ability, the observance of successful examples (role models), either from family, circle of acquaintances or entrepreneurship networks, can be useful. These connections can also assist women in mitigating challenges such as being alone or not having enough motivation at times. In addition, several interviewees mentioned that different entrepreneurial qualities (Sullivan 2016) such as ambition and patience should be a part of the personality of future entrepreneurs to better endure the difficulties that are connected to starting a business.

Several entrepreneurs mentioned the acquirement of tangible support from governmental and other public and private organizations (Germir 2015; Maden 2015) as helpful. Thus, women should consider funding possibilities both within and outside of their home country.

Although the interviewees were inspired by role models, they could not mention any role model that had a background in STEM. This finding points towards a lack of role models available in the STEM areas. As a result, the creation of more role models for women to identify themselves with and to follow as positive examples, is a need which was also mentioned by Sullivan (2016). Sullivan suggests that more female role models in STEM would be beneficial for weakening stereotypes in society. Thus, a piece of advice that women entrepreneurs could follow is to not only identify role models, but also to become role models themselves to increase the number of women entrepreneurs in the STEM fields.

Several women from Denmark and Latvia supported the idea of having tax reduction policies for small businesses in their countries. High taxes represent a challenge for entrepreneurs and create financial difficulties particularly in the first years of their businesses. Thus, tax policies should be reconsidered to reduce the burden that entrepreneurs already have to carry when starting a

business. For instance, a special tax plan for small companies could be developed and adjusted once the business has grown.

Balancing motherhood and work life has also been identified as a significant challenge (Neergaard and Thrane 2011). Mostly Danes emphasized the need for specialized support programs directed towards entrepreneurs who would like to become mothers. Furthermore, having supportive policies that relieve women during their maternity leave could make more women feel comfortable to start a business while being a mother. These suggestions are in line with Aidis et al. (2016) and Hampton et al. (2009) who encourage governments to develop targeted policies to reduce gender barriers for women to start a business. Welter and Kolb (2006) propose collaborative policies targeting women specific needs such as easing childcare in this context.

Moreover, to get to the root of discrimination, governments have a high responsibility to address media channels which portray women in harmful and stereotypical ways. The media should be used to provide examples of successful women entrepreneurs to create a higher awareness and reduce gender stereotyping (Maden 2015; OECD 2015) instead, especially in societies where this is a significant problem, such as Turkey or Latvia.

A more general reflection results from the statements of several interviewees, who mentioned that the experience of becoming an entrepreneur should not be analysed depending on one's gender. Thus, when discussing entrepreneurial environments, the discussion should not only be focused on women or men, but on all entrepreneurs, because they are equal. Possible implications of this critique have been touched upon by Pettersson (2012). She raises the question whether “doing entrepreneurship support” equals to “doing gender” (p. 15) since the acknowledgement that women need specific support programs implies that they are not equal to men.

Particularly related to STEM fields, it was suggested for women to follow trends for recognizing opportunities in the field of their respective expertise, cooperation with a complementary skilled business partner who has knowledge about managing a business and striving to become role models for other STEM educated women. For policy makers, the unique proposals presented in this paper, include improving the image of the STEM industries, the reduction of gender stereotypes, especially in Turkey and Latvia, and the provision of STEM education programs with the latest knowledge, as well as entrepreneurship related courses.

Limitations and Implications

This explorative paper investigated motivations, challenges and support sources of STEM educated women entrepreneurs in different national contexts, namely Denmark, Latvia and Turkey. Suggestions for future entrepreneurs and policy makers to increase the number of STEM educated women on the national level were also provided.

However, the results of this study cannot be interpreted without taking its limitations into account. Firstly, it was the aim of the authors to reach out to a bigger sample of women entrepreneurs with STEM backgrounds. However, finding interviewees with this specification was difficult, due to their underrepresentation in entrepreneurship. This is in line with the findings of this research and supports its argument that the number of women entrepreneurs in STEM fields needs to be increased, e.g. by providing successful examples. As a result, the sample which forms the basis of this study is relatively small and, in addition, does not include an equal number of representatives from each STEM area. The findings related to STEM educated women entrepreneurs in Turkey, Latvia and Denmark need to be seen in this light. Moreover, the fact that several of the interviewees had the same or similar educational backgrounds may have caused an overrepresentation of the arguments that are specifically relevant to women with these backgrounds and vice versa. Similarly, as this research studied entrepreneurs who had already moved on from the startup phase, the study is retrospective. Future women entrepreneurs could have different insights on the topics when asked the same questions.

Future research endeavors should expand their scope to include different countries. A more evenly distributed sample of women from all STEM areas could increase the quality of the findings. Similarly, questions could be asked to women entrepreneurs in different stages of their development, to identify differences between already established entrepreneurs and women that wish to become entrepreneurs. Lastly, future research could explore the following questions that were raised by the interviewees:

- “Are support programs for women actually motivating, or rather discouraging women, and are these programs fighting or enforcing gender stereotypes?”
- “How can more women be encouraged to study in STEM areas?”
- “Can role models increase the number of women entrepreneurs in STEM?”

Last but not least, we encourage future researchers to conduct longitudinal studies to gain further insights.

REFERENCES

- Ahl, H. (2006). Why research on women entrepreneurs needs new directions. *Entrepreneurship Theory and Practice*, 30(5), 595-621.
- Ahl, H., Berglund, K., Pettersson, K. and Tillmar, M. (2016). “From feminism to FemInc.ism: On the uneasy relationship between feminism, entrepreneurship and the Nordic welfare state”, *International Entrepreneurship and Management Journal*, 12 (2), 369-392.
- Aidis, R., Aidis, R., Weeks, J. and Weeks, J. (2016). Mapping the gendered ecosystem: The evolution of measurement tools for comparative high-impact female entrepreneur development. *International Journal of Gender and Entrepreneurship*, 8(4), 330-352.
- Allen, I.E., Elam, A., Langowitz, N. and Minniti, M. (2007). *Global Entrepreneurship Monitor. 2006. Report on women and entrepreneurship*. Global Entrepreneurship Research Association (GERA).
- Allen, E. I., and Langowitz, N. S. (2011). Understanding the gender gap in entrepreneurship: A multicounty examination. In M. Minniti (Ed.), *The dynamics of entrepreneurship: Evidence from global entrepreneurship monitor data*. Oxford: Oxford University Press, 31–55.
- Alsos, G. A., Ljunggren, E., & Hytti, U. (2013). Gender and innovation: state of the art and a research agenda. *International Journal of Gender and Entrepreneurship*, 5(3), 236-256.
- Anderson, A. and Smith, R. (2007). The moral space in entrepreneurship: An exploration of ethical imperatives and the moral legitimacy of being enterprising. *Entrepreneurship and Regional Development*, 19(6), 479–497.
- Arthur, S.J., Hisrich, R.D. and Cabrera, Á. (2012). The importance of education in the entrepreneurial process: A world view. *Journal of Small Business and Enterprise Development*, 19(3), 500-514.
- Baltrušaitytė-Axelsson, J., Sauka, A. and Welter, F. (2008). *Nascent Entrepreneurship in Latvia*. Stockholm School of Economics in Riga.
- Baughan, C., Chua, B.-L. and Neupert, K.E. (2006). The normative context for women’s participation in entrepreneurship: A multicountry study. *Entrepreneurship Theory and Practice*, 30(5), 687-708.
- Becker-Blease, J.R. and Sohl, J.E. (2007). Do women-owned businesses have equal access to angel capital?. *Journal of Business Venturing*, 22(4), 503-521.

- Beede, D.N., Julian, T.A., Langdon, D., McKittrick, G., Khan, B. and Doms, M.E. (2011). *Women in STEM: A gender gap to innovation*. Washington: US Department of Commerce Economics and Statistics Administration, 4(11).
- Benzing, C., Chu, H.M. and Kara, O. (2009). Entrepreneurs in Turkey: A factor analysis of motivations, success factors, and problems. *Journal of Small Business Management*, 47(1), 58-91.
- Bianco, M. E., Lombe, M., & Bolis, M. (2017). Challenging gender norms and practices through women's entrepreneurship. *International Journal of Gender and Entrepreneurship*, 9(4), 338–358.
- Birkner, S. (2019). To belong or not to belong, that is the question?! Explorative insights on liminal gender states within women's STEMpreneurship. *International Entrepreneurship and Management Journal*, 1–22. <https://doi.org/10.1007/s11365-019-00605-5>
- Boettke, P. and Coyne, C. (2009). Context matters: Institutions and entrepreneurship. *Foundations and Trends in Entrepreneurship*. 5(3), 135–209.
- Burla, L., Knierim, B., Barth, J., Liewald, K., Duetz, M. and Abel, T. (2008). From text to codings: intercoder reliability assessment in qualitative content analysis. *Nursing research*, 57(2), 113-117.
- Carter, S., Anderson, S. and Shaw, E. (2001). *Women's business ownership: a review of the academic, popular and internet literature. Report to the Small Business Service, Department of Business Innovation and Skills*, HMSO, London.
- Coleman, S., Henry, C., Orser, B., Foss, L., & Welter, F. (2019). Policy Support for Women Entrepreneurs' Access to Financial Capital: Evidence from Canada, Germany, Ireland, Norway, and the United States. *Journal of Small Business Management*, 57(S2), 296–322.
- Dautzenberg, K. (2012). Gender differences of business owners in technology-based firms. *International Journal of Gender and Entrepreneurship*, 4(1), 79-98.
- Dean, H., Larsen, G., Ford, J., & Akram, M. (2019). Female Entrepreneurship and the Metanarrative of Economic Growth: A Critical Review of Underlying Assumptions. *International Journal of Management Reviews*, 21(1), 24–49.
- Demiralp, B., Morrison, L. T. R., & Zayed, S. (2018). On the Commercialization Path: Entrepreneurship and Intellectual Property Outputs among Women in STEM. *Technology & Innovation*, 19(4), 707–726.

- Díaz-García, M.C. and Jiménez-Moreno, J. (2010). Entrepreneurial intention: the role of gender. *International Entrepreneurship and Management Journal*, 6(3), 261-283.
- Díaz-García, C., González-Moreno, A. and Jose Sáez-Martínez, F. (2013). Gender diversity within R&D teams: Its impact on radicalness of innovation. *Innovation*, 15(2), 149-160.
- Dilli, S., & Westerhuis, G. (2018). How institutions and gender differences in education shape entrepreneurial activity: a cross-national perspective. *Small Business Economics*, 51(2), 371–392.
- Eisenhardt, K.M. (1989). Building theories from case study research. *Academy of Management Review*, 32, 532-550.
- European Commission (2008). Evaluation on policy: *Promotion of Women Entrepreneurship*, Enterprise and Industry Directorate General.
- European Commission (2012). *WES Activity Report 2009-2010*. European Network to Promote Women's Entrepreneurship.
- European Commission (2014). *Statistical Data on Women Entrepreneurs in Europe*. Luxembourg: Publications Office of the European Union.
- European Commission (2012). *She Figures*, European Commission.
- Ettl, K. and Welter, F. (2012). Women Entrepreneurs and Success. In M.A.Galindo, D. Ribeiro (Eds.), *Women's Entrepreneurship and Economics : New Perspectives, Practices, and Policies*, 73-88, New York: Springer.
- Ettl, K. and Welter, F. (2010). Gender, context and entrepreneurial learning. *International Journal of Gender and Entrepreneurship*, 2(2), 108-129.
- Feder, E.S., Nițu-Antonie, R.D. (2017). Connecting gender identity, entrepreneurial training, role models and intentions. *International Journal of Gender and Entrepreneurship*, 9(1), 87-108.
- Fidan, F. and Yilmaz, T. (2006). Kadın Girişimciliğine Alternatif Bakış Serüven mi? Macera mı? [An Alternative Look at Women Entrepreneurship. Is it an adventure?], Doğu Akdeniz Üniversitesi 2. Uluslararası Kadın Araştırmaları Konferansı, Nisan, Kuzey Kıbrıs.
- Foss, L., Henry, C., Ahl, H., & Mikalsen, G. H. (2019). Women's entrepreneurship policy research: a 30-year review of the evidence. *Small Business Economics*, 53(2), 409–429.
- Frigotto, M. L., & Della Valle, N. (2018). Gender and the structuring of the entrepreneurial venture: an effectuation approach. *International Journal of Entrepreneurial Venturing*, 10(4), 412.

- Germir, H.N. (2015). Women and disabled entrepreneurs awareness regarding establishing for the support of employment policies 1. *IIB International Refereed Academic Social Sciences Journal*, 6(18), 125-154.
- Gopal, V., and Shobha, K. (2012). Success status of women entrepreneurs in a globalized environment- A micro level study. *International Journal of Innovative Research and Development*, 1(4), 66-77.
- Green, E., and Cohen, L. (1995). Are women entrepreneurs breaking new ground or simply balancing the demands of women's work in a new way? *Journal of Gender Studies*, 4(3), 297.
- Hampton, A., Cooper, S. and McGowan, P. (2009). Female entrepreneurial networks and networking activity in technology-based ventures: An exploratory study. *International Small Business Journal*, 27(2), 193-214.
- Heilbronner, N.N. (2013). The STEM pathway for women: What has changed? *Gifted Child Quarterly*, 57(1), 39-55.
- Heilman, M. (1983). Sex bias in work settings: The lack of fit model. In B. Staw, & L. Cummings (Eds.), *Research in organizational behavior* (Vol. 5). Greenwich, CT: JAI Press.
- Heilman, M.E. and Chen, J.J. (2003). Entrepreneurship as a solution: The allure of self-employment for women and minorities. *Human Resource Management Review*, 13, 347-364.
- Herrington, M., Kew, P., Singer, S., Carmona, J., Wright, F., and Coduras, A., (2017). *Global Entrepreneurship Monitor. Global Report 2016/2017*. London; Babson Park, MA: London Business School; Babson College.
- Hisrich, R. D. and Brush, C. (1985). Women and minority entrepreneurs: A Comparative analysis, frontiers of entrepreneurship research. Wellesley, Mass.: Babson Center for Entrepreneurial Studies.
- İş ve Meslek Sahibi Kadınlar Derneği [Business and Professional Women Association] (2010). *Konya Saha Çalışması Raporu*.
- Jack, S.L. and Anderson, A.R., 2002. The effects of embeddedness on the entrepreneurial process. *Journal of business Venturing*, 17(5), 467-487.
- Jayawarna, D., Rouse, J. and Kitching, J. (2011). Entrepreneur motivations and life course. *International Small Business Journal*, 31(1), 34-56.

- Joshi, A.M., Inouye, T.M. and Robinson, J.A. (2017). How does agency workforce diversity influence Federal R&D funding of minority and women technology entrepreneurs? An analysis of the SBIR and STTR programs, 2001-2011. *Small Business Economics*, <https://doi.org/10.1007/s11187-017-9882-6>
- Kelley, D., Brush, C. G., Greene, P. G. and Litovsky, Y. (2011). *Global entrepreneurship monitor 2010 women's report*. Babson Park, MA: Babson College.
- Kelley, D., Singer, S., & Herrington, M. (2016). *GEM Global Entrepreneurship Monitor. 2015/16 global report*. Babson College, Universidad del Desarrollo, Universiti Tun Abdul Razak, Tecnológico de Monterrey, London Business School, Babson Park, MA, Santiago, London.
- Keskin, S., 2014. Türkiye’de Kadın Girişimcilerin Durumu [Status of women entrepreneurs in Turkey]. *Girişimcilik ve Kalkınma Dergisi*. 9(1). (In Turkish)
- Kutaniş, Ö. R. and Hanci, A. 2004). Kadın Girişimcilerin Kişisel Özgürlük Algılamaları [Women Entrepreneurs' Personal Freedom Perceptions], *3rd National Information, Economy and Management Congress Presentation Book*, Eskisehir, Osmangazi University Faculty of Economics and Administrative Sciences, November.
- Lee, I.H. and Marvel, M.R. (2014). Revisiting the entrepreneur gender–performance relationship: a firm perspective. *Small Business Economics*, 42(4), 769-786.
- Levie, J., Ali, A., Amoros, E., Hart, M., Kelley, D., Morris, R., Drexel, M., Eltobgy, M. and Gratzke, P. (2015). *Leveraging Entrepreneurial Ambition and Innovation: A Global Perspective on Entrepreneurship, Competitiveness and Development*. World Economic Forum.
- Licha, J., & Brem, A. (2018). Entrepreneurship education in Europe-insights from Germany and Denmark. *International Journal of Entrepreneurship and Small Business*, 33(1), 1-25.
- LIDERE (2012). *Women in Business. Quantitative Research*. (Association „Lidere“, „Latvijas Fakti“, LR Ekonomikas ministrija), November 2012, Riga.
- Liñán, F., and Santos, F. J. (2007). Does social capital affect entrepreneurial intentions?. *International Advances in Economic Research*, 13(4), 443-453.
- Lüthje, C., and Franke, N. (2003). The ‘making’ of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT. *R&D Management*, 33(2), 135-147.

- Maden, C. (2015). A gendered lens on entrepreneurship: Women entrepreneurship in Turkey. *Gender in Management: An International Journal*, 30(4), 312-331.
- Manolova, T.S., Eunni, R.V. and Gyoshev, B.S. (2008). Institutional environments for entrepreneurship: Evidence from emerging economies in Eastern Europe. *Entrepreneurship Theory and Practice*, 32(1), 203-218.
- Marlow, S. (2002). Women and self-employment: A part of or apart from theoretical construct? *International Journal of Entrepreneurship and Innovation*, 3(2), 83–91.
- Marlow, S. and McAdam, M. (2011). Analyzing the influence of gender upon high- technology venturing within the context of business incubation. *Entrepreneurship Theory and Practice*, 36(4), 655-676.
- Marlow, S. and McAdam, M. (2012). Analyzing the influence of gender upon high-technology venturing within the context of business incubation. *Entrepreneurship Theory and Practice*, 36(4), 655-676.
- Marlow, S. and McAdam, M. (2015). Incubation or induction? Gendered identity work in the context of technology business incubation. *Entrepreneurship Theory and Practice*, 39(4), 791-816.
- Marlow, S. and Patton, D. (2005). All credit to men? Entrepreneurship, finance, and gender. *Entrepreneurship Theory and Practice*, 29(6), 717-735.
- Martin, L., Wright, L., Beaven, Z. and Matlay, H. (2015). An unusual job for a woman? Female entrepreneurs in scientific, engineering and technology sectors. *International Journal of Entrepreneurial Behavior and Research*, 21(4), 539-556.
- Mathias, B.D., Williams, D.W. and Smith, A.R. (2015). Entrepreneurial inception: The role of imprinting in entrepreneurial action. *Journal of Business Venturing*, 30(1), 11-28.
- Mayring, P. (2014). *Qualitative content analysis – Theoretical foundation and basic procedures*. www.qualitative-content-analysis.aau.at. Accessed 12 Feb 2017.
- Minniti, M., Arenius, P., and Langowitz, N. (2005). *Global entrepreneurship monitor: 2004 report on women and entrepreneurship*. Babson Park, MA: Babson College.
- Neergaard, H. and Thrane, C. (2011). The Nordic Welfare Model: barrier or facilitator of women's entrepreneurship in Denmark? *International Journal of Gender and Entrepreneurship*, 3(2), 88-104.

- Neumeyer, X., & Santos, S. C. (2019). A lot of different flowers make a bouquet: The effect of gender composition on technology-based entrepreneurial student teams. *International Entrepreneurship and Management Journal*, 1–22.
- OECD (2015). *Entrepreneurship Support for The Unemployed in Latvia. Rapid Policy Assessments of Inclusive Entrepreneurship Policies and Programmes*. OECD Publishing.
- Pettersson, K. (2012). Support for women's entrepreneurship: a Nordic spectrum. *International Journal of Gender and Entrepreneurship*, 4(1), 4-19.
- Pettersson, K., Ahl, H., Berglund, K., et al. (2017). In the name of women? Feminist readings of policies for women's entrepreneurship in Scandinavia. *Scandinavian Journal of Management*, 33(1), 50-63.
- Poggesi, S., Mari, M., De Vita, L., & Foss, L. (2019). Women entrepreneurship in STEM fields: literature review and future research avenues. *International Entrepreneurship and Management Journal*, 1–25.
- Reynolds, P.D., Bygrave, W., Autio, E., Cox, L. and Hay, M. (2004). *Global Entrepreneurship Monitor 2003, Executive Report*. Babson College/Ewing Marion Kauffman Foundation, London Business School.
- Roos, A. (2019). Embeddedness in context: understanding gender in a female entrepreneurship network. *Entrepreneurship & Regional Development*, 31(3–4), 279–292.
- Rosa, P. and Dawson, A. (2006). Gender and the commercialization of university science: academic founders of spinout companies. *Entrepreneurship and Regional Development*, 18(4), 341-366.
- Schnittker, J., Ettl, K., & Welter, F. (2018). Strengthening the self- and external perceptions of young women STEM professionals (YWSP) during career entry and advancement – A research project. *ACM International Conference Proceeding Series*, 51–53.
- Sexton, D. and Vesper, V. (1982). *Encyclopedia of entrepreneurship*. New Jersey: PrenticeHall.
- Shapero, A. and Sokol, L. (1982). *The social dimensions of entrepreneurship*. Englewood Cliffs, NJ: Prentice Hall. 72- 88.
- Shinnar, R.S., Giacomini, O. and Janssen, F. (2012). Entrepreneurial perceptions and intentions: The role of gender and culture. *Entrepreneurship Theory and Practice*, 36(3), 465-493.

- Simon, R.M., Wagner, A. and Killion, B. (2017). Gender and choosing a STEM major in college: Femininity, masculinity, chilly climate, and occupational values. *Journal of Research in Science Teaching*, 54(3), 299-323.
- Singer, S., Amorós, J.E., and Arreola, D.M. (2015). *Global Entrepreneurship Monitor 2014 global report*. London; Babson Park, MA: London Business School; Babson College.
- Smallbone, D. and Welter, F. (2009). Entrepreneurial behaviour in transition environments. *Entrepreneurship and Business in Regional Economics*, 211-228.
- Souitaris, V., Zerbinati, S. and Al-Laham, A. (2007). Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources. *Journal of Business venturing*, 22(4), 566-591.
- Soysal, A. (2010). *Türkiye’de Kadın Girişimciler: Engeller ve Fırsatlar Bağlamında Bir Değerlendirme* [Women Entrepreneurs in Turkey: An Assessment of the Context of Barriers and Opportunities]. *Ankara Üniversitesi Siyasal Bilgiler Fakültesi Dergisi*, 65(1), 83-114.
- Spiegler, A. B., & Halberstadt, J. (2018). SHEstainability: how relationship networks influence the idea generation in opportunity recognition process by female social entrepreneurs. *International Journal of Entrepreneurial Venturing*, 10(2), 202.
- Stenholm, P., Acs, Z.J. and Wuebker, R. (2013). Exploring country-level institutional arrangements on the rate and type of entrepreneurial activity. *Journal of Business Venturing*, 28(1), 176-193.
- Steyaert, C. and Hjorth, D. (2006). *Introduction: what is social in social entrepreneurship?* In: *Entrepreneurship as Social Change: A Third Movements in Entrepreneurship Book*. Cheltenham: Edward Elgar, 1-18.
- Sullivan, E.C. (2016). *Identity construction: Life stories of successful female entrepreneurs in the technology industry* (Doctoral dissertation, Alliant International University).
- Taylor, S.E. and Brown, J. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin*, 103(2), 193–210.
- Tegtmeier, S., & Kurczewska, A. (2017). Business entry and window of opportunity-empirical results for women entrepreneurs with graduate degree. *International Journal of Entrepreneurial Venturing*, 9(1), 41-59.
- Tegtmeier, S., Kurczewska, A., & Halberstadt, J. (2016). Are women graduates jacquelines-of-all-trades? Challenging Lazear’s view on entrepreneurship. *Small Business Economics*, 47(1),

77-94.

- Toksöz, G. (2007). *Women's employment situation in Turkey*. Ankara: International Labour Office.
- Tunçsiper, B., Karaköy, Ç. and Kafa, N. (2008). *Kadın Girişimciliği [Women Entrepreneurship]* Kırgızistan- Türkiye Manas Üniversitesi, İktisadi ve İdari Bilimler Fakültesi, İkinci Uluslararası Ekonomi Kongresi Kitabı, Bişkek, Ekim, 9-11.
- Ufuk, H., and Ozgen O. (2001). Interaction Between the Business and Family Lives of Women Entrepreneurs in Turkey. *Journal of Business Ethics*, 31, 95-106.
- Verheul, I. and Thurik, R. (2001). Startup capital: Does gender matter? *Small Business Economics*, 16(4), 329-345.
- Walby, S., Gottfried, H., Gottshall, K., and Osawa, M. (2009). *Gendering the knowledge economy*. London: Palgrave.
- Welter, F. (2012). Entrepreneurship in Context. *International Small Business Journal*, 30(6), 728-730.
- Welter, F. (2011). Contextualizing entrepreneurship: Conceptual challenges and ways forward. *Entrepreneurship theory and Practice*, 35(1), 165-184.
- Welter, F. and Kolb, S. (2006). *Women and entrepreneurship in Latvia*. Telia Sonera Institute Discussion Paper, 4.
- Wilson, F. and Tagg, S. (2010). Social constructionism and personal constructivism: Getting the business owner's view on the role of sex and gender. *International Journal of Gender and Entrepreneurship*, 2(1), 68-82.
- Wright M. (2012). Entrepreneurial mobility, resource orchestration and context. In: Welter F., Smallbone, D., and Van Gils, A. (eds), *Entrepreneurial Processes in a Changing Economy*. Cheltenham: Edward Elgar, 6-23.
- World Economic Forum (2018). *The Global Gender Gap Report 2018*. World Economic Forum, Cologny/Geneva, Switzerland.
- Wynarczyk, P. and Marlow, S. (2010). *Innovating women*. London: Emerald.
- Xie, X. & Lv, J. (2017). "Female technology entrepreneurs: resource shortages and reputation challenges – a view of institutional support", *International Entrepreneurship and Management Journal*, DOI 10.1007/s11365-017-0450-y.

- Xie, X. & Lv, J. (2016). "Social networks of female tech-entrepreneurs and new venture performance: the moderating effects of entrepreneurial alertness and gender discrimination", *International Entrepreneurship and Management Journal*, 12 (4), 963-983.
- Yin, R. K. (2009). *Case study research: Design and Methods*. Thousand Oaks: CA. Sage Publications, Inc.
- Yousafzai, S.Y., Saeed, S. and Muffatto, M. (2015). Institutional Theory and Contextual Embeddedness of Women's Entrepreneurial Leadership: Evidence from 92 Countries. *Journal of Small Business Management*, 53(3), 587-604.
- Zahra, S.A., and Wright, M. (2011). Entrepreneurship's next act. *Academy of Management Perspectives*, 25, 67–83.
- Zellner, W. (1994). Women Entrepreneurs: They are Forming Small Businesses at Twice the Rate of Men, *Business Week*, (April 18), 104-110.

APPENDIX

Table 1. Overview of the Interviewed Women Entrepreneurs

Denmark				
Case	Education	Ownership	Founded	Industry
<i>DA</i>	Computer Science	Sole owner	>5 years	Consultancy in information technology
<i>DB</i>	Game Technology	Co-founder with 2 men	>7 years	Information technology
<i>DC</i>	Architecture	Co-founder with a woman	>7 years	Information technology
<i>DD</i>	Export Engineering	Co-founder with a woman and a man	>11 years	Telecommunications
<i>DE</i>	Design Communication & Media	Co-founder with a woman	>10 years	Education
<i>DF</i>	Computer Science	Co-founder (life partners)	>6 years	Information technology
Latvia				
<i>LA</i>	Chemistry	Co-founder (life partners)	>24 years	Publishing
<i>LB</i>	Human Computer Interaction	Co-founder with 2 men	>5 years	Information technology
<i>LC</i>	Food Technology	Co-founder (life partners)	>24 years	Wholesale
<i>LD</i>	Food Engineering	Sole owner	>7 years	Handmade chocolates
<i>LE</i>	Mathematical Modelling	Co-founder with a woman	>4 years	Social entrepreneurship
<i>LF</i>	Food Science	Co-founder with a woman	>2 years	Cosmetics
<i>LG</i>	Biochemistry	Co-founder (life partners)	>24 years	Biochemistry devices
Turkey				
<i>TA</i>	Applied Mathematics	Co-founder with a man	>3 years	Information technology
<i>TB</i>	Electronics and Telecommunications	Sole owner	>10 years	Consultancy in design and innovation

<i>TC</i>	Electrical and Electronics Engineering	Co-founder with a man	>4 years	Information technology
<i>TD</i>	Chemical Engineering	Co-founder (life partners)	>14 years	Manufacturing
<i>TE</i>	Computer Technology and Software	Co-founder with a man	>3 years	Information technology
<i>TF</i>	Food Engineering	Sole owner	>5 years	Consultancy in legal issues for food-companies
<i>TG</i>	Food Engineering	Sole owner	>5 years	Manufacturing

Table 2. Description of the Coded Categories

Category	Description	Example	Coding Rule
MOTIVATIONS: Pull factors			
Intrinsic rewards			
Willingness & entrepreneurial intention	Strong intention of having an own company	<i>“I always wanted to have my own company”</i>	wanted to start, be entrepreneur, great idea, appealing
Respect	Desire of being respected by others	<i>“I wanted my family to be proud of me”</i>	Proud, respect, it is respectful job
Job security	Be an own boss and prevent the risk of being fired	<i>“I don’t have to think about whether I would get fired”</i>	Afraid of being fired, secure job, own boss

Independence	Have an authority of decision-making	<i>“I wanted to work, not for others, but for myself and take decisions on my own”</i>	Independent, authority, decision-making
Work-life balance	Flexibility in creating a more balanced life	<i>“I can manage my time to be more with my children”</i>	Time management, life balance, family, kids, flexible
Deal with gender discrimination	Brake the image of a businesswoman and to increase the number of women entrepreneurs	<i>“Women entrepreneurs should be more, that is why I decided to found a company”</i>	Gender, man, discrimination, low numbers of women
Self-actualization*	Seeing entrepreneurship as a way to prove success	<i>“I wanted to have this success”</i>	Wanted to succeed, had to try
Pursuit of profit	To earn money or get a source of income	<i>“I wanted to earn a lot of money, that is why I decided to start own company”</i>	Earn, profit, money, income, rich, sustain yourself
Opportunity recognition	Strong believe in the idea or solution to a problem	<i>“We wanted to solve a problem and saw a potential in this idea”</i>	Idea, potential, opportunity, market fit
Social entrepreneurship*	Having the desire to see the creation of something good for society	<i>“The biggest motivation was really to see whether what we wanted to do could become alive and be useful for other people.”</i>	Useful, to see, become alive, social, bigger purpose, motivation, vision

Area of expertise*	Knowing a business area very well and being confident in it	<i>"I knew this industry for a long time"</i>	Professional, knew industry, expertise
--------------------	---	---	--

MOTIVATIONS: Push factors

Frustration	Conflicts with management and work culture	<i>"They were doing it wrong and I did not like that"</i>	Wrong, did not like, colleagues, conflict, problem
Job satisfaction	Feel unaccomplished at previous job or at other possible companies	<i>"I felt that I can do something else and use all of my potential"</i>	Not satisfied, job satisfaction, potential, talents, skills
Boredom	Uninterested in the everyday work activities	<i>"I felt bored and tired of doing the same job every day"</i>	Boredom, bored, not interested, tired
Unemployment	Unable to find a job	<i>"I could not find a job for a long period of time, so I decided to found a company"</i>	Unemployment, no job, no job positions

CHALLENGES: Institutional

Taxation	Complex and confusing tax structure in country	<i>"It was hard to manage taxes in the beginning"</i>	Tax, income tax, societal tax
Economy	Weak economy in country	<i>"The economy is not good"</i>	Economy, economical crisis, change, inflation, weak, uncertainty
Policies	Unstable and uncertain state policies in country	<i>"You can interpret the law in many different ways"</i>	Regulations, law, government, interpretation, policies, state decisions

Bureaucracy	Excessively complicated administrative procedure	<i>“I think there is a lot of unneeded paperwork in our country”</i>	Bureaucracy, paperwork, administrative work
Funds	Inability to find a capital	<i>“We could not find funds for our business”</i>	Funding, financial support, money
Networks	Difficulty to access appropriate support or advice networks	<i>“It was hard to get advice on some of our company’s issues”</i>	Network, support, mentor, advice

CHALLENGES: Organizational

Employees	Problem with recruiting competent and reliable employees	<i>“Our employees lacked very important skills”</i>	Employees, unreliable, skills, unprofessional, recruiting, competence
Financial difficulties	Difficulties in sustaining the business	<i>“It was in financial context. We did not have enough money to pay...”</i>	Low resources, no money, financial problems
Workload	Excess workload in managing business	<i>“I needed to work 24/7 in the first two years”</i>	Workload, stress, 24/7, busy, no time
Education	The lack of a proper skills, experience or sufficient education for company management	<i>“I did not have an education on how to manage a company”</i>	Education, skills, courses, lectures, study, book, experience

Family life	less family-friendly flexibility	<i>“Sometimes I haven’t seen my family for months due to all of the business trips”</i>	Family, time, flexibility
Motherhood	challenges women have related to balancing motherhood	<i>“I had to decide if I want to be a mother or wanted to run my own company”</i>	Mother, children, motherhood, kids

CHALLENGES: Socio-cultural

Lack of role models	Lack of female role models in STEM fields	<i>“There were not many examples of women entrepreneurs in technology industry”</i>	STEM, role models, example, inspiration, model
Gender stereotyping	To be treated based on the women gender, compared to men	<i>“They thought that if I am a woman I could not be as professional and educated in this field as men are“</i>	Gender, stereotyping, women, feminine, masculine, sex issue, traditional view
Traditional view	traditional view against business ownership by women by society	<i>“They told me that beautiful and blond normally stay at home and take care of family”</i>	Traditional view, society, traditions, norms, normally, it is not common for a woman
Unsupportive family	Family is not supporting woman entrepreneurial activity	<i>“My family was not happy that I was going to start a company”</i>	family , reaction, no support, response

SUPPORT SOURCES: Intangible support

Business partner*	Providing complementary skills as well as support to each other	<i>“We were supporting each other mentally and completed each other’s skills”</i>	Partner, co-founder, skills, partner support, complete
Word of mouth*	being referenced by the professional network	<i>“People I had business with became references for my company”</i>	Word of mouth, network sharing, referencing a company
General mentoring programs	Mentoring programs available both for men and women	<i>“Startup company gave us a lot of knowledge and good advices”</i>	Mentoring, advice, help, support, club, association, startup, guidance, recommendation
Women specific programs	Mentoring programs specifically for women	<i>“This club was only for women, to help them with a good business advice”</i>	Women, female, sisterhood, advice, help, support
Family and friends	Mental or time support from family, relatives and friends	<i>“My parents looked after my kids while I was working”</i>	Support, family, husband,kids, children, parents

SUPPORT SOURCES: Tangible support

Family and friends’ resources	Financial help from the family, friends, relatives	<i>“My husband helped me to cover expenses in the beginning”</i>	Family, husband, friends, resources, loan, present
Organizations	Organizations that provide tangible support for entrepreneurs	<i>“We won a competition with a large money prize”</i>	Organization, club, association, competition, finances, prize, investment, fund

Government	State programs that include tangible help for companies	<i>“Government covers the expenses of our business trip”</i>	Government, funds, state
Current employment*	Stay employed or do side jobs to still be able to support oneself financially	<i>“I did not leave my job in the beginning”</i>	Two jobs, stay employed, current job, support oneself

** added as a result of inductive research*