



Supporting High-Tech Female Entrepreneurs Through Incubators and Accelerators

An evaluative study

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Executive Summary

Given the massive underrepresentation of women in entrepreneurship and the tech sector as well as the challenges female entrepreneurs are frequently cited to face, this thesis evaluates how effectively business incubators and accelerators support high-tech female entrepreneurs. This study is conducted in the setting of a multinational enterprise software corporation and its incubation and acceleration program. Each program's effectiveness in supporting female entrepreneurs is judged on the basis of systematic hypotheses-testing through both interview and survey data, complemented with adequate secondary data. The preconceived hypotheses focus on training and education, access to capital, networking, and work-life balance.

First, this study finds that both the incubator and the accelerator provide substantial support to female entrepreneurs despite the differences in program goals, entrepreneurs targeted, and mechanisms used. The results show that the programs are successful, yet to varying degrees, in leveling knowledge deficiencies, increasing the chances of obtaining capital, and opening up previously inaccessible networks. Despite the accelerator's larger and tangible impacts on venture development and success, it comes at the expense of an intensified conflict between work and personal life or family duties.

Second, by exploring the underlying mechanisms that result in specific program experiences and impacts, this study highlights the tradeoffs that need to be considered when designing an incubator or accelerator dedicated to inclusion and support for female entrepreneurs: Should programs strive for homogeneous or heterogeneous groups of entrepreneurs? Should mentors have corporate work or startup experience? Should programs be driven by the pursuit of a mission or by business interests? Irrespective of that, the key to success is involving diverse individuals who are both motivated to work with and dedicated to support female and other underrepresented entrepreneurs. Once an egalitarian environment is created the gender of an entrepreneur fades into the background even though women's needs and concerns should be explicitly taken care of.

Third, this study shows that supporting female entrepreneurs contributes to driving change in high-tech entrepreneurship by leveling the playing field and becomes a business opportunity for established firms. Based on this study, future researchers should focus on exploring and testing the support mechanisms that really make an impact and more systematically evaluate incubation and acceleration outcomes both for entrepreneurs and host organizations.

Preface

This thesis is written as part of the double degree program in the Master of Science in Economics and Business Administration at the Norwegian School of Economics and the Master of Science in Management at the University of Mannheim.

This thesis is also written in cooperation with a multinational enterprise software corporation which has continuously expended efforts towards promoting gender equality in networking, management, and entrepreneurship in the tech sector. For this study's purpose, the incubator and the accelerator of the established firm represent a promising research setting to describe and evaluate how these programs support female entrepreneurs in developing knowledge and skills, building relationships to experts and partners, and acquiring financial capital.

Motivated by sustained gender-wage gaps, the massive underrepresentation of women in the high-tech sector and entrepreneurship, and increasing efforts to promote gender equality, this thesis synthesizes findings from existing research and from the focal firm's practices to drive inclusive entrepreneurship. Besides theoretical contributions, the provision of future research directions, and practical implications for incubators and accelerators, this thesis also seeks to create awareness of the much needed support for female entrepreneurs to help drive change.

I would like to thank my supervisor Professor Astrid Kunze who has been very helpful and supportive throughout the entire research process. Her guidance, feedback, and stimuli as well as her course on "Human Capital, Mobility, and Diversity of Firms" were essential for producing this research.

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Introduction

The phenomenon of entrepreneurship has created great interest among both researchers and practitioners. In a societal context, it fosters economic growth, employment, innovation, and market competition (Acs, 1992; Carree & Thurik, 2010). From an individual's perspective, it offers an alternative to wage employment with the opportunity of wealth creation and self-realization (Wennekers & Thurik, 1999; Sullivan & Meek, 2012). According to Shane (2003, p.4), entrepreneurship is *“an activity that involves discovery, evaluation, and exploitation of opportunities to introduce new goods and services, and organize new markets, processes and raw materials through coordinating efforts of the entrepreneur that previously did not exist.”* Thus, entrepreneurs destroy existing economic orders, stimulate change (Schumpeter, 1934) and seek profitable opportunities that arise out of uncertainty and risk (Knight, 1921)

But women are still underrepresented in entrepreneurship. The share of female entrepreneurs was 15.7% in Germany in 2019 and 15.6% in the EU in 2018 (Kollmann et al., 2019; Steigertahl & Mauer, 2018). The gender gap in innovative, VC financed entrepreneurship is even larger than in general self-employment (Lassébie et al., 2019). Raina (2019) finds that 9.7% of the entrepreneurs in VC-backed, high-growth and high-tech ventures are female. Besides underrepresentation, women are also undercapitalized. Between 2016 and 2018, startups with female founders received 4.4% of VC deals and 2% of the invested capital (Abouzahr et al., 2018). In Europe, only 0.4% of the capital invested into tech companies went to startups founded by women-only, and 8% to mixed-gender teams in 2019 (Atomico, 2019). As only 1% of all US firms receive venture financing at all (Brush et al., 2014; Brush et al., 2018), a gender funding gap can have striking implications for female entrepreneurs.

The underrepresentation, undercapitalization, or often assumed underperformance of female entrepreneurs is attributed to aggravated challenges women face when it comes to education and experience, access to capital, networking, and work-life balance rather than to gender differences in traits or motivations. Also, the lack of women in STEM, e.g. in Germany, 15% of employees in STEM occupations are women, explains the relative scarcity of female high-tech entrepreneurs (Andres et al., 2020). Gender differences in STEM education and in the propensity to become and remain an entrepreneur are discussed in the literature review.

However, encouraging and supporting female entrepreneurs, in particular those in STEM, increases market efficiency by better utilizing female human resources (Desvaux et al.,

2017), creates additional wealth and jobs, and fosters new innovations or technologies suited to serve the needs of diverse populations (Brush et al., 2007; Richardson & Hynes, 2006). Also, an increased number of successful female entrepreneurs helps defeat the notion of the perpetuated male dominance in entrepreneurship (Bruni, Gherardi & Poggio, 2004a). In sum, increasing the number of female entrepreneurs is not only a gender equality issue but also an untapped opportunity for economic growth (Verheul, 2005).

In this context, incubators and accelerators can play an important role in bridging knowledge and socio-cultural divides by raising the availability and accessibility of human, intellectual, financial, and social capital (Carayannis & von Zedtwitz, 2005; Eveleens, van Rijnsoever & Niesten, 2017). Targeted at early-stage, growth-oriented entrepreneurs, such organizations or programs accelerate startup development by offering access to physical resources, training or mentoring, capital in exchange for equity, networks, or product development support (Khalil & Olafsen, 2010; Carayannis & von Zedtwitz, 2005; Pauwels et al., 2016). Yet, accelerators are distinct due their intensive, time-limited programs with periodic graduations in form of Demo or Investor Days, their competitive application processes, and their focus on quick returns on investments (Cohen, 2013; Isabelle, 2013; Pauwels et al., 2016).

While the underrepresentation of women in incubator and accelerator networks (Ozkazanc-Pan & Clark Muntean, 2018) may reinforce existing gender resource gaps and performance differentials, a growing number of programs is dedicated to specifically support women. In this light, this thesis examines an established software firm's incubator and accelerator, who are dedicated to drive inclusive entrepreneurship, to answer the following research question: **How effectively do business incubators and accelerators support female high-tech entrepreneurs?**

Each program's effectiveness in supporting female entrepreneurs is judged along four areas where existing research finds entrepreneurial challenges which especially women face. First, does the program compensate for the women's lack of knowledge or experience? Second, does it facilitate their access to capital? Third, does the program enable the women to expand their networks and obtain associated benefits? Fourth, does it intensify the tensions between startup activities and life or family? Given that both programs focus on providing support in these dimensions, answering these questions allows for a comprehensive program evaluation to conclude whether they successfully level the playing field for female entrepreneurs in the tech sector and alleviate the challenges they face.

To provide conclusive answers to each question, a mixed-methods research design with data triangulation processes is adopted. Semi-structured interviews are used to capture female and male entrepreneurs' program experiences and impacts, taking into account individual needs and contexts. This qualitative research approach provides the opportunity to understand how gender is embedded in processes and the macro- and meso-environment (Brush, de Bruin & Welter, 2009; Alsos et al., 2013) and to delineate mechanisms that support female founders. Thus, this study aims to explain the female and male entrepreneurs' experiences and impacts and any emerging gender differences. The perspectives of female and male entrepreneurs are compared with each other and also checked against the program manager's intentions. Also, a survey is administered to triangulate findings and to provide a more nuanced assessment of the entrepreneurs' experiences and perceived outcomes. In sum, qualitative and quantitative methods are used to deductively test the hypotheses focused on education and experience, access to capital, networking, and work-life balance and to identify the key mechanisms and contingencies that determine the effectiveness of supporting female entrepreneurs.

As the impact of different incubation models on startup development and the aforementioned focus areas has been rarely assessed (Pompa, 2013), this thesis closes a gap in the literature. Although the incubator and accelerator are dedicated to support women and provide similar support services like training, access to capital, and networking, they differ in terms of focus, goals, and resource intensity. While the all-female incubator is driven by a corporate mission to support women by providing training, mentoring, and networks, the accelerator focuses on diversity and provides intensive, individual support to advance the firm's business interests.

1.1 Disposition

This thesis starts with an overview over the literature on gender and entrepreneurship and the development of the hypotheses. The research setting is described to provide information on the incubator's and accelerator's backgrounds and goals. Subsequently, the methodology is explained to stress this study's methodological rigor: data collection and analysis techniques are elaborated, the research quality is discussed, and ethical concerns are addressed. Next, the results from the qualitative and quantitative research methods are presented. The following discussion section focuses on the strengths, weaknesses, contributions, and limitations of this study. Lastly, the conclusions of the study in relation to the research questions are explained, and implications for practice and further research are presented.

2. Literature Review

Entrepreneurship involves discovering, evaluating, and exploiting an opportunity (Shane & Venkataraman, 2000; Shane, 2003). It depends on traits, skills, and motivation, i.e. *who the entrepreneur is*, education and experience, i.e. *what they know*, and networks, i.e. *whom they know* (Ardichvili, Cardozo & Ray, 2003). Existing research on gender and entrepreneurship has focused separately on the following areas: characteristics and motivations; management styles and work-family interface; patterns, resources, and constraints during startup; financial resource acquisition; networking; venture performance and growth (Carter & Marlow, 2006; Brush, 1992; Fischer, Reuber & Dyke, 1993).

For one thing, unequivocally replicable, significant gender differences in traits are not found (Belcourt et al., 1991; Fischer et al., 1993; Malach-Pines & Schwartz, 2007; Marlow, 2014). This is because individuals, irrespective of gender, who are attracted to, selected into, and attrited by the entrepreneurial career, share similar traits (Malach-Pines & Schwartz, 2007); or because female entrepreneurs have masculine and feminine traits, which results in a lack of gender differences found in traditionally measured, male traits (Watson & Newby, 2006). Hence, the trait perspective does not offer a promising area for explaining the underrepresentation or underperformance of female entrepreneurs although not complying to proposed masculine traits may discourage them from entrepreneurship (Hazlett et al., 2006). Similarly, only few gender differences in motivation exist (Carter & Marlow, 2006) although intrinsic motives like desire for autonomy, work-life balance, or pursuing a social mission or women's interests play a greater role for female founders (Gatewood et al., 1995; DeMartino & Barbato, 2003; Jennings & McDougald, 2007; Bruni et al., 2004b).

But for the other thing, the inferior view of female entrepreneurs and a perpetuated notion of entrepreneurship as an activity, where male normativity, superiority, and traits are assumed, persists (Ahl, 2002; Jennings & Brush, 2013; Marlow & McAdam, 2013). Given the lack of gender differences in traits and motivation (Carter & Marlow, 2006), the underperformance of female entrepreneurs is attributed to a lack of human, social, and financial capital, growth orientations, or industry choice (Fischer et al., 1993; Loscocco et al., 1991), discrimination (Fabowale, Orser & Riding, 1995) or work-family conflicts (Jennings & McDougald, 2007). In general, female-led startups are smaller in terms of number of employees, revenues, totals assets, profits, and growth (Loscocco et al., 1991; Fischer et al., 1993; Alsos, Isaksen &

Ljunggren, 2006; Rosa, Carter & Hamilton, 1996; Coleman & Robb, 2012). Yet, only mixed evidence exists on gender differences in survival rates (Boden & Nucci, 2000; Coleman & Robb, 2012; Robb & Watson, 2012). Also, female founders tend to perform equally well on profitability measures like return on sales, equity, or assets (Fischer et al., 1993; Chaganti & Parasuraman, 1997; Robb & Watson, 2012). However, the way researchers asked questions, constructed arguments, and explained findings fueled a gendered entrepreneurship discourse by pitting women against men (Marlow, 2014; Ahl, 2002). Thus, gender-aware studies must consider how individual and environmental or social factors affect processes and outcomes (Brush et al., 2009; Jennings & Brush, 2013; Marlow, 2014). They must investigate how the socio-cultural status of women, gendered educational or occupational experiences, and stereotypes negatively affect the resource acquisition process, and the access to networks and markets of women (Bruni et al., 2004b; Sullivan & Meek, 2012; Marlow, 2014). In this light, the 5M framework for women's entrepreneurship is helpful. It recognizes that the success of female entrepreneurs depends on markets, money, and management and is mediated by the macro-/ meso-environment and motherhood. While the former one covers national policies, culture, and regional support services, the latter one includes household and family contexts. (Brush et al., 2009)

The rest of the literature review presents the aggravated challenges female entrepreneurs face and how they may explain their underrepresentation and underperformance. Based on how incubators and accelerators can mitigate gender resource gaps, the hypotheses are developed.

2.1 Education and Experience

An individual's level of education and experience has contradictory effects on the likelihood of becoming an entrepreneur. For one thing, knowledgeable individuals are better equipped and motivated to start their own venture. (Storey, 1994) Education and experience broaden their idiosyncratic information corridors needed for discovering entrepreneurial opportunities (Shane & Venkataraman, 2000; Marvel, Lee & Wolfe, 2015). As women tend to have lower levels of human capital, partly due to disrupted work careers or denied promotions, Becker's human capital theory may explain gender differences in opportunity recognition, and consequently, in the likelihood of becoming an entrepreneur (DeTienne & Chandler, 2007; Jennings & Brush, 2013). The reduced human capital paired with women's lower likelihood of graduating from male-dominated fields of study like STEM leads to reduced information

corridors and lower levels of innovativeness (Strohmeyer, Tonoyan & Jennings, 2017). Also, lower levels of education or experience diminish an individual's entrepreneurial self-efficacy (Zhao, Seibert & Hills, 2005). Given women's lower self-efficacy, their negative perceptions of own capabilities and fear of failure reduce their propensity to start a new venture (Cheng, Greene & Crick, 1998; Noguera et al., 2013). For the other thing, knowledgeable individuals may be discouraged from entrepreneurship as they are likely to find employment elsewhere (Storey, 1994). Especially, high wages paid in STEM fields increase the opportunity costs of entrepreneurship (Cai & Winters, 2017). But also, a lack of encouragement and role models prevent women from starting their own high-tech venture although they pursue technological careers within established firms (Richardson & Hynes, 2006).

Besides the impact of human capital on the decision to become an entrepreneur, it is also an important intangible asset that positively relates to startup performance as it may constitute a sustainable competitive advantage (Peña, 2002; Bontis et al., 2000). An entrepreneur's level of education and prior management and startup experience positively relate to firm survival, growth, and performance (Cooper, Woo & Dunkelberg, 1989; Stuart & Abetti, 1990). Also, industry knowledge about customers, suppliers, or regulations increases chances for business success (Peña, 2002). Hence, business and technical knowledge, and experience in finance and management are key resources in the venturing process (Heilbrunn, 2004). Yet, several studies find that female entrepreneurs have relatively lower levels of management, industry, or startup experience (Fischer et al., 1993; Chaganti & Parasuraman, 1997), disadvantaging them in their entrepreneurial endeavors. Boden & Nucci (2000, p.347) explain that "*female entrepreneurs are more constrained in the amount and quality of human capital that they acquire during wage employment*". Even if highly educated, they do not tend to accumulate management and finance skills either through their studies or on-the-job training (Heilbrunn, 2004; Brush et al., 2006). Eventually, this lack of experience in finance, management, or the high-tech sector constrains the resource acquisition processes of women. This prevents them from succeeding as high-tech entrepreneurs, pushing them into the low-growth tertiary sector (Bruni et al., 2004b; Pompa, 2013).

Given the adverse effect of women's lower work, startup, and industry experience on startup performance, incubators or accelerators can provide a remedy. They can fill knowledge gaps, teach practical business knowledge, and facilitate the exchange with experienced mentors or other entrepreneurs facing similar startup challenges. (Carayannis & von Zedtwitz, 2005; Lesáková, 2012; Dahlstrand & Politis, 2013; Pauwels et al., 2016) Thus, they may offer the

entrepreneurs an environment conducive for accumulating business, market, and technological knowledge needed for startup success (Lesáková, 2012; Eveleens et al., 2017). However, the significance of the educational and experiential benefits depends on the nature of the social interactions. Strong ties, a large number of shared activities among participants, and intensive coaching enable the exchange of tacit knowledge and trusted feedback (Elfring & Hulsink, 2003; Eveleens et al., 2017). Since this study's incubator and accelerator are both dedicated to supporting female entrepreneurs by providing knowledge, I hypothesize:

H1. Through training and sharing experiences with mentors and participants, the female entrepreneurs will acquire business, market, and technological knowledge they could not access before.

To substantiate the development of this hypothesis, the antecedents of gendered educational and occupational outcomes are elaborated in the following two sections.

2.1.1 Vertical Segregation: Women in Management

While horizontal segregation indicates that women and men work in different occupations or industries, vertical segregation marks working in different corporate ranks (Blau & Winkler, 2018). In 2019, women represented 5.8% of the CEOs in the S&P 500 companies while they accounted for 44.7% of all employees (Catalyst, 2020). Their paucity in management may be explained by supply-side factors. The pipeline argument highlights that women have started to increasingly invest in advanced human capital since the 1980s and that the lack of female managers is only a temporary issue. Human capital theory argues that work-family conflicts and discontinuous work careers, e.g. due to childbirth, lead to a lack of experience and skills needed for management as human capital tends to depreciate during the time of absenteeism. Lastly, differential preferences for risk, competitiveness, or flexibility partly explain the lack of female managers. (Blau & Winkler, 2018; Miller, 2017) Conversely, demand-side factors are considered. Besides overt discrimination against women where employers, coworkers, or customers do not appreciate female managers due to negative preferences (Becker's Model of Taste for Discrimination in Laing, 2011), subtle biases or stereotypes are prevalent. Status characteristics theory paired with the work-effort hypothesis argue that people unconsciously associate women or mothers with less commitment or competence, reflecting cultural beliefs about the incompatibility of ideal workers and traditional roles of women. This may result in self-fulfilling prophecies if women are denied training or promotion based on the assumption

to be less competent. This also relates to statistical discrimination where a person's abilities and competences are approximated by the average characteristics of the group to which the individual belongs, e.g. gender, race, or ethnicity. (Correll, Benard & Paik, 2007) Ryan & Haslam (2005) point to the glass cliff. As women are disproportionately overrepresented in precarious leadership positions with unsolvable problems and are held accountable for any failure, the dismissal or resignation is held to prove that women are not suited for leadership. Lastly, in-group favoritism in old boys' networks excludes women from such networks as the male occupants' strive for homosocial reproduction and social closure (Kalev, Kelley & Dobbin, 2006; Blau & Winkler, 2018; Miller, 2017). In sum, discrimination and unconscious biases result in the emergence of glass ceilings that exclude women from senior positions in firms (Blau & Winkler, 2018), thereby limiting their work and management experience.

2.1.2 Horizontal Segregation: Women in STEM

Trying to explain women's underrepresentation in STEM education or occupations (Blau & Winkler, 2018), the *nature approach* focusing on biological gender differences in cognitive abilities is rarely supported (Kimura, 2003). Assuming that people entering STEM jobs are primarily taken out of the right tail of the math ability distribution, male student's higher variance in math scores may explain why more male students enter STEM fields (Kahn & Ginther, 2018; Mullis et al., 2000). Given the positive relationship between prior test scores and ensuing STEM choices (Riegle-Crumb et al., 2012), girl's tendency to perform worse in competitive, male environments (Blau & Winkler, 2018) or the fact that STEM courses yield worse grades may explain gender gaps in STEM (Kahn & Ginther, 2018). Also, female students tend to choose and complete majors in which they excel (Blau & Winkler, 2018) and shy away from difficult tasks (Niederle & Yestrumskas, 2008).

The *nurture approach* that considers environmental and cultural effects on educational and occupational choices seems more promising to explain the lack of women in STEM (Marvel et al., 2015; Kahn & Ginther, 2018). While preferences and interests determine educational or occupational choices, they are defined by gendered norms, not biological differences (Xie & Shauman, 2003; Eccles & Jacobs, 1986). Teacher, society, or family stereotypes reinforce the association of boys with maths and girls with reading (Kahn & Ginther, 2018). Spending more time teaching maths to boys than girls (Leinhardt et al., 1979) or female teachers' math anxiety (Beilock et al., 2010) makes young girls believe they are better at reading and assess their math abilities poorer (Kahn & Ginther, 2018). Also, parents' stereotypes regarding their

children's math abilities cause gender differences in math attitudes (Eccles & Jacobs, 1986). Conversely, parents working in STEM fields positively affect the probability of completing a major and working in STEM fields. Hence, maternal role modeling can close the gender gap in STEM. (Cheng, Koptic & Zamorro, 2017) In sum, "*the lack of role models at all levels of STEM education reinforces the dearth of women in STEM*" (Kahn & Ginther, 2018, p.780).

Lastly, graduating in STEM majors is one thing but working in STEM is another. Across all STEM majors, women are more likely to work in education or health-related jobs while men tend to work in computer, technology, and engineering jobs (Kahn & Ginther, 2018). Either work-family conflicts or the chilly working climate in STEM, e.g. lower time flexibility, lack of family-friendly workplace accommodations, or the male dominance, contribute to the lack of women in STEM occupations (Kahn & Ginther, 2018; Xie & Shauman, 2003).

2.2 Access to Capital

Financial capital offers entrepreneurs strategic flexibility, and enables them to exploit growth opportunities (Peña, 2002; Beck et al., 2005). Hence, it positively relates to startup survival, growth, profitability, and income. As female entrepreneurs are less endowed with financial resources, the perception of their underperformance takes hold. (Alsos et al., 2006; Boden & Nucci, 2000; Watson, 2002) The undercapitalization of female-led startups negatively affects their performance in terms of future capital assets, sales, and number or growth of employees (Carter & Allen, 1997; Carter & Rosa, 1998). Ultimately, this limits their wealth creation or technology development (Brush et al., 2006). Anticipating difficulties in obtaining capital discourages women from becoming high-tech entrepreneurs (Bruni et al., 2004b). Also, the undercapitalization of women reinforces the gendered entrepreneurship discourse or limited visibility of female role models as media coverage is tied to financial power (Ljunggren & Alsos, 2006). But how can this prevalent gender funding gap be explained?

First, demand-side factors are considered. Some researchers argue that female entrepreneurs simply seek fewer financial resources as they primarily start ventures in less capital-intensive industries with low growth prospects (Coleman, 2000; Sullivan & Meek, 2012). This may be due to prior experience and knowledge, a lack of technical skills in the high-tech sector, or assumed difficulties to obtain external funds (Bruni et al., 2004b). Limited growth intentions due to industry choice, assumed difficulties in obtaining capital, or intensified work-family conflicts decrease women's likelihood of receiving external equity or debt (Brindley, 2006).

Some female entrepreneurs are also reluctant to engage in external funding due to a fear of failure, a lack of role models, negative self-perceptions, or preferences for ownership and control (Welter, 2006; O'Reilly & Hart, 2002; Brush et al., 2006). Also, women's lack of financial expertise may constrain their use of effective early financing strategies that would place their startup in a more favorable position to obtain outside equity financing (Brush et al., 2006). Similarly, a lack of relevant experience or education may also lower their chances of obtaining external capital, given the risk aversion of capital providers (Fay & Williams, 1993). Finally, gender wage gaps due to horizontally and vertically segregated labor markets disadvantage women in using personal savings or meeting collaterals of banks (Carter & Marlow, 2006; Marlow & Patton, 2005).

Second, supply-side factors are raised. Discrimination against women in financial markets is partly supported in existing research (Jennings & Brush, 2013). Some researchers do not find gender differences in approval rates of loan requests, financing terms (Becker-Blease & Sohl, 2007; Buttner & Rosen, 1988) or the likelihood of obtaining funding (Lassébie et al., 2019). Others find that women only receive 25% of the amount asked for while men receive roughly 50% (Malmström, Johansson & Wincent, 2017). Also, unprofessional and illegal behaviors like sexual harassment have deleterious effects on female entrepreneurs seeking external equity funding (Williams, 2017). Also, they are held to higher standards as their gender conveys adverse signals on venture viability and individual commitment (Fay & Williams, 1993; Eddleston et al., 2016). Hence, gender stereotypes about women being more risk-averse, less-growth-oriented, or preferring small scale limited funding still exist in the male-dominated equity financing industry (Brindley, 2006; Marlow, 2014). For example, in 2018, women occupied 21% of all professional roles in VC firms in the US, and only 14% held a partner position (NVCA & Deloitte, 2019). This adversely affects the access to capital as VC firms with female partners are two times more likely to fund female-founded startups (Brush et al., 2014). Finally, the lack of contacts to capital providers resulting from limited access to informal and formal networks of VCs and business angels impedes their strive for financial resources (Aldrich, 1989; Bruni et al., 2004b; Gamba & Kleiner, 2001; Braches & Elliot, 2017).

Given these challenges female founders may face in acquiring financial resources, incubators and accelerators can support them in their capital acquisition process. They can directly offer financial capital in exchange for equity or provide contacts to investors (Carayannis & von Zedtwitz, 2005; Ozkazanc-Pan & Clark Muntean, 2018). They can increase the visibility and

credibility of entrepreneurs vis-à-vis potential investors. Also, their support in product and business development can enhance the startups' attractiveness for investors by making it an investment-ready business. (Pauwels et al., 2016). Finally, such programs can offer training and advice on finance and pitching to compensate for any educational and experiential gaps and to prepare the entrepreneurs for fundraising activities (Lesáková, 2012; Carayannis & von Zedtwitz, 2005). Given the studied programs' focus on helping women, I hypothesize:

H2. Through training, feedback, startup development support, and exposure to investors, the female entrepreneurs will either be prepared for future fundraising or directly obtain capital as a result of program participation.

2.3 Networking

An individual's network plays a central role for both the decision to become an entrepreneur and the subsequent startup performance. In the former case, informal, weak tie networks can provide novel information, thereby broadening the entrepreneur's information corridors to discover opportunities (Shane & Venkataraman, 2000; Elfring & Hulsink, 2003). In the latter case, these networks help the entrepreneur access strategic resources, survive, and grow, and positively affect performance in dynamic, uncertain environments (McGowan & Hampton, 2006; Hampton et al., 2009). As startup success depends on the entrepreneur's ability to develop and manage a high-quality network (Hampton et al., 2009; McGowan & Hampton, 2006), lacking adequate networks explains women's underrepresentation in entrepreneurship (Klyver & Grant, 2010). In sum, networks can provide benefits like learnings, acquisition of complementary resources (Teng, 2007), exchange of information, acquisition of tacit knowledge (Linehan & Scullio, 2008), assistance in decision making, and guidance (Hampton et al., 2009). Networks of investors, technology partners, or customers provide legitimacy and credibility to overcome the liability of newness (Elfring & Hulsink, 2003). For the benefits to materialize, networks must possess favorable characteristics in terms of quantity, i.e. large network size, and quality, i.e. low density, high diversity and reachability, and strong weak ties. While reachability means that individuals are successfully referred to others outside their own network. Strong weak ties imply that an individual easily gains information and support from individuals whom she or he does not know well. (Aldrich & Zimmer, 1986; McGowan & Hampton, 2006; Hampton et al., 2009). Finally, women can

also seek help in reconciling work and family duties and emotional support, confidence, and motivation from their networks (McGowan & Hampton, 2006).

Although networking is particularly critical for and should be greater among female, growth-oriented entrepreneurs (Rosa & Hamilton, 1994), they often face difficulties in joining informal old boy's networks, and formal male-dominated networks of assistance or information (Bruni et al., 2004b; Gamba & Kleiner, 2001; Braches & Elliot, 2017). Reasons are a lack of self-confidence, anxiety, discrimination, or doubts about the added value at the expense of family time (Hampton et al., 2009; Schmeltzer & Fann, 1989). Due to vertically and horizontally segregated labor markets, female entrepreneurs are wrongly informed and unaware of business networks (Ozkazanc-Pan & Clark Muntean, 2018). Also, work-family conflicts do not only reduce the time women can spend networking (Jennings & McDougald, 2007; Linehan & Scullio, 2008) but also force them break ties with prior networks (Marlow & Strange, 1994). Thus, female entrepreneurs in male-dominated fields like technology have less social capital, leading to fewer information or benefits obtained (Sappleton, 2009). As a result from these networking barriers and their propensity to use bonding strategies to form collaborative relationships (Ozkazanc-Pan & Clark Muntean, 2018; Buttner, 1993), female entrepreneurs strongly rely on strong tie networks. These include family and people, in particular other women, with whom they share trust and empathy (Moore, 2000; Aldrich, 1989; Sullivan & Meek, 2012). They provide them a non-judgmental, unbiased environment that does not contest legitimacy or enforce gender-specific expectations (McGowan & Hampton, 2006). In particular, female-only networks provide emotional support, motivation, or the benefits discussed above. Yet, these strong tie networks tend to have unfavorable characteristics, resulting in a lack of objective advice, redundant information, and only limited access to strategic resources. (Ibarra, 1993; Knouse & Webb, 2001; McGowan & Hampton, 2006; Aldrich & Zimmer, 1986) So, what role can incubators or accelerators play?

By linking founders to networks (Khalil & Olafsen, 2010) and providing mentoring relations conducive for networking, they can raise the entrepreneurs' social capital and make both tangible and intangible resources accessible to them (Ozkazanc-Pan & Clark Muntean, 2018). They may encourage entrepreneurs to intensively interact with others and provide specific referrals, i.e. increase network reachability. The interaction with mentors or other entrepreneurs can provide opportunities for knowledge transfer and advice. (Rice, 2002; Bøllingtoft, 2012) Finally, through program association, entrepreneurs can gain legitimacy and access to broader networks (McAdam & McAdam, 2008). Given the challenges female

entrepreneurs face in terms of networking, incubators or accelerators can mitigate gender inequities in access to networks by introducing them to new networks. As women tend to seek emotional benefits (Ozkazanc-Pan & Clark Muntean, 2018), I hypothesize:

H3a. The incubator and accelerator will enhance the female entrepreneurs' networks in terms of size, density, diversity, reachability, and strength of weak ties.

H3b. Resulting from the positive network development, the female entrepreneurs will obtain a range of benefits: access to complementary resources; decision-making support: access to advice, information, and guidance; learning through sharing experiences; emotional support, motivation, and confidence; finding role models; support in managing the work-life balance.

2.4 Work-Life Balance: The Work-Family Conflict

Motherhood influences not only the decision to become an entrepreneur but also subsequent startup performance. While women more often engage in entrepreneurship to reconcile work and family duties due to higher flexibility and discretion (DeMartino & Barbato, 2003; Bruni et al., 2004b), motherhood may also discourage them from entrepreneurship. Disrupted work careers due to childbirth imply less experience, lower personal savings, and fewer networks, which eventually disadvantages entrepreneurial mothers (Jennings & Brush, 2013; Blau & Winkler, 2018). As women assume the majority of household responsibilities, anticipated or present work-family conflicts may explain the lack of female entrepreneurs (Puechner & Diegelmann, 2006).

For established female entrepreneurs, the competing demands on time and energy intensify work-family conflicts (Jennings & McDougald, 2007), which lead to higher stress levels and a lower satisfaction with job, family, and life (Parasuraman et al., 1996). The entrepreneurs' reduced well-being partly accounts for lower startup performance (Shelton, 2006). Also, the household time demands reduce time available for startup tasks, and the woman's behavioral and psychological startup commitment, which limits growth (Jennings & McDougald, 2007; Parasuraman et al., 1996; Belcourt et al., 1991). For example, less time is spent networking (Hampton et al., 2009; Linehan & Scullio, 2008). Lastly, entrepreneurial mothers suffer from reduced credibility, e.g. lower perceived competence or commitment, due to societal beliefs about the traditional division of family responsibilities (Bruni et al., 2004b; cf. Correll et al., 2007). If they still decide to allocate considerable energy and time to their startups, they may

suffer from intensified strain-based work-family conflicts as they do not fully comply with traditional gender roles (Jennings & McDougald, 2007; Parasuraman et al., 1996).

In sum, existing research does not conclusively show whether self-employment increases or reduces work-family conflicts (Ferguson & Durup, 1998). On the one hand, it may intensify work-family conflicts as entrepreneurs work long hours and expend great efforts to pursue startup survival and success (Parasuraman et al., 1996). The need to perform various challenging startup tasks concurrently increases the time commitment to work, intensifying work-family-conflicts, i.e. work-role overload (Parasuraman et al., 1996). This may particularly apply to female entrepreneurs who expend great effort to startup growth (Shelton, 2006). On the other hand, it can alleviate the severity of work-family conflicts. Autonomy to freely structure work arrangements or delegate work responsibilities and schedule flexibility like flexible deadlines and fewer travels, reduce the work-family conflict (Jennings & McDougald, 2007; Parasuraman et al., 1996). Irrespective of that, psychological resources and social support are critical for women to cope with work-family conflicts (Ruderman et al., 2002). In this light, in particular an entrepreneur's family can provide emotional support in the form of encouragement, motivation, or psychological assistance to increase their self-efficacy. Also, instrumental support to free the entrepreneur from household duties are critical to mitigate work-family conflict (Parasuraman et al., 1996; Brindley, 2006; Welsh et al., 2016).

Despite of all benefits incubators and accelerators can provide, they can also be challenging, especially for female entrepreneurs and mothers. Program participation may require them to expend additional efforts. Also, physical presence and meetings or trainings that are set top-down reduce their autonomy and flexibility, which they typically enjoy in entrepreneurship. This may both intensify work-family conflicts and structurally exclude entrepreneurial mothers who consider time and space constraints when starting a business. (Ozkazanc-Pan & Clark Muntean, 2018; Isabelle, 2013; Cohen, 2013; Parasuraman et al., 1996) However, such programs can mitigate the perceived severity of work-family conflicts by offering emotional support and family-friendly support initiatives (cf. Parasuraman et al., 1996; Brindley, 2006). Given these considerations, I hypothesize:

H4. The incubator and accelerator will disrupt the female entrepreneurs' work-life balance and intensify work-family conflicts since they require extra effort and reduce their autonomy and flexibility. If emotional support is provided, the negative effects will be less pronounced.

3. Research Setting

This section briefly describes the business incubator and accelerator that form the setting for this thesis. It provides information on the background, goals, and activities of each program to embed this study in an appropriate context. This section is informed by both the primary and secondary data sources described in the methodology section of this thesis.

3.1 The Business Incubation Program

Launched in 2018 and currently pausing, the incubator is a comprehensive advisory program targeting female entrepreneurs in the high-tech sector, i.e. artificial intelligence, blockchain machine learning, e-commerce, and enterprise applications. Designed as part of an initiative to build an innovation ecosystem in a metropolitan region in South Germany, the program is driven by both a corporate mission and the UN Sustainable Development Goals to promote gender equality. It seeks to identify and eliminate key barriers to women's advancement in technology and entrepreneurship and to increase market awareness of women's innovations.

The program spans six months during which participants meet once a month for scheduled, intensive two-day workshops. The workshops provide knowledge needed to successfully run and grow a business, e.g. marketing and sales, financing and law, pitching and storytelling, leadership, human resources, personal branding, and work-life integration. Beyond learning from a carefully selected, diverse team of experienced advisors and mentors like the firm's executives, serial entrepreneurs, product development experts, or venture capitalists, female entrepreneurs are supported in finding the right networks to scale their ideas. The in-person workshops at the established firm's site include extensive presentations, group discussions, one-on-one coachings, and informal activities. Neither physical, technological, and financial resources are provided nor is an integration into the firm's product portfolio pursued. In sum, the incubator seeks to create right supporting structures for female entrepreneurs and enable exchange between female high-tech entrepreneurs.

Although the program is chiefly designed for women, male cofounders are given the chance to join single workshops if scheduled topics fall in their area of responsibility. Yet, eligibility to participate in the all-female incubator requires having a female cofounder who aims for or holds a university degree. Also, startups need to have a minimum viable product, an existing

customer record, and preferably be in the pre-Series A or Series A stage of funding. Lastly, the group size is limited to ten to twelve female participants.

3.2 The Business Acceleration Program

Launched in 2017 and currently operating in eight locations across the world, the accelerator is a zero-equity enterprise Software as a Service (SaaS) and business-to-business (B2B) program focused on growing a new generation of innovative software for the established firm's customers. The program's goals are to grow an open ecosystem around the firm's product portfolio and to strategically scale future business and technology partners to create value for the firm's customers.

The theme-focused, intense program runs on-site for eight to fourteen weeks with the goal of delivering a technically integrated and business aligned co-selling solution by program end. It provides startups with strategic and financial guidance, the opportunity to work with the firm's customers, and knowledge on the industry and the scaling of startups like sales, go-to-market, pricing, and branding. Also, it offers access to co-working spaces, exposure to data, application programming interfaces (APIs), and technology, and tailored mentorship, drawing on the firm's global network of both internal and external actors. The program includes short expert talks, group discussions, and intensive, ongoing mentoring. The associated, yet separate, funding program further provides financial capital to selected startups in the Seed, Pre-Series A, and Series A stage. Although both programs are not restricted to women, their commitment to inclusive entrepreneurship is to offer both business and financial support to an almost equal share of underrepresented entrepreneurs, including women. Hence, it aims at closing the resource gap for B2B software businesses founded or led by underrepresented populations. In sum, the accelerator seeks to support startups in building products, finding customers, and changing industries.

The accelerator is very competitive, only accepting eight to ten startups into each cohort focused on a particular theme or industry. To be eligible for program participation, startups must have a product, a proven customer record and deep expertise in a particular domain. As the applicants are expected to leverage the firm's data, APIs, and platform technology, they are need to be driven and willing to integrate their solution into the firm's product portfolio.

4. Methodology

4.1 Research Approach

This study deductively tests the preconceived hypotheses that were developed on the basis of a literature review on the aggravated challenges female entrepreneurs face and the programs' commitment to support female entrepreneurs. Thus, this study seeks to evaluate whether, and if so, how effectively the incubator and accelerator alleviate challenges related to education and experience, access to financial capital, access to networks, and work-life balance. If the hypotheses are supported, the programs' potential to promote gender equity is corroborated. A rejection of hypotheses either implies that a particular challenge does not apply to female high-tech entrepreneurs or that the program fails to adequately alleviate it. Thus, the study's goal is to reach a satisfactory conclusion on the programs' effectiveness in supporting female entrepreneurs through a largely qualitative, case-based inquiry (see Research Strategy). Also, the early stages of this study's research process include inductive elements to remain open to emergent and unanticipated experiences, patterns, or explanations (Patton, 2002; Saunders, Lewis & Thornhill, 2016). This was extremely important to explore the support mechanisms in-depth and explain both positive and negative program experiences and outcomes. It also results in an enhanced understanding of the phenomenon studied and its contingencies when the researcher takes advantage of case-specific opportunities (Eisenhardt, 1989). Later stages of the research process were increasingly deductive to test the preconceived hypotheses and emergent contingencies through subsequent data collection and analysis. Combining theory-driven and data-driven approaches allows the researcher to combine deductive and inductive elements to explore, explain, and evaluate the phenomenon studied (Patton, 2002; Saunders et al., 2016). Given this research approach, I could draw an accurate picture of the programs and extensively evaluate the extent to which their processes support female entrepreneurs.

4.2 Research Design

The research design describes the study's structure and its plan to answer the raised research question (Saunders et al., 2016). This study adopts a *qualitative evaluative design* to find out how effectively business incubators and accelerators support high-tech female entrepreneurs. Each program is evaluated in terms of processes, i.e. adequacy of support mechanisms, and

outcomes, i.e. elimination of challenges and impact on startup development. Hypotheses are tested and explanations for experiences and impacts are sought to evaluate the programs. In outcome evaluation, a qualitative design allows a researcher to understand the stories behind outcomes, taking into account individual needs, motivations, and impact assessments, and to capture unanticipated or unintended impacts (Patton, 2002). Hence, the qualitative design is invaluable to understand the relationships between program activities and outcomes and their contingencies. Thus, entrepreneurs are interviewed to capture their experiences with specific activities and program assessments, which are inevitable to judge program effectiveness. By comparing the incubator and accelerator with respect to the entrepreneurs' experiences and impacts, I explain differences and integrate findings to improve support for women founders.

Further, a *multi-method qualitative study design* is used. The semi-structured interviews are conducted with entrepreneurs and program managers and are complemented with secondary data sources like program descriptions, progress reports, and company-internal evaluations. This enables the triangulation of findings based on the perspectives of different groups and across data sources to test the consistency of findings and to reduce the impact of response biases (Patton, 2002; Cook & Reichhardt, 1979).

Later in the research process, a survey was conducted, resulting in this study's *concurrent triangulation design*. This enhances this study's validity through the triangulation of findings and allows for a quantitative, more nuanced assessment of program outcomes. Coupled with the interview findings, survey results can also be better understood and interpreted. (Cook & Reichhardt, 1979; Patton, 2002; Saunders et al., 2016)

4.3 Research Strategy

The research strategy delineates and justifies the approach a researcher adopts to answer the study's research question (Saunders et al., 2016). This thesis follows a *case study* approach using semi-structured interviews, archival documents, and a survey complementarily. A case study is an in-depth inquiry into a topic in its real-life setting to understand the dynamics of a topic within its context. Despite being advocated in nascent stages of research, they can also offer new, more detailed perspectives on researched topics. (Eisenhardt, 1989) In this light, this *explanatory case study* deductively tests the applicability of the hypotheses to the study's unique setting of one incubator and accelerator, both dedicated to drive inclusive entrepreneurship. Thus, I elucidate the programs' support for female entrepreneurs to infirm

or confirm existing knowledge on how incubators and accelerators can effectively contribute to closing gender-related resource and performance gaps. Hence, this study covers multiple individual cases, i.e. entrepreneurs and program managers, embedded in two cases, i.e. the incubator and accelerator. The two programs are then enveloped in one holistic case study on whether, and how effectively, incubators and accelerators support female entrepreneurs in developing successful startups. Comparative cross-case analyses enabled me to spot whether program experiences and outcomes hold across individuals and settings and whether they are impacted by contextual differences, e.g. program goals, focus, or activities implemented.

Justification based on Research Philosophy

The research philosophy delineates a researcher's assumptions and beliefs about knowledge development. Social constructionism asserts that the truth behind phenomena is constructed by individuals' subjective perceptions and interpretations of events and social interactions. (Saunders et al., 2016) To objectively evaluate each program's support for female founders, contextual and situational factors like personal circumstances, social interactions, needs, and goals are considered as they impact how the entrepreneurs perceived and assessed program participation or outcomes. Thus, a qualitative case study approach is adopted to understand these subjective meanings and put them into an appropriate context. Given the importance of individual contexts and subjective interpretations of experiences or outcomes, causal inferences cannot be reduced to statistical correlations (Saunders et al., 2016). Following a qualitative research approach, I probed responses to understand how participants constructed causal relationships between activities and outcomes. Also, I took into account any changes in behaviors when evaluating the program's impacts on the entrepreneurs. Finally, in this study's setting, training, mentoring, and networking were inseparably intertwined. Thus, a holistic perspective was adopted to not uncritically decompose program experiences and impacts at the expense of understanding the whole array of interlocking relationships.

Justification based on Evaluation Research Literature

In evaluation research, qualitative methods are used as they offer the opportunity "*to get at the meaning of the program for individual participants*" (Patton, 2002, p.15). In this study, I conducted semi-structured interviews to not only scratch the surface of what it means for the incubator or accelerator to have a great impact. Rather, I captured participants' positive and negative experiences and impacts and compared them to the program managers' perspectives to comprehensively evaluate each program's processes and outcomes. As program outcomes

also depend on how the entrepreneurs leveraged the opportunities they were given and each program constantly evolved due to feedback, I replaced a fixed treatment-outcome view by considering individualized treatments and differences between entrepreneurs. By comparing the incubator with the accelerator, I captured unique variations in contexts and implemented activities to determine the relative effectiveness of support mechanisms. Given the limited size of the target population, the heterogeneity and complexity of social interactions, mentor involvement, and implemented activities could not be controlled in a survey strategy. Thus, a qualitative approach was used. A pure survey strategy oversimplifies program complexities and interdependencies, misses relevant factors hard to quantify, and fails to understand the program and its impacts as a whole (Patton, 2002). Since *“the less formal and less obtrusive nature of some qualitative strategies can reduce or even eliminate distorting reactivity”* (Patton, 2002, p.192), I also attenuated social desirability or central tendency biases, which may hamper an objective evaluation of the incubator and accelerator.

Justification based on Gender and Entrepreneurship Literature

This study’s research strategy to answer the research question addresses several deficiencies in the existing literature on gender and entrepreneurship. First, in evaluating each program’s effectiveness to support high-tech female entrepreneurs, I seek to explain women’s program experiences and impacts through a complementary mix of interviews and a survey. Hence, I address the lack of explanatory theories that consider the importance of context, the role of women in society, and the heterogeneity of female founders (Brush et al., 2009; Marlow, 2014). This is only possible as the qualitative interviews produce detailed and in-depth data about individual contexts, experiences, and outcomes. Second, I intentionally withdrew from using gender as a binary variable through the qualitative case study approach to not reinforce the notion that female and male entrepreneurs and their startups are different. The uncritical use of gender as a variable, and the way researchers ask questions, construct arguments, and explain results fuels a gendered entrepreneurship discourse by pitting women against men (Marlow, 2014; Ahl, 2002). Instead, I focus on female entrepreneurs and seek to understand how gender is embedded in processes and social interactions, resulting in specific and maybe different behaviors, experiences, and program impacts. Such a perspective also circumvents existing research’s ambiguity whether biological sex or the socially constructed notion of gender shapes experiences and outcomes (Ahl, 2002; Marlow, 2014). This level of detail in understanding the participants’ program experiences and outcomes is only possible through a qualitative approach that considers individual, startup, and environmental factors.

4.4 Data Collection

4.4.1 Data Sources

This study draws on primary and secondary, qualitative and quantitative data. I triangulated findings across data sources and research methods to test hypotheses, seek explanations, and establish validity. Also, I compared the perspectives of entrepreneurs and program managers and checked them against secondary data sources, which are also analyzed in their own right.

I collected primary data primarily through semi-structured interviews conducted with female and male entrepreneurs and program managers, who could share their first-hand experiences, and subjective program assessments. Advocated for evaluative and explanatory research, the structured nature allows for a systematic test of hypotheses; while the open nature allows for examining individual contexts, unanticipated issues, and causal interpretations (Patton, 2002; Saunders et al., 2016). During interviews and the entire research process, I took ample notes and memos and reviewed them during the data analysis process. Supplementary, I conducted an online survey via Qualtrics™ after the initial interview phase. The survey was randomly distributed by the program managers to the incubator's and accelerator's current and past participants and took 15 minutes to complete. The survey was informed by the review of the challenges female founders face, the programs' commitment to support them, and questions used and validated by other researchers to measure certain constructs, e.g. characteristics of networks. Beyond open and numerical questions, it primarily included continuous 7-point Likert scale questions ranging from 1 = strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5 = somewhat agree, 6 = agree to 7 = strongly agree to elucidate the entrepreneurs' program experiences and impacts. Depending on the question, other continuous 7-point Likert scales ranged from 1 = "very poor" or "not at all important" to 7 = "exceptional" or "extremely important". The sample included 1 male and 6 female entrepreneurs in the incubator, and 8 male and 4 female entrepreneurs in the accelerator.

The study's secondary data consisted of both publicly available and confidential information. Public information on individuals and startups was collected from corporate websites, press releases, newspaper articles, or social media channels like LinkedIn. Such data allowed me to better understand the entrepreneurs' contexts in terms of needs, education and occupation, or networking behavior and to prepare for interviews. Confidential information on program activities, goals, and progress were collected to inform this study's research setting.

4.4.2 Sampling

Following the embedded case study approach, I used complementary purposeful sampling techniques to select information-rich cases that provided me the opportunity to gain in-depth insights into the entrepreneurs' program experiences and impacts which are needed to pursue this study's evaluative purpose. First, I used *heterogeneity (or maximum variation) sampling* based on criteria like the entrepreneur's gender, age, or education, and the startup's maturity, size, or discontinuity. Shared patterns that emerged out of this heterogeneous sample were valuable to capture core experiences or outcomes and increased this study's external validity (Patton, 2002). I also deliberately sought *confirming and disconfirming cases* to cover a maximum range of experiences and outcomes. Through snowball sampling, key informants like program managers and entrepreneurs referred me to participants from whom they thought they had notably good or bad program experiences. The resultant wide range of program experiences and outcomes allowed me to objectively test the hypotheses and judge each program's support and impacts in a balanced manner. While confirmatory cases added depth and support for hypotheses, disconfirming cases placed boundaries around confirmed findings and added rival explanations that had to be eliminated to establish internal validity (Patton, 2002; Saunders et al., 2016). This study's sample selection was driven "*to the point of redundancy*" where additional data did no longer provide new information (Lincoln & Guba, 1985, p.202). The final sample size was 13 and included 1 female program manager, and 1 male and 6 female entrepreneurs in the incubator and 2 female program managers, and 1 male and 2 female entrepreneurs in the accelerator.

I must acknowledge that the purposively selected, small samples do not allow for statistical generalizability as they lack statistical representativeness. As the entrepreneurs freely chose to participate, participation bias may threaten generalizability. Given these considerations, I introduce transferability as an alternative to external validity (see Research Quality).

4.4.3 Data Collection: Semi-Structured Interviews

Due to the purposeful sampling techniques outlined above, the initial contact to interviewees was established by program managers, and later on, by entrepreneurs who were well-known to the participants. Following the *known sponsor approach*, I created trust to all interviewees by lending the referees' credibility or legitimacy. Prior to all interviews, an informed consent letter was sent to, and signed by each interviewee. It stressed the study's purpose, methods,

and the confidentiality and anonymity of data provided. Also, I collected information on the entrepreneurs and startups to prepare interviews and to find promising areas of investigation related to this study's purpose. The steps were crucial as trust in the researcher's competence and the confidential and anonymous treatment of data impact the significance of findings in terms of validity and reliability (Patton, 2002; Saunders et al., 2016). Further, I scheduled all interviews at convenient times suggested by interviewees to avoid time pressure, allowing them to elaborate their program experiences, impacts, and causal interpretations. Interviews took between 30 and 60 minutes and were conducted over Internet-mediated videotelephony.

Prior to the data collection process, I developed an interview guide (see Appendix 1) based on the hypotheses to be tested, which were informed by the review of the challenges female founders face and the programs' commitment to support them. While it outlined possible questions, the use and order of those depended on the conversations' nature and flow and the individual context. As my experience in interviewing increased and unanticipated experiences and impacts arose after the first set of interviews, I expanded and focused the interview guide to facilitate the integration and comparison of findings. I started each interview with the same set of generic questions. First, I asked the participants about their level of education, and work, startup, and management experience. I also examined the rationales for the founding team's composition and benefits of having a male cofounders. Next, I addressed the entrepreneurs' idiosyncratic startup challenges. Answers to these questions helped me place each interview's findings in a context as I inferred the entrepreneurs' prior challenges and needs. Second, I asked them to elaborate their program awareness, expectations, positive and negative experiences, and any tangible or intangible program impacts. The open-ended, non-directional questions allowed them to freely talk about their experiences, feelings, and perceived impacts and to direct the dialogue to areas they thought were most relevant in evaluating the programs' effectiveness and impacts. Thus, I also allowed unanticipated themes or patterns emerge freely. When any of this study's focus areas emerged, I systematically tested the hypotheses and explored underlying mechanisms, causal relationships, and contingencies in-depth by asking more specific questions. I probed the participants' program experiences and impacts to infer how they interpreted causal relationships and assessed the appropriateness and effectiveness of specific program activities. If focus areas, e.g. work-family conflict, did not independently emerge, I did not overtly lead the conversation into these themes but unobtrusively assured that the hypotheses were not pressing for the individual. Third, I concluded the interviews by

asking the participants to assess the program's strength and weaknesses and which activities they would implement to specifically support female entrepreneurs. Due to the complexity of these questions, I applied role playing and presupposition to stimulate detailed responses by providing context and stressing the subjectivity of responses. Lastly, I gave the participants the chance to add comments and insights they thought were relevant for the study's purpose. After each interview, I spent notable time on reflecting whether the obtained data served the study's purpose and on assessing each interview's strengths, weaknesses, or lessons learned to identify room for improvement. Also, I transcribed the sound recordings *verbatim* to stress this study's trustworthiness and methodological rigor, which is described hereafter.

4.5 Data Analysis

The goal of the qualitative data analysis is to identify patterns and construct a framework of interdependent variables and contingencies, allowing me to explain program experiences and impacts and judge how effectively the programs support female entrepreneurs. Data Analysis was done at three levels. First, I analyzed each individual case in terms of the entrepreneur's experiences and stated impacts. Second, I analyzed variations in experiences, impacts, and causalities across the entrepreneurs within each program. Third, I comparatively analyzed the programs to highlight differential impacts and experiences. I paid specific attention to gender differences and coherency of perspectives of program managers and entrepreneurs.

4.5.1 Data Preparation

First, I transcribed the sound-recorded interviews *verbatim* as per Poland's (1995) syntax to cover non-verbal communication or contextual information like laughs, sighs, sarcasm, long inhales or pauses. This contextual information was critical as they affect the true meaning of responses (Saunders et al., 2016). Next, I summarized the transcripts sentence-by-sentence to condense and rephrase long sentences into shorter statement conveying the key points, which enabled a systematic identification of program experiences, impacts, and relationships. Here, I stressed using the words or labels the participants expressed, e.g. *safe environment*. Later on, I compared, contrasted, and integrated those terms with my preconceived hypotheses and assessed how they supported or disconfirmed my expectations. The summaries were crucial for organizing the data for subsequent analysis and for describing the study's research setting in terms of program goals, activities, and desired impacts, e.g. program manager interviews.

4.5.2 Analysis of Individual Cases

Following *Template Analysis*, I analyzed each individual case to let idiosyncratic patterns emerge before I generalized experiences, impacts, and relationships. In Template Analysis, a researcher first codes a subset of all interviews before developing a coding template, i.e. a hierarchical list of codes and themes used as the analytical tool (Saunders et al., 2016). When I created the coding template (see Appendix 2), I closely followed the process of Grounded Theory outlined by Strauss & Corbin (1998). First, I labeled data with *a priori* and *in vivo* codes in a process of *open coding*. The *in vivo* codes, i.e. labels the participants used to describe their experiences or perceived impacts, allowed me to discover program experiences and impacts solely on the grounds of data rather than being restrained by the preconceived hypotheses and constructs. In a next step, I revisited these codes for the same subset of interviews to see if they matched my preconceived hypotheses in terms of antecedents and outcomes. Second, in *axial coding*, I developed a hierarchical structure of codes to illustrate the programs' support mechanisms fine-grained and determined the relationships between antecedents and outcomes. Third, in a process of *selective coding*, I identified the principal support mechanisms, contingencies, and impacts that could be related to each other in order to explain the entrepreneurs' experiences and program impacts. This framework enabled me to organize and describe findings and test the hypotheses by looking for confirming and disconfirming evidence. The completeness of my coding template was ensured by asking the participants if it accurately portrayed the program's nature and impacts and their experiences. As data collection proceeded and new insights emerged, I added codes, altered the scope of single codes, merged distinct codes, and re-examined all already analyzed cases. Once I had coded all interviews, I systematically looked for themes and patterns. I color-coded stimulating program activities, conducive contexts, and positive program experiences and outcomes in green while less advantageous impacts or mechanisms were marked red. Also, I created a process-outcome matrix for each entrepreneur to clarify the linkages between activities and impacts, contingent on individual context, needs, and perceived changes due to program participation. In a process of *pattern matching*, I checked the matrices against the hypotheses to see if predicted, theory-driven outcome patterns were substantiated by participants' experiences. If congruence occurred, I found support for the hypotheses and explanations; if not, hypotheses were refuted, and I tested the rival explanations and experiences in following interviews to reach a satisfactory explanation for and evaluation of experiences and impacts.

4.5.3 Cross-Case Analysis

Next, I systematically compared individual cases with each other based on the comparison of the codes used and the process-outcomes matrices created for each individual entrepreneur to identify recurring and deviant experiences, impacts, and explanations. First, I focused on the incubator and accelerator separately by comparing all participants' experiences and impacts with respect to each program component, e.g. teaching, networking, or program structure. I also stratified cases on criteria like the entrepreneur's education, needs, challenges, or gender to analyze intra-group similarities and inter-group differences in terms of perceived impacts or experiences. Also, I compared the perspectives of program managers and entrepreneurs to each other and in relation to program documents to see if the programs' intended outcomes were confirmed or refuted by the entrepreneurs. All cross-case analyses were facilitated by a side-by-side display of multiple cases and process-outcome matrices and graphs. As a result, I created a cause-effect model for both the incubator and the accelerator that accounted for positive and negative experiences and outcomes (see Appendices 3 and 4). By comparing the models, I integrated best practices and lessons learnt, and delineated more effective environments and mechanisms to support female entrepreneurs. I compared individual cases stratified on the criteria outlined above across programs to substantiate findings and discover commonalities or variations. By showing how and why particular support mechanisms did or did not lead to expected results, I found support or confutation for the hypotheses. Lastly, I counted the frequency of impacts and experiences, as stated by the entrepreneurs, to conclude the comparative analysis. As data collection and analysis overlapped in time, any emerging insights, experiences, and explanations from later interviews required me to re-examine all already analyzed cases to see whether their data also matched the newly emerging insights. This helped me assure that all mechanisms and relationships relevant for program evaluation were tested in each case.

4.6 Research Quality

The scientific canons for judging the quality of a study are *reliability* and *validity*. Reliability includes *internal reliability*, i.e. consistency in a research project, and *external reliability*, i.e. replicability of findings. Validity is defined by *internal validity* to assess if a study plausibly establishes a causal relationship between variables, *external validity* to assess if findings are generalizable, and *measurement validity* to assess if constructs are measured precisely.

(Saunders et al., 2016; Patton, 2002) As these quality criteria do not perfectly fit the purpose and methods of qualitative inquiries like this one, alternative criteria are suggested to create the *trustworthiness* of this study's findings (Guba, 1981; Lincoln & Guba, 1985).

First, *credibility* of findings replaces internal validity (Guba, 1981). As all participants create their own realities based on subjective experiences, outcomes, and explanations, an objective evaluation of the programs' support for female founders requires me to judge how plausible findings are. Second, *transferability* of findings parallels external validity (Guba, 1981). The programs' unique dedication to support female entrepreneurs and the heterogeneity in terms of goals, services, and nature of social interactions requires specific considerations about the extent to which findings are transferrable to other settings. Third, *dependability* is used as an alternative to reliability (Guba, 1981). As emerging insights or inconsistencies in the conduct of interviews might have reduced the reliability of findings, I need to explicitly address how dependable findings are and if they should be ascribed to the hypotheses, emerging insights, or researcher errors. Fourth, *confirmability* substitutes objectivity (Guba, 1981). As I seek to test preconceived hypotheses, I must pay special attention to how my own inclinations might have influenced the findings. Although these quality criteria are not unassailable, the next sections provide further information to enable the reader to judge the quality of this study.

4.6.1 Credibility

The key to credibility or plausibility is to make sure that "*the representations of the research participants' socially constructed realities actually match what the participants intended*" (Saunders et al., 2016, p. 206). Thus, I implemented validation processes to verify research data, analysis, and interpretations and establish this study's validity or credibility. First, in a process of *member validation*, I sent transcribed interviews and findings back to participants to test if my interpretations reflected their experiences. After the review, I amended findings correspondingly. At the end of the research, I also sent the final report to program managers who assessed the plausibility or credibility of findings. Also, in a process of *peer debriefing*, I regularly discussed ideas and the plausibility of findings with internal and external subject-matter experts provided by the firm. Second, in a *triangulation process*, I cross-checked findings across data subjects, i.e. entrepreneurs and program managers, and across methods, i.e. interviews, survey, and document analysis. Interview findings were only considered valid if they could be verified from at least two sources (Guba, 1981). Areas of convergence enhanced my confidence in findings. But I also accounted for deviant cases by explaining

why single hypotheses did not hold for individual entrepreneurs, taking into account their explanations and prior needs. Third, I created trust and rapport to participants by showing profound knowledge of the research topic and organizational context and the known sponsor approach. This helped me overcome potential reactivity biases (Patton, 2002). Since the significance of findings also depends on the researcher's thoroughness and integrity (Patton, 2002), I disclosed my hypotheses and methods to assure the reader of my integrity. Also, I did not conceal divergent findings that did not support hypotheses but rather explained them.

4.6.2 Transferability

The situational uniqueness of each founder in terms of challenges and expectations makes generalizations of program experiences and impacts difficult. Also, this study's findings are bound to a unique setting of an incubator and accelerator, which are dedicated to support female founders. Thus, I eschew generalization on the grounds of transferability. I provide a detailed description of each program's context, goals, and activities and my methods to enable readers to judge the transferability of this study's findings to other settings. As per the *principle of proximal similarity*, I can generalize the findings to settings, individuals, and treatments similar to this study's ones. The choice to study two distinct programs paired with deviant case and heterogeneity sampling allows for generalizations. As this study's findings largely hold for a heterogeneity of founders and for both programs, I can generalize them as per the *principle of heterogeneity of irrelevancies*. Also, by showing for which entrepreneurs and for which program designs findings hold more strongly, I can generalize this study's findings according to the *principle of interpolation and extrapolation*. (Shadish, 1995)

4.6.3 Dependability

While naturalistic inquiries do not claim to be repeatable as they reflect a time-bound reality subject to change (Saunders et al., 2016), I undertook three measures to assist this study with dependability. First, I established an *audit trail* that explains this study's research design, strategy, and methods and offers readers the chance to understand and judge data collection analysis processes. Also, I documented the minor changes to the interview guide to produce a dependable and reliable account of the research process. Second, in *peer audits*, mentors of the firm assessed the research instruments and provided feedback on the appropriateness of interpretations. Third, I engaged in a *triangulation process* across research methods, which raised this study's stability and dependability as findings converged. (Guba, 1981)

4.6.4 Confirmability

Although this study was guided by the hypotheses, my goal was to test and not prove them. I was impartial to any outcomes and had no pressure to prove any effects or relationships due to the absence of conflicts of interests. To objectively evaluate each program's support for female entrepreneurs, I started each interview with the same generic questions targeted at the participants' program experiences and outcomes. I ensured the neutrality of the interview process by avoiding leading questions, non-verbal behaviors, or evaluative comments. Also, I never pushed the participants into a topic they did not want to talk about. As a lack of trust may result in giving socially desirable answers or avoiding sensitive topics (Saunders et al., 2016), I established trust to each participant by assuring the confidentiality and anonymity of data and the known sponsor approach. Lastly, I strengthened this study's confirmability by triangulating findings across research methods and data subjects. Each claim is supported by at least two people, illustrated by direct quotes (Guba, 1981). As I provided a transparent and comprehensive overview over the study's process, methods, and findings, I enable readers to assess if interpretations are grounded in data and made consistently.

4.6.5 Ethical Considerations

Due to their potential impact on research quality (Saunders et al., 2016), research ethics were considered in the entire research process. Based on the informed consent letter, participants made a fully informed and entirely voluntary decision to participate or not. I gave them the chance to ask questions and provided contacts for further information on the project and data processing. If they exercised their right not to answer questions, I did not push for answers. Complying to the *General Data Protection Regulation* and *Norsk Senter for Forskningsdata*, whose informed consent letter template was used and assessed, I assured confidentiality and anonymity of data processing or management: I deleted interview recordings, and encrypted, anonymized, and stored data and transcripts safely on a personal computer. The final study does not cover any potentially identifying information. Pseudonyms are used for female and entrepreneurs (FE or ME), and program managers (PM). In sum, this study did not impose harm, embarrassment, or material disadvantage onto participants who were only motivated by engaging in a reflective process and improving support for future founders. Lastly, I reported all findings including negative experiences and outcomes fully and accurately.

5. Findings

5.1 The Business Incubation Program

The all-female incubator supported two cohorts of 10 and 9 female entrepreneurs, mainly from a metropolitan region in Southern Germany. Focused on very early-stage startups, the flexible selection criteria assured that a broad and heterogenous spectrum of female founders is given access to business support services, not privileging certain groups over others.

FE3: It took us a long, long time to find any kind of support. And I would say that the [incubator] was really the first incubator program that worked for us. [...] And additionally, I liked that they were not so closed up in terms of “you need a product, you need a hardware, you need I don’t know whatever”. The only thing was it needs to be digital.

FE6: And I think, they were really like flexible because, in our program, there were few startups that were in a really early stage like us.

5.1.1 Education and Experience

Through classroom teaching, diverse mentors who were willing to share their knowledge and experiences provided the female entrepreneurs with practical business knowledge required to start and run a venture and market knowledge on the startup ecosystem. The appropriateness of knowledge was ensured by involving industry and startup experienced mentors.

PM: And we defined a more or less comprehensive curriculum for young founders based on our experience that we personally gained. [...] And for each and every topic, I selected the best-in-class subject-matter expert that I have an access to.

FE2: Learning from the mentors. Definitely, definitely, definitely. Because they are so knowledgeable in their areas and it such a privilege to have them in a small group and being able to ask all the questions.

ME1: So, [person], for example, he is a serial entrepreneur. If he tells me something about startups, this is credible. If this other guy who founded [a startup] tells me something about scaling software, he did himself, yeah, he knows what he’s talking about. And this is not always the case with those coaches in those programs.

Beyond that, valuable peer discussions arose. First, entrepreneurs with similar business foci could share information on target groups, regulations, and business models through. Second, requiring participants to prepare each session enabled insightful discussions about individual situations and associated challenges

PM: So, on one hand, they had different problems, of course, because they have different solutions. They had different scopes on one hand. But on the other hand, they had the same target group. They had the same regulatory hurdles and burdens. And therefore, the exchange peer-to-peer between the founders was very valuable.

FE2: We help each other out like if we read something that is interesting for the others, we send it to each other [...] because I think we had the most content-connection.

PM: Every workshop needed to be prepared. What worked very well then was also that the peer-to-peer coaching was a very valuable part. What came out of that because everybody was so focused on the topic that everybody has its radar screen very wide open in terms of the topic. Not only the mentors, but also the mentees are teaching each other.

The one-on-one coachings offered startup-specific support in terms of addressing individual challenges, stimulating new approaches, and feedback on business choices. Especially, the individual feedback reassured the female participants in their efforts, instilled confidence and motivation, and uncovered room for individual improvement.

FE1: We really had the chance to dive very deep into our own challenges. So, we could describe the current situation, current problems we have in our company. And there was this one really experienced entrepreneur or expert in a certain field who could really think about what would be best for us and for our situation. So, it was very individual. And we got to develop very specific activities together with an expert.

FE4: All topics were somehow also for all of us important because, yeah, standard legal issues, standard business plan stuff, presentation topics. But to have the time to discuss, to comment, to get input on your company and your problems, I think that was the most important thing.

The single most important characteristic of the incubator that supported the entrepreneurs' knowledge accumulation process was the created safe environment. As the external mentors and program managers were dedicated to support women and established a close relationship on eye level, the participants could benefit most by sharing their individual problems openly. This non-judgmental environment conducive for learning was also created by the program's focus on women who shared common understandings and challenges

FE2: But I would say that through this really closeness of this kind of intimate situation, that's how the learning happened. [...] Would it have been different if there were guys? I think I might not have felt so open to share really questions where I would be like "Uhm, is this a dumb question now?". So, I would have had more self-doubt probably. And this way, I really took advantage and asked all questions I wanted to ask.

FE3: But the areas where I felt like I want to have a little bit of a possibility to open up, which is something that I see very essential if you are part of an incubator. Then you need to be able to

speak freely about your problems, about what goes good, what doesn't go well, and things like that. And I felt like with a female network, this is just more secure there to do that.

The accumulated knowledge and provided contacts resulted in time and cost savings and an accelerated growth as the women were given a better basis for go-to-market and scaling.

FE1: And it somehow accelerated us. So, it was a real accelerator because it was easier to get information. It was easier to get into touch with the right experts. I just had to ask [PM] if I needed something and she put me in touch with the right people. I think some of our goals we could just reach faster.

FE3: [Marketing] is something were I felt it would be really good for us to stand on someone's shoulders, kind of, and to learn like to spare us the need to do the experiences all by ourselves, just to learn from the experiences of others and take it from there and develop it further.

The decision to include a broad spectrum of female entrepreneurs resulted in the coverage of little value-add, redundant topics and a lack of industry knowledge and networks. This raised some women's opportunity cost of program participation, resulting in a lack of motivation.

FE3: Of course, there were topics that were more or less relevant. But I think that as soon you have a group of more than three people, everyone has this moment when it's like "Okay, I already heard that. It's not important for me." [...] I told you that I really liked that we were different people in different areas doing different things. So, it's a very broad spectrum. And this turns into a weakness as soon as you need something really specific. So of course, a travel-focused incubator would have helped us better with the tourism industry.

FE4: And I think that was for me sometimes difficult to motivate me to go there because I was thinking "Oh gosh, I have so much stuff to do."

As the incubator was not intimately tied to the organization, the participants barely acquired technological knowledge despite business relevance and the firm's ability to provide it.

PM: In our program, we very consciously left out the technical focus on [the firm's] solutions.

ME1: So, I don't know one single program where you can learn technical things, actually. It's always how to pitch and what is the right term sheet negotiation strategy, what about pricing. This stuff because this stuff is generic and applies to every startup the same way. Technical issues are super and highly individual.

In sum, these findings were also resonated by the survey responses (cf. Figure 1). The female entrepreneurs considered their prior business and technological knowledge "fair" to "good" although they acknowledged the domains' importance for their startups. Yet, the incubator only significantly increased their level of business, but not technological, knowledge.

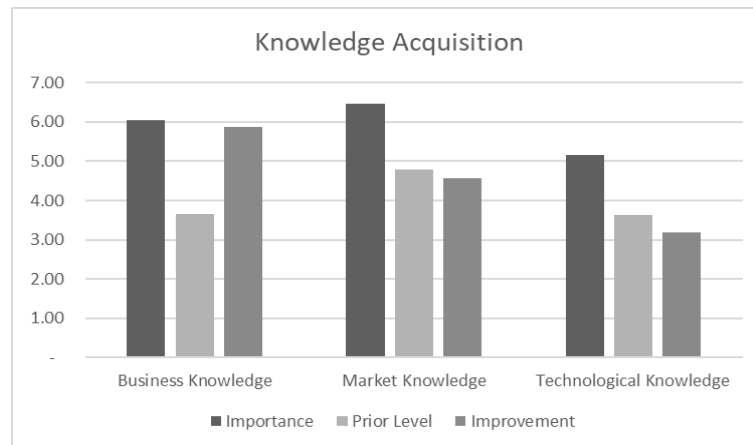


Figure 1. Participants' assessment of the importance of each knowledge domain, their prior knowledge level, and the improvement due to program participation. Based on continuous 7-point Likert scale.

5.1.2 Access to Capital

Although the female entrepreneurs were exposed to investors from the German VC industry, no entrepreneur received capital as a result of program participation. While this may be due to most startups' immaturity, insufficient individual-level support and an omitted access to the firm's customers might have prevented them from a springboard development into an investment ready-business, making them more attractive for investors. But nearly all women considered the incubator's impact on their strive for capital high. They accumulated in-depth knowledge about the VC industry, obtained feedback on dry-run investment pitches or past efforts, and, consequently, were prepared for future fundraising activities

PM: What was very valuable was that some of those got exposed to venture capitalists that they have them early on their radar screen. That they know okay if they evolve their business, then I know whom to contact. But others who were not at that stage, they learned what a venture capitalist looks for and which are the criterias he takes into account when he decides to invest or not to invest.

FE1: So, it was so valuable because I had the chance not to be in a direct negotiation or pitch situation with an investor, but I still could like pitch to them. It was to verify if you want to call it that and get the feedback what would a real investor criticize about our pitch, what would a real investor want to know. There were a lot of questions asked and they could really prove my pitch.

FE3: Like that was at a time when we already had our funding. So, I already had my own experiences. Just to you know to double-check we got everything right, that we did the right things, that also someone from the outside would say "This was good how you did it or also this was bad how you did it, and you need to have an eye on it in the next step"

The exposure to potential investors was not limited to the selected mentors but participants drew on the mentors' work or startup experience and reputation to extend their networks of investors, i.e. network reachability, and obtain resultant support, i.e. strong weak ties.

FE3: We did pitch to an investor that was very interested in us and that was almost willing to go the third round with us. In the end, he skipped out for personal reasons. But I'm not counting this as a "no" for an investment. So, I think we would have been able to find an investment through this network.

5.1.3 Networking

The incubator exposed the female entrepreneurs to a wide range of mentors, enhancing their networks in terms of size, density, diversity, reachability, and the strength of weak ties. The program's impact on the participants' networks was highly driven by the careful selection of dedicated mentors and program managers. While the heterogeneity of mentors contributed to network size and diversity, the entrepreneurs could also leverage the mentors' reputation for network multiplication effects. In some cases, they were successfully introduced to people outside the program who assisted them with their inquiries. This illustrates the incubator's positive impact on network reachability and strong weak tie relationships.

FE1: And also, that I saw my network growing very fast at this time. And there were new interesting contacts with whom I was talking frequently and trying maybe to do new projects, new business. [...] We were talking, for example, to one venture capitalists. And he introduced us to another fund who was, or which was more specialized into our industry and our life cycle stage. And yeah, I mentioned this other mentor before, the sales guy who introduced me to his brother-in-law. So yeah, there was a lot of introductions from the mentors.

FE3: The other point is that they were multipliers in terms of networking. So it was mentors that were very well-established in the startup community here in [city], or in [state], or in Germany. And they could just refer you to another person that is helpful for you.

Across all interviews, the program managers' involvement in network expansion became apparent. While this highlights the importance of selecting the right individuals for this role, it also raises doubts on the program's scalability to support women beyond the local area.

FE2: Other strengths like – sorry I mentioned it several times – [PM's] network, [PM's] ability to connect people and to connect the dots like "Hey, maybe you should go and talk to these people." And her ability to get high-level speakers into the room with us. [...] If it is to be scaled, I think, I mean, it can be scalable in the sense that you always, if you do it in different locations, there needs to be someone as strong as a connector as [PM] in the location.

FE5: I can send her a question and she's like directing the question to the person most appropriate and she has such a big network. So, I would say [PM] is a very important aspect of this project.

Also, networking extensively occurred among the participants. The heterogeneity of female entrepreneurs in terms of startup stage and business model paired with the male cofounders' opportunity to join sessions positively affected network size, diversity, and reachability.

FE3: The strengths of the program are definitely the networking aspect both in the inner circle of the participants as well as opening up a very broad spectrum of network possibilities.

FE4: And I think also that was really good that also to know for the other founders in my team that, of course, they can join as well. And it's also helpful if there are also other aspects and input into the program and into the discussion. And it's not just closed for the female founders.

The heterogeneity of the entrepreneurs and mentors fostered a valuable exchange of advice and information through the diversity of perspectives. By preparing idiosyncratic challenges for each session, the women benefitted from intra-group networking in topic-focused group discussions as they shared a common agenda that was enriched by everyone's questions. As a result of networking that was intertwined with knowledge acquisition through teachings, group discussions, or one-on-one coachings, the women could learn from others by building on their experience. Thus, they obtained information and advice; decision-making support; learning by sharing experiences; emotional support, motivation, or confidence; role models.

PM: It was really the focus on some specific topics and looking into this topics from various angles because there, everybody is dealing with the same problem at the same time in this sessions. And then having the perspectives of the best in class mentors, on one hand, and having the perspectives of all the different founders itself.

FE1: And the biggest benefit for every one of us, I think we absolutely agreed on that, was to learn how things work out for other people and this to be really open to everything which was shared. So, we were just tied to ask each other as many questions possible.

FE3: I think the first like the immediate benefit was encouragement to see we are not alone, to see that everybody else is also just trying to do their best and doesn't have like the secret success recipe that suddenly everything is working out for them. [...] The second one is the knowledge transfer both from the mentors to the participants and also from the participants amongst each other, which we didn't talk a lot about that. But also this that it have some peer that you can just discuss about similar problems is very helpful.

FE5: It was like really reinforcing, reassuring in a very positive like way because you got a lot of feedback and room for improvement.

Across all interviews the notion of a safe environment arose in which both networking and knowledge acquisition took place. As program managers and mentors formed respectful one-one-one trusted relationships, an honest exchange between all actors emerged. The open and honest discussion of individual problems and challenges made the participants familiar with each other: less mature entrepreneurs could learn from more mature ones and seek support if they faced challenges others had faced before; mature ones were reassured and motivated by realizing that others face similar challenges. The feeling of connectedness and ability to act free without a fear of being judged was fostered by the program's focus on a small group of women who regularly interacted with each other. As competition was eliminated due to the heterogeneity of startups and informal activities were included, the women networked on a relational basis, which continues, and yields benefits although the program has ended.

FE5: What I got out of it was like the feeling that, I just say it like this, the feeling that I'm not crazy. [...] And so that's what I really liked, the exchange and like the safe environment to just talk about things. [...] It was really like everybody I met, was just they came, and we talked like "auf Augenhöhe", and shared knowledge and got advice.

FE4: I think it was more this motivating, and also seeing "Okay, they have the same problems." or "Oh, we are not that bad. The others, they don't even have this. It's even harder for them to find investors".

FE3: Now I wouldn't generalize this as like one bad experience, but it was just the sum of experiences that made me think that in a female network I can just behave freer both in terms of business and in terms of personal behavior. [...] I liked how they were choosing the participants. But it was a broad field because it meant that we can learn from each other and benefit, and that we can openly discuss things because there is no way that there is any competitive aspect in it.

FE2: And it's more about the feeling of networking like I am pretty sure if I had a question, I would just drop the others – also now, it has been more than a year – an email, everyone would be really happy and open to talk.

Networking Benefits Obtained by ...?	Fellow Entrepreneurs		Program Managers	
	Accelerator	Incubator	Accelerator	Incubator
Access to Complementary Resources	0%	83%	50%	33%
Access to Information, Advice, and Guidance	0%	67%	38%	67%
Decision-Making Support	0%	50%	25%	67%
Learning through Sharing Experiences	38%	100%	38%	50%
Emotional Support	25%	100%	38%	67%
Motivation and Confidence	13%	83%	50%	67%
Finding Role Models	13%	50%	13%	67%
Support for Managing the Work-Life Interface	13%	67%	13%	50%

Table 1. Sources of networking benefits. Based on multiple choice question with multiple answers possible.

Table 1 shows the percentage of respondents in both programs who stated that they obtained a certain benefit from networking with other entrepreneurs or program managers. The survey responses corroborate the interview findings as they show that extensive peer networking has occurred in the incubator, yielding comprehensive business and personal benefits. This may be attributable to the safe incubation environment which fostered trust and honest exchanges among participants. Also, the program manager's critical role is massively highlighted.

In the long run, the women felt more motivated and confident to engage in networking. First, the mentors taught and showed them how they network. Second, the selection of participants based on regional proximity raised their motivation to participate in local networking events as they could meet people from the incubator. Yet, this implied that they increasingly focused on networking locally and with people known to them, i.e. high density, and low diversity.

FE2: So, I don't think I would feel so comfortable in being visible as a founder and in going on stages and sharing my story as a founder. So it really made me more confident to be visible.

FE4: So, it's also good afterwards to know someone and to have someone if you are joining one of those meetings and for me, it's then more easy to network if I know "Okay, there are also other people going I know."

Lastly, the female entrepreneurs hardly obtained access to tangible networking benefits and complementary resources as the incubator was run independently from the established firm and access to potential business partners and customers was omitted.

FE2: So financially, I'm not sure because it wasn't that out of the program, I got to make a specific deal or something like that.

FE5: So, what would be really like a plus is the theme mentioned in the beginning, that potential business partners or potential clients. So, the contact to customers because that's what counts, customers, in the end.

5.1.4 Work-Life Balance

With only two workshops per month over half a year, the incubator required only little extra effort from the women. The clear schedule and possibility to delegate participation enabled them to remain flexible and autonomous in managing program participation as an additional workstream. Yet, physical presence and the lack of digitalization constrained their flexibility.

FE3: It's something that I can cut into my calendar like back then, I did my PhD and I was a founder, so my calendar was always full. But it was possible to free it. And as you already

mentioned, and as we also handled it sometimes you could send out other people, which was very useful because, for example, for the marketing session, I sent my marketing woman.

FE5: Yeah, the format is really good for balancing. So, I really liked that. [...] I think good would also be if it can be more digital, if you can share knowledge digital and meet for networking purposes, like do more digitally.

ME1: I'm not living in [city] and the program was in central [city]. So for me, travelling there was inconvenient.

Anticipating future work-family conflicts, the incubator supported the female entrepreneurs as startup experienced mentors talked honestly about their experiences and how they manage work and family. Since the program was focused on women, the participants discussed and exchanged advice on how to reconcile work and family. They could learn from each other, find role models, and obtain reassurance despite the concerns of having a family and running a business. In this light, the women obtained a significant amount of emotional support. The program's safe environment gave the women a sense of being understood and connected as they faced similar problems. Thus, they could discuss concerns openly, obtain reaffirmation, and ease their minds from their daily business.

FE4: Just having some people talking honestly about how they manage company, business, and family was pretty helpful and motivating even if it was not the focus of their presentation.

PM: Half of the way was really having the safe environment for female founders, given them the sense to be understood, to raise all their questions, all their problems. Everybody is sitting on the same boat.

FE3: It gives you kind of this feeling of being connected. [...]It was, honestly, a very nice distraction and kind of a vacation day if I may say it like that. So, I was really busy all the time [...]. And it allowed me to just relax my mind from the startup day-to-day and from the PhD day-to-day for two days and just do something different and get a little bit of input myself.

FE4: But sometimes you just have certain issues, or it's just good to also know "Okay, I'm not crazy to do that. Others are doing that as well." and to see "Okay, it's completely normal to also have, yeah, decide to found a company as a female."

5.2 The Business Acceleration Program

The accelerator and its fund have supported 165 startups since 2017, out of which 34% had at least one female cofounder. Its drive for inclusion is seen in the fact that 80% of its leaders are women and that female founders show higher net promoter scores: 90 for women and 78 for men. To ensure that an adequate number of female entrepreneurs is supported, it actively

looks for them and involves diverse external parties and customers dedicated to diversity and inclusion. This helps drive industry change and create an inclusive ecosystem by increasing awareness and support for women. While the stringent selection criteria restrict support to a niche of female founders, they also ensure focus on an especially underrepresented segment.

PM2: What makes it more of a flyable effect, like we have a lot of customers who really appreciate what we are doing. And they meet our startups, they sign POCs with them. And sort of this becomes a wave for them to also be able to say that they are part of this journey and by working with us, they can also be contributing positively to the tech ecosystem. [...] And the team of [the accelerator] has done an incredible job of building also a very strong network and relationships of members of the tech ecosystem that care about diversity and inclusion as much as we do.

PM1: We are looking for companies that have B2B at the core and already have like, number 2, proven case studies with at least a couple of enterprise companies. [...] And then what we look for also is whether or not they want to integrate with [the firm] and work with us. And then finally, we look at coachability: So, how coachable are these founders? Are they going to listen to us? [...] Like the strengths are really in the fact that this is for enterprise technology only. That's very distinctive. The second is that there is a big focus around creating an ecosystem.

PM2: I think there is still a bias towards women being in consumer industries as opposed to enterprise industries.

5.2.1 Education and Experience

Given the high maturity of the entrepreneurs, as opposed to the incubator's participants (cf. Figure 2), the program provided advanced business knowledge needed to scale, not start, a business. Based on individual interviews, knowledge needs were addressed by tailored classroom teaching conducted by diverse, experienced mentors.

PM1: No, like we carry all these sessions based on our intake interviews with the companies. And so, we have a good sense of what it is that they need. [...] They get the skills just like [the firm's] executives do. And, you know, for an under-resourced company, that's invaluable.

FE1: Some were quite like workshops-type thing like, you know, how do you set up a price, how do think about pricing as a strategy in your business. This is amazing, right, because [the firm] obviously is paying people to think about pricing. As a startup, we don't have access to this kind of thinking, right. So, it was very valuable. And we have applied many of the things that we learnt.

FE2: They literally gave us training that they give their big [firm] account managers and executives who are, you know, signing deals with the biggest companies in the world or very valuable deals. Having that kind of training and expert-level from a large company is so amazing.

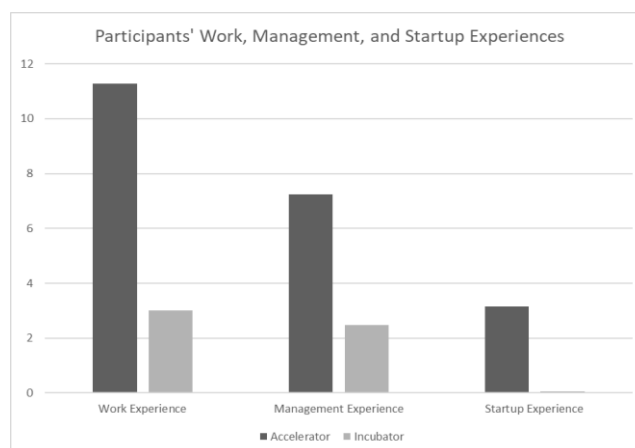


Figure 2. Years of work, management, and startup experience prior to program participation.

Internal and external mentors experienced in a specific industry and business area provided relevant knowledge and helped the entrepreneurs gain in-depth insights about the industry, enterprise customers, and the corporate way of thinking, i.e. market knowledge.

PM1: With external mentors, these are people who are really well-versed in a particular function or in a particular industry. [...] External mentors include the former CEO of [a clothing firm]. We also have people who were the former head of sales at a former Series D startup.

FE2: So it's good to have points of views of those who have only been in enterprise corporations and only know the old school way of doing this. That's very valuable because those are some of our customers and I need to understand that way of thinking about things.

As participants were selected from a specific industry with competition absent, they highly valued the exchange with others as they could seek advice and feedback on business issues and leverage each other's solutions, insights, and customers. But others viewed the exchange as little value-adding due to the peer's limited insights into operations and past efforts.

FE2: So, it's a very, you know, specific narrow group, which is really beneficial because we can, obviously, all leverage and support each other in what each other are building and doing at the same time. [...] So, although we are all very narrowly focused on retail, they did a great job of picking businesses that don't compete with each other but complement each other. [...] So, these are solutions that we can both drag customers to each other but also use in each other's platforms.

ME1: I mean everybody has this different kind of challenges. So, it's more like in-between a kind of friends circle to you know, "This is what we are currently struggling. You have an idea what can be done?" So, the benefits from this is on the business topics not that huge because if you have a challenge, you put your head around this and you think about this challenge all time. So, it's quite unlikely that somebody says "Hey, this is the solution."

To create innovation and value for the firm's customers, the founders acquired technological knowledge. They addressed individual challenges, cooperated on technical integration, and jointly developed a product roadmap by using the firm's technology and technical expertise. Despite access to various technological resources, associated costs and the lack of human resources made participants face a hardship to keep up with technical implementations and changes required. Technically experienced founders did not value the access to technological knowledge. Yet, as women are less likely to obtain such knowledge in their educational or occupational careers, such teaching is promising to provide enormous support to women.

FE2: You know, one challenge, of course, have been we all wished we had more manpower to be able to do more faster on the technology side and go build quicker. [...] They don't physically go in and write lines of codes for us. But we do have the access to their technology and experts to build these solutions, to help us think through challenges and problems. They set up demo environments for us, give us access to APIs, absolutely.

PM1: So for instance, when it comes to getting testing development environments, we are charging startups sometimes like even up to a couple of thousand euros a month.

ME1: So, the integration basically is something that can be done completely by us to a specific amount. [...] So that, you need to define a layer or a communication channels. And that's more or less a, you know, a thing of 2, 3 workshops to define these layers.

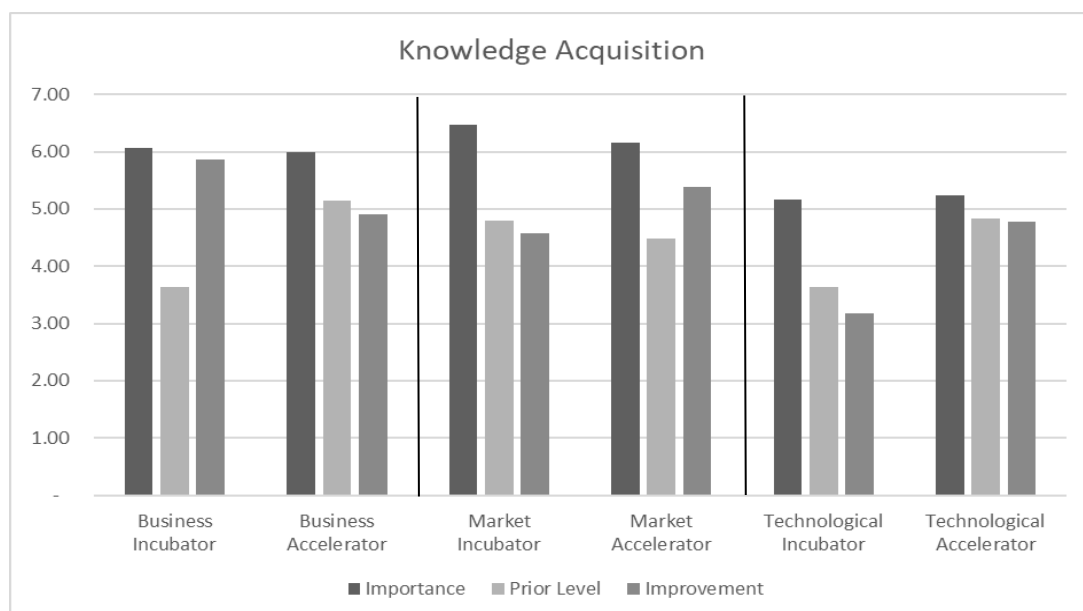


Figure 3. Participants' assessment of the importance of each knowledge domain, their prior knowledge level, and the improvement due to program participation. Based on continuous 7-point Likert scale.

Figure 3 shows some interesting results, especially in contrast to the incubator, which can be explained in the light of the interviews. Even though the entrepreneurs in the accelerator assessed their level of business knowledge more positively, they still agreed that the program

significantly improved their business knowledge. This may be attributed to the advanced and strategic nature of the knowledge taught. In contrast to the incubator's participants, they also more strongly agreed to have obtained market knowledge, which may be due to shared industry focus and the resulting exchange with other participants. Also, the internal mentors' corporate work experience and knowledge about enterprise customers offers an explanation. Lastly, due to the accelerator's goal of delivering a technically integrated co-selling solution, the entrepreneurs also agreed to have obtained significant technical knowledge.

The provision of extensive startup-specific support and strategic perspective is distinctive for the accelerator. The one-on-one mentoring enabled entrepreneurs to challenge assumptions, address individual challenges, assess past efforts, uncover room for improvement, and jointly collaborate on product and partnership development. Also, entrepreneurs could look at their business from a slight distance and define their startups' future strategic direction.

FE1: And it was good to have third party input. And so, that was a first thing: it forced us to take a strategic look at where we were heading because it's very easy as an early-stage entrepreneur that all you do is find business, find business, find business, hire, find business. So, it was good to step back. [...] We left every one of those meetings with something to think about. We learnt something or it made us question something.

FE2: And in that one-on-one time, we get to get specific about, you know, what our strengths are, what are challenges that we thought, what our wins were. And they give us ways to think about it and plans for the next weeks, so kind of setting our KPIs, goals, and metrics.

Yet, the effectiveness of the one-on-one coachings depended on the mentors' characteristics. Matched by business alignment and collaboration opportunities, not startup experience, the internal mentors' corporate and industry experience enriched the participants' understanding of how their enterprise customers think. But their lack of startup experience implied that they did not understand the urgency of their support and even provided inappropriate advice.

FE1: And a lot of the people from [the firm] that we met have the only company they have ever worked for is [the firm]. They've been at [the firm] for 32 years, right. So, they had lot of wisdom, but you have to know how to take the pieces that you need because they're not in touch with reality, right. It's a very different world to what we live in when you are limited funds, limited people, limited everything, right. So people would give us advice like "Oh, you really must do more marketing. You should do this. You should do that." It's like "Yeah, okay. But like I can't."

ME1: And so, this as an example, because then you understand that things you're talking about are urgent. It's not like that we can wait for 6 weeks until we have a meeting for this product. No, I need this meeting this week or next week.

While the participants benefitted from mentors responsible for a similar business, the degree of support and intensity of involvement depended on perceived business value to be accrued from startup collaboration. Hence, some might not fully benefit from the mentors assigned.

FE1: One thing that I have noticed is that there is a small group of champions in [the firm] that are, you know excited about the startup collaboration. But certainly I think that outside of this group, there a people who are skeptical and who are suspicious, which you would expect. So I think it will take some time for that cultural shift to happen.

ME1: And I would say another weakness is that from the mentors, there should be not this just one time session. Maybe then less mentors but this mentor says “Okay, I have these 2 startups and I’ll go into a regular call for a specified time, say for example, one time every 3 weeks or something.” And then, obviously, this needs to be something, as I pointed out earlier, that is brings benefit to both parties, so to this mentor and the startup. So that this mentor also confirms to spend time with this startup. Quality time not just, you know, listening to the startup while doing mails.

Lastly, the program’s structure was conducive for learning. As teaching occurred at the start of each week with mentoring sessions scheduled after, the entrepreneurs had the opportunity to apply learnings and receive immediate feedback.

FE2: All these different conversations, we do that in the week of training. And then in the end of the week, we get one-on-one time with the [accelerator] heads as well as with our mentors and advisors. [...] And then, once we take that information of what we learnt in those training sessions, we’re actually able to apply it, make some materials, customer presentations, demos, and then practice it and get feedback from [the firm].

5.2.2 Access to Capital

The accelerator more strongly impacted the entrepreneurs’ strive for capital as it was closely tied to the established firm’s ecosystem, exposing them to various investors through personal introductions and events. In 2019, more than 263 VC firms were actively involved across all locations. While mature entrepreneurs considered the exposure limited, all of them noted that the accelerator and the partnership led to increased startup legitimacy, facilitating access to investor networks, and increasing investors’ receptiveness.

FE1: We had some very powerful introductions from our top US investors to German VCs, they would not even respond to a phone call or email. [...] And then [accelerator]. That was really a very positive development for us because you had Europe’s most successful technology company selecting us for their accelerator. And now, everybody is happy to talk to us, just like that.

FE2: Oh, without a question. I mean to be able to say that we are a partnered with [the firm] and we signed a deal and that they are supporting us with customers, sales, and technology. I

mean having that kind of company backing you and they put a quote in our press release, and they've been so supportive to us, making investor introductions. [...] That definitely helped us that our valuation was price-rammed.

ME1: So, the impact, also the exposure to investors is, I mean, yes, there is a network. But I would rather say it's a small network to investors.

Also, the program significantly contributed to startup development by providing access to customers and developing a co-selling solution. Through increased sales, improved product-market fit, or triggered proof-of-concepts with customers, the startups were placed in a better position for obtaining financial capital; or it made the acquisition of capital less pressing.

PM2: And they get exposure to a very rich [firm] ecosystem where, even if initially maybe it wasn't a fit for an investment, as we build a relationship with the startup through the [accelerator], it might become our investment or the company just finds a good way to work with [the firm's] business. [...] So, it can be in many different ways, right, because it might be triggering proof of concept with our customers, and this doesn't require, you know, [firm] investment or eventually any integration with us.

FE2: Obviously, in the end of the day, you gotta have a strong business model and you have to have customers. [...] So, once you have that as a base, I think then, as you're building your customers and as you got your product-market fit, you know, then it's helpful to go for the seed financing and VC capital.

Female entrepreneurs can also disproportionately benefit from the accelerator's mandate to support and invest into startups founded by underrepresented populations. This commitment paired with the objectivity and incentivization of financing decision-makers privileges them to some extent in their strive for financial capital relative to the general financing industry.

PM2: And through the fund, we obviously make investments in the general population, but all of us are sort of feeling really passionate about the topic. So, in the course, so we actively look for women and underrepresented founders within the ecosystem and apply as objective measures as, you know, as we can. [...] Our team is sort of wired and incentivized in a way that funding an underrepresented founder is something that is a positive and a win when we feel like this is strong team, strong business model in a space that we as [firm] in the market are excited about. [...] We seek feedback from the startup's current investors and current customers. And we tend to partner on this in sort of making the investment decision based on multiple views.

The established firms' possibility to become the startup's customer raises the entrepreneurs' chances to obtain capital due to a greater economic interest in the startup. Such investments are financially and strategically valuable. The entrepreneurs can leverage the firm's strategic, technological, and business support and rely on an investor who shares similar values. In a last instance, an initial investment might be the first step to a successful entrepreneurial exit.

FE1: [The firm], last week, agreed to become a customer. So I'm just waiting for the purchase order and the agreement to be signed. And then I'll go to get the investor.

PM2: So, we partner with other VCs on the funding rounds so that the startup is placed in sort of like the best spot to succeed, where we provide more the corporate support, go-to-market, and product angle, whereas other investors, institutional investors, can provide other areas of support.

FE 2: And I would look forward and welcome if they did wanna become a part of our cap table. Of course, we are also a potential acquisition target for them in the future. And that's great, too. [...] And I think that having a kind of, like with our current lead in our round of VCs, to have a similar spirit and ethos. That means a lot. [...] We definitely want to carry the right partners and the right customers and the right investors that [the startup] stands for.

Yet, these investments are tied to both high requirements entrepreneurs must meet and the cooperation of external lead investors. While this may impede female entrepreneurs' capital acquisition, it is still easier and less gender-biased than the general financing ecosystem.

PM2: So, investing in a woman-led business just because it's a woman-led business , it's not something we aspire for. We aspire for investing in a company where we can provide that strategic angle and ability to scale it.

ME1: We also talked to [the accelerator] about a possible funding. But the ratio between what you need to bring to the table for a funding and the funding itself is not great.

5.2.3 Networking

As the program was closely tied to the firm's ecosystem of employees, business partners and customers, all entrepreneurs, regardless of gender, developed their networks in terms of size, density, diversity, reachability, and strength of weak ties. The new networks spanned various industries, business areas, and corporate ranks. Thus, they obtained access to complementary resources, access to information, advice, and guidance, decision-making support, confidence and motivation, and learning through sharing experiences. Also, speaking engagements and promotions increased the startups' visibility to outsiders. For example, in 2019, startups were included in 143 events and 237 press articles while more than 790 mentors were involved.

ME1: Anything. It's really anything. It's from [the CEO], from the board several people, from L1 level several people, from different LOBs, from the sales teams, the pre-sales teams, from the service departments. Anything, really. I mean it's more than 200 people. It's kind of every area not only Walldorf but also Munich, Potsdam, Berlin, the United States, contacts there.

FE1: We have leveraged many of those events where we had speaking engagements as a result of people we met. We have hired people we met.

FE2: Yeah, of course, it definitely gave us a bigger community of people to outreach to. We have each other in our cohort as well as now a huge [firm] database of people who support us, you know, maybe wouldn't have talked to us before. But at the same time, it gave us such great, easy, quick, and supportive access to the entire [firm] community and to broader networks.

PM1: So, we've had HR tech startups in the past, and we've had like the CHRO of the [firm] be a mentor to some of the companies that are just like motivating them and helping them.

This is also corroborated by the survey responses shown in Figure 4, which reveal that the entrepreneurs in the accelerator got to know relatively more customers, business partners, or technology experts. Ultimately, this also resulted in more tangible networking benefits to be obtained, which will be elaborated later in this section.

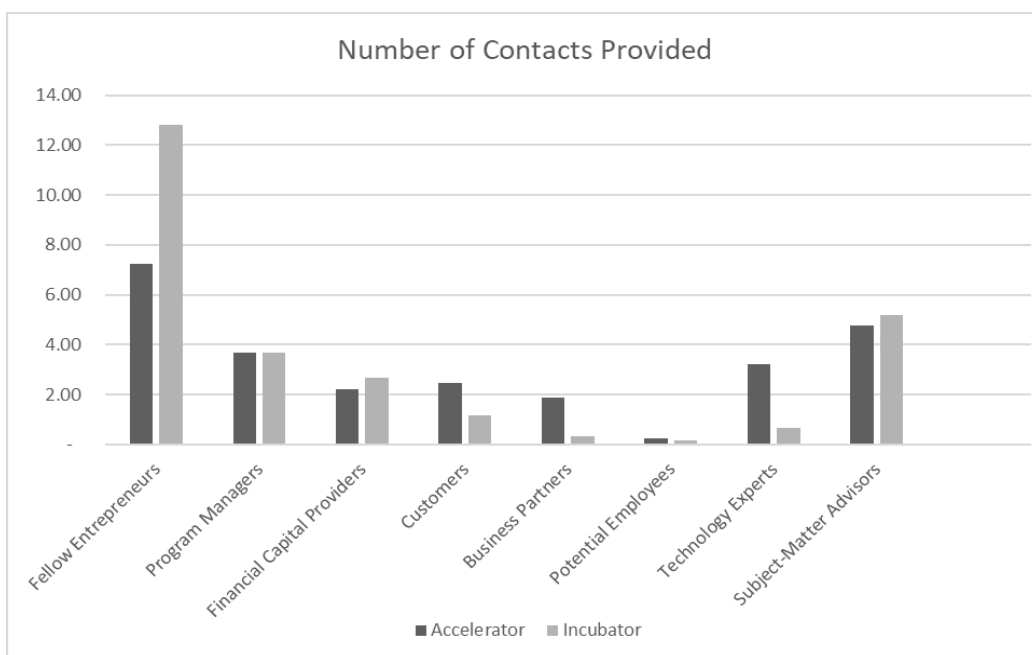


Figure 4. Number of contacts provided through the incubator or accelerator.

In particular, program managers facilitated the entrepreneurs' access to networks of potential partners, investors, and customers by navigating them through the ecosystem or dedicatedly identifying right networking partners to whom the entrepreneurs could be introduced.

PM1: But what we've also done is just like "Hey, this is so much of it is about networking. And so, let's make sure that you meet incredible people who can help you in your business and expand your network."

PM2: And, you know, we remain open to founders asking us for other ways to get them introduced to anyone, literally anyone within the [firm] and that they might want to get in touch with. And I think, this is an incredible network that people who think through how to do it can benefit from a lot.

ME1: I mean, there is a huge network inside a huge company like [the firm]. And as a startup, if you don't have a navigator on this, it's hard to or it could be a challenge.

But networking within and through the ecosystem was driven by reciprocal business benefits or perceived value added. Thus, the internal mentors' motivation to cooperate determined the extent of network development based on exposure and introductions to promising contacts.

PM2: They also get a mentor from the business side. In most of the cases in the business side where there is some relevancy to the startup. And that person supports the company in their journey, is a partner, gives feedback, can open doors.

ME1: I wouldn't say this is typical, but this is the opportunity if you have something that is interesting for the company or for different areas. You know, if you have something that is very interesting for one specific LOB, well, then you create your network within this LOB. But if it's interesting for more levels and for more LOBs and for a broad range, then you can create a network that is much bigger.

All entrepreneurs highly valued the access to the established firm's customer base and the positive sales impact as a result of program participation. To varying degrees, they benefitted from customer exposure, visits, collaboration opportunities, and market access. In 2019, 300 different customers visited the startups, and more than 66 signed pilots, proof-of-concepts, or deals. Since 2017, out of 165 startups, 24 have been included in the firm's app center while another 43 have successfully completed the integration with one of the firm's platforms.

FE1: The most valuable asset [the firm] has and which they shared with us was their customer base. So, the most valuable external meetings were these Innovation Days that they had where they invited all of these companies to come to meet with the startups.

FE2: So, when we came into the program we had a big target list of 28 enterprise customers that we wanted to go after for this integration. I'm proud to say we are in conversations with all of them. But our goal was to sign 4 [firm] enterprise customers and we are very close to sign 4 out of the 28 already and still in conversations with all the others. [...] And then by end of program, our goal is obviously be live to the app store and go through Demo Day where we're able to share what we're doing with the wider [firm] community and audience.

ME1: And the third thing is that you get exposure to [firm] customers. So, that you basically have the opportunity to pitch when there is a customer visit or that you, through this [accelerator], get into contact with like sales teams, or salespeople that think that's could be beneficial for them. And then, they drag you to their customers..

As the last quote shows, customer introductions by salespeople hinged on the value internal mentors perceived to obtain in exchange. Mismatches or only marginal interests in startup

cooperation resulted in a lack of customer introductions. But such cases were attributable to the mentors' lack of incentives rather than the gender of the entrepreneur or the mentor.

PM1: And all throughout this time, we are reaching out to lots of account teams and if they see value, they introduce the startups to their customers, which is always very exciting.

ME1: So, both things should be more improved: more customer meetings so that you really are dragged to customers. And one of the big problems is if you wanna sell with [the firm]. [...] If you are not in the [firm] app center, they don't get any benefits, so they don't get any incentives for selling your product. And if you're there, they get too less incentives.

As the entrepreneurs shared a similar industry focus, with any competition being eliminated at the selection stage, they could refer customers to each other and cross-sell their solutions.

FE2: And their customers, in turn, are fashion brands and retailers who not only want to talk to their own customers better, but those brands and retailers are sitting on waste they could buy and sell on our marketplace as well. So, you know, great synergies there. [...] And we can always refer each other to.

All entrepreneurs noted that the accelerator and the resultant partnership provided legitimacy and credibility, raising their confidence to approach new partners, customers, and investors and reducing the partners' risk of collaborating with the startups. Program participation as a quality criterion was ensured by the established firm's global, well-known brand and the program's competitive application process.

FE1: And then the third thing is that it put us on the map in Germany. It gave us credibility. Now, we say "[accelerator]", people get it. We don't need any other validation. [...] So, it has been very helpful to me personally. It's given accents to people. And I feel very confident now, you know. So next week, I have a meeting with [a customer], right. And I can say to [the customer] I feel confident because some other major German company, a tech company, has already accepted me, right.

ME1: And it might also be helpful to get some exposure because, obviously, if you're selected as one of these 5 startups, back then, into the program, then this is kind of a quality criteria assigned to outsiders, right. So, this might be helpful [...] If the light of [the firm] shines on you, you get more trust from customers. If I approach this customer without [the accelerator] or [firm] connection then I think it would be less confidence than if we can say "Okay, we are [firm] partner. [firm] is a customer. We've been presenting on stage at these events et cetera whatever." Then, obviously, this creates trust on your startup brand.

While program managers wanted the participants to leverage the developed networks, some entrepreneurs demanded formal post-program support to successfully grow their businesses.

PM1: And so, what we want to see is that the companies like are just getting as much value in terms of making these early connections so that they can sustain after the program so far.

FE1: I think there should be a more formal after-program program because, you know to really get this to the next level, there should be a mechanism for us to interact in a more formal way as opposed to just, you know, left on our own.

5.2.4 Work-Life Balance

The accelerator's high program intensity aimed at getting the startups on the firm's app store by end of the program, and required high levels of efforts from the entrepreneurs, which they were willing to expend even if it implied sacrificing personal or other professional activities.

FE2: Obviously, it does take up a lot of time. But it's valuable time spent and important to us that we're doing that. So, it made sense.

PM1: And like they make it happen. We had other ones that casted just from the other part of the country or from international locations. They make it because it's a priority to them.

Requiring physical presence at the co-working spaces constrained the participants' flexibility in managing program participation and life, family, or day-to-day activities at the same time. Also, their autonomy to independently make decisions regarding the allocation of time or the startup's strategic direction was partly reduced by the program's value-driven nature. Yet, physical presence was not rigidly enforced, and the entrepreneurs could miss single meetings or delegate participation, which gave back some of their flexibility and autonomy. Also, the program managers' reaction to the coronavirus pandemic revealed the opportunity to digitize knowledge sharing and networking, which did not only bring additional benefits but also may help future entrepreneurs to reconcile startup and family responsibilities.

ME1: But the problem is that as an early startup, you can sit wherever you are, right. But as a later-stage startup, I mean and I'm doing sales and marketing, so I have appointments. And if I have important appointments, I just can't be in [the city]. That's one thing. The second thing is that I have to find a way to find a solution with my family. [...] Then we had, for example, somebody else from our company has been there for one or two weeks.

PM2: And, you know, it's such a flexible requirement that, you know, there is no strict days, there is no strict times other than, you know, some programming that we might be doing or meetings that we might be doing.

FE2: But the beauty of that is when someone might not have been able to physically be present in the [city] office with us all the time, now, through the visual powers of [communication tools], we're able to still be present with that person in touch, being able to also attend more events a day than we would have when we were in the [city] office. Now, you know, in one place, we can

participate in lots of different things. So, it kind of opened up the breadth and depth of conversations we can have and the people we can speak to that we might not have had access to had it been just only in-person and based in [the city].

In contrast to the incubator, the female entrepreneurs in the accelerator obtained only little emotional support through personal conversations with program managers or assistance with challenges faced. As this may be due to their maturity and, hence, lower need, it might have resulted from the focus on diversity rather than gender and the absence of a safe environment in which they could share concerns openly. This may explain the passivity of some women.

FE2: And I think what I really found about the [firm] community and the mentors and advisors that we paired up with is the ability to be raw and real, to talk about the struggles, to talk about the challenges, to talk about what didn't go well this week. But it isn't just to get it off our chest, it's okay. So, what do we learn from this? How can we try to do better next week? [...] But you also need to make sure that female entrepreneurs, if they do have unique considerations or different learning styles just like anybody or different issues that they maybe would feel more comfortable – this isn't me – but others might feel more comfortable saying in a private setting. It's good to have kind of maybe a sub-network or sub-group within the program who are just females able to talk amongst each other.

FE1: I don't need sisterhood networking. I have lots of sisterhood networks, right. [...] Well, you know, I think female networks are important at a certain stage in an individual's life, right, and for certain reasons.

FE2: I know there are a number of women in and that this cohort is really focused on diversity. [...] Funny enough, not all of them are always present and pitching on videos and meetings.

Finally, the accelerator's transparent and fair selection process evaluates applicants solely on objective criteria, not excluding female entrepreneurs who face motherhood responsibilities. Despite the absence of family-friendly accommodations, the program managers are aware of possibly introducing measures to level the playing field for female and male entrepreneurs.

FE2: The [firm] community kind of is very transparent. When I went to pitch and present, they saw me pregnant, right. And they knew that I was going to have this baby during the program. You know, although I haven't explicitly asked them if that had an impact on their decision, in any way they less haven't thought about it at all.

PM2: Same, our aspiration would be to be able to provide optional childcare support for parents who are part of the program and for whom this may not be an easy way to work with us.

An evaluative comparison of the two programs and their positive and negative impacts is summarized in Appendix 5. Also, the incubator and accelerator are visualized in terms of their structures, mechanisms, and impacts in Appendices 3 and 4, respectively.

6. Discussion

This study investigated the impacts of an established firm's incubator and accelerator on the entrepreneurs' knowledge, access to capital, networks, and work-life balance to answer *how effectively incubators and accelerators support high-tech female entrepreneurs*. A number of interesting findings were found are worth highlighting. First and foremost, this study stresses the significance of social interactions among carefully selected program managers, mentors, and entrepreneurs for benefits to materialize. A balanced group of homogeneous and heterogeneous entrepreneurs coupled with the mentors' intrinsic or extrinsic motivation to support female entrepreneurs gave rise to a distinct meso environment where women were no longer disadvantaged. Hence, this study confirms the significance of the 5M framework by showing how distinct environmental and social factors affect processes and outcomes (cf. Brush et al., 2009; Jennings & Brush, 2013; Marlow, 2014). Most importantly, this study corroborates the incubation and acceleration literature as it shows that, if programs are committed to support women, they can indeed contribute to gender equality in entrepreneurship. As expected, both programs made human, intellectual, social, and financial more available and accessible for female entrepreneurs (cf. Carayannis & von Zedtwitz, 2005; Eveleens et al., 2017).

While both programs increased the female entrepreneurs' business and market knowledge, only the accelerator provided technical knowledge although all three kinds were considered important by the participants (cf. Heilbrunn, 2004; Peña, 2002). Hence, if technical expertise is taught, such programs may compensate for gendered educational and occupational STEM choices of women, which were also found in this study (cf. Kahn & Ginther, 2018). As all founders experienced cost and time savings due to the knowledge acquired, their impact on startup performance and growth is corroborated (cf. Peña, 2002; Stuart & Abetti, 1990). The female founders in the incubator benefitted from the knowledge acquired due to their limited management, industry, and startup experience, which is frequently found in the literature (Fischer et al., 1993; Chaganti & Parasuraman, 1997). Lastly, this study confirms that strong ties, intensive coachings, and intimate peer relations enable the exchange of valuable advice, tacit knowledge, and trusted feedback (Elfring & Hulsink, 2003; Eveleens et al., 2017).

Also, both programs prepared the female entrepreneurs for future fundraising activities either by training to compensate for knowledge gaps in finance (Carayannis & von Zedtwitz, 2005; Brush et al., 2006) or by exposure to potential investors to counterbalance a lack of contacts

(Braches & Elliot, 2017; Gamba & Kleiner, 2001). Yet only the accelerator directly offered financial capital in exchange for equity (Carayannis & von Zedtwitz, 2005) and successfully increased the female-led startups' attractiveness and legitimacy (cf. Pauwels et al., 2016). In light of the status characteristics theory (Correll et al., 2007), such programs can mitigate the gender stereotypes about individual commitment and venture viability (cf. Eddleston et al., 2016; Fay & Williams, 1993) if they enable women to leverage the firm's brand awareness.

Also, this study corroborates the networking literature by showing how female entrepreneurs in both programs were enabled to network with previously inaccessible networking partners (cf. Gamba & Kleiner, 2001; Braches & Elliot, 2017). They enjoyed personal introductions, increased self-confidence, and less gender-biased networking environments, which are often cited networking barriers (Hampton et al., 2009; Schmeltzer & Fann, 1989). As a result, they developed new networks with favorable characteristics and obtained a range of benefits that are found in the literature (McGowan & Hampton, 2006; Hampton et al., 2009; Teng, 2007). While the accelerator provided more tangible benefits through transactional networking, the incubator offered "soft" benefits like emotional support, confidence, or support in managing work and family (cf. McGowan & Hampton, 2006). Here, the female entrepreneurs engaged in bonding strategies to form strong ties with mentors and other founders (cf. Ozkazanc-Pan & Clark-Muntean, 2018).

This study finds mixed results on whether incubators and accelerators intensify work-family conflicts or disrupt the work-life balance of entrepreneurs. While the incubator required little extra effort and maintained their flexibility and autonomy, the accelerator's set goals raised participants' level of effort and reduced flexibility and autonomy. In both programs, physical presence adversely affected work-life balance. But the incubator's safe environment offered significant emotional support to the women (cf. Brindley, 2006), which was needed by all women, regardless of program (Ruderman et al., 2002). Thus, this study finds that models integrating entrepreneurship, family, and outcomes can be applied to work-life balance and such support programs as well (cf. Parasuraman et al., 1996; Jennings & McDougald, 2007).

The study's strength lies in its research design, strategy, and methodological rigor. To assure that no single experience, impact, or causal relationship is taken at face value, I triangulated findings across multiple interest groups, i.e. entrepreneurs and program managers, and across research methods, e.g. interviews, a survey, or secondary data. Consistently using the coding template and process-outcome matrices allowed me to scrutinize each individual case and to

compare findings across entrepreneurs critically. As a result, the qualitative inquiry provided compelling insights into the mechanisms that explain female entrepreneurs' experiences and perceived impacts. Also, this study benefitted from a unique data set. Examining a firm's incubator and accelerator, both dedicated to level the playing field for women, is new and benefitted from the programs' heterogeneity in terms of goals or resource intensity. Hence, I could maximize the range of mechanisms and contingencies to uncover how such programs can effectively support female and male entrepreneurs.

This evaluative study is also subject to several limitations. The samples of seven and three entrepreneurs out of 18 startups in the incubator and 165 in the accelerator, respectively, are small. Although the survey increased the sample to 12 entrepreneurs in the accelerator, with the sample size remaining the same for the incubator, it is possible that founders not covered might have differentially experienced the programs' support and impacts. The samples may not be representative of or statistically generalizable to the entire target population. But two objections must be raised. First, deviant case and heterogeneity sampling helped uncover a maximum range of experiences, outcomes, or explanations. Second, as findings converged across entrepreneurs and across different research methods, the significance of findings is increased. Thus, I can generalize this study's findings based on logical grounds (cf. Shadish, 1995). For example, this study finds that gender, prior education and experience, and goals of the entrepreneurs played no role in how they generally experienced program participation and benefits as all were satisfied with the programs' impacts. Yet, this study also shows that impacts were larger for those who faced higher challenges due to a lack of knowledge and networks. Also, intrinsic motivations of program managers and mentors amplified positive program experiences and impacts. Given this study's findings and description of the research setting, future researchers can judge the transferability of findings to similar and divergent settings. In particular, this study did not consider cultural effects on the effectiveness of support mechanisms since data were primarily obtained from Germany and the US. Also, this study's findings are limited to female entrepreneurs who were part of a distinct incubator or accelerator. Generalizations to other programs should be treated cautiously, especially if they are not dedicated to support women. Lastly, this study lacks a summative evaluation of the programs' impacts. While immediate outcomes like access to knowledge or networks are well captured, resultant bottom-line impacts were hard to judge as direct attributions were difficult to identify and longitudinal data on sales and profits before, during and after the program could not be collected due to the researchers' and entrepreneurs' time constraints.

7. Conclusion

This study's purpose was to describe and evaluate *how effectively business incubators and accelerators support high-tech female entrepreneurs*. To conclude whether they successfully alleviate the challenges female entrepreneurs face, I examined the impacts of an established firm's programs on the entrepreneurs' knowledge, capital, networks, and work-life balance.

In the incubator, a mix of classroom teaching, group discussions, and one-on-one coachings equipped the female entrepreneurs with practical business knowledge needed to successfully start and run a new venture. As they did not accumulate such knowledge in their educational or occupational careers, they experienced cost and time savings in startup development. Yet, due to the program's wide support spectrum and omitted technical focus, they hardly accrued industry-specific market and technological expertise. Thus, I find only moderate support for hypothesis 1. In contrast, hypothesis 1 is fully supported in the accelerator. Tailored to the entrepreneurs' needs, advanced business knowledge needed to scale a startup was offered in classrooms or one-on-one coachings. The exchange with industry-experienced mentors and fellow entrepreneurs from the same industry enhanced the entrepreneurs' market knowledge about the industry and enterprise customers' needs. As the accelerator aimed at delivering a technically integrated solution, especially female entrepreneurs accrued technical expertise.

The findings in the incubator provide partial support for hypotheses 2. Although the women were exposed to investors, learnt VC investment criteria, and received feedback on a dry-run investment pitch, they did not acquire financial capital as a result of program participation. Yet, they were prepared for future fundraising. In contrast, hypothesis 2 is fully supported in the accelerator. Beyond exposure to investors, it placed the entrepreneurs in a better position to obtain capital by providing legitimacy and growing the startups' sales, customer base, and product-market fit. The mandate to invest into female-led startups, and key decision-makers' objectivity and right incentivization facilitated women's access to capital dramatically.

In both programs, strong support is found for hypotheses 3a and 3b. All entrepreneurs were enabled to greatly develop their networks in terms of size, density, diversity, reachability, or strong weak ties, with effects being larger for the accelerator as it was tied to the established firm's vast ecosystem. But differences are found in the networking benefits women accrued. In the incubator, relational networking in a safe environment led to business and personal benefits like emotional support, role models and support in managing work and family. The

program's broad focus and missed integration in the firm's ecosystem or customer base implied a lack of industry-specific networks and tangible outcomes. In the accelerator, both transactional networking based on mutual business interests and customer involvement led to tangible benefits like access to complementary resources, e.g. leveraging other startups' solutions, and sales increases. Through program association, all entrepreneurs enjoyed higher legitimacy and visibility, which made potential partners more receptive. But personal benefits like emotional support were less sought and realized by the women.

Contrary to expectations, hypothesis 4 is not supported for the incubator as it did not disrupt the female entrepreneurs' work-life balance. They only had to expend little extra effort while remaining flexible and autonomous as they could easily delegate program participation and were not pressured to reach milestones at the expense of their work-life balance. Physical presence and a lack of digitalization worked in the opposite direction. Yet, the women were supported in addressing work-life balance or future family concerns as advice on managing family and work or emotional were provided. In contrast, hypothesis 4 is fully supported in the accelerator. The ambitious goal to develop a co-selling solution within three months required all entrepreneurs to expend high efforts. Physical presence and the joint decision-making with the established reduced their flexibility and autonomy to a certain extent.

Concluding, best practices and lessons learnt are integrated to offer practical implications to incubators and accelerators who want to level the playing field for female entrepreneurs. The involvement of right individuals is crucial to support women and drive change in the startup ecosystem. First, mentors must be dedicated to work with startups and make female founders strong to enable learnings or network expansion. Startup and industry experience are needed to assure a transferability and appropriateness of learnings. By involving high-rank mentors, any program can stress its drive for inclusion and enable participants to leverage far-reaching networks and resultant benefits. Second, this study highlights the tradeoff between selecting a homogeneous and heterogeneous group of entrepreneurs. Homogeneity in terms of gender, startup stage, and industry can create a safe environment that provides emotional support and peer synergies like the exchange of market knowledge and joint collaboration. Heterogeneity leverages the diversity of perspectives and prevents a distinction between women and men. I recommend a balanced mix in addition to a female quota. But every sourcing decision must eliminate peer competition to establish a collaborative culture with peer-to-peer mentoring. Once an egalitarian environment is created within the program and the firm, the gender of the entrepreneur plays no longer a role. Thus, this study did not find any gender differences.

While requiring physical presence enhances customer exposure, valuable peer relationships, and the creation of a safe environment, it reduces the participants' autonomy and flexibility to manage personal and professional duties, intensifying work-family conflicts for mothers. I suggest digitalizing knowledge sharing and networking to a certain extent as it minimizes the program's interference with startup operations and work-life balance and facilitates access to even larger networks and independent learning. Also, informal activities should be included to help women retrieve emotional support and form cross-gender ties based on trust.

Finally, this study shows that programs run by established firms should be tightly connected to its ecosystem as this multiplies learnings, network development, cost or time savings, and enables entrepreneurs to leverage the firm's customers, partners, and brand. But the extent of support and resources provided must be justified either on a mission or business interests. To ensure that women who do not complement a firm's product portfolio are not left out of the equation, firms dedicated to inclusive entrepreneurship must find ways to also support those economically viable female-led startups, e.g. portfolio diversification. Firms can also pursue a coordinated and complementary synthesis of programs to reconcile altruistic and economic motives. Driven by gender equality, an incubator may provide knowledge, networks, and the so much needed emotional support to very early-stage female entrepreneurs, preparing them for a following accelerator. Driven by value creation, it can build on the incubator's impacts and offer advanced, startup-specific knowledge, networks, or access to customers or capital.

This thesis also offers new directions for future research on gender and entrepreneurship. As this study's findings are limited to an established software firm's incubator and accelerator, future researchers may conduct similar studies in different settings, e.g. different industries, firms, or countries. While this study stresses the importance of selecting right mentors and creating a safe environment, two questions arise: What are the antecedents of an egalitarian environment that places gender at a margin? To which extent can close cross-gender mentor-mentee relationships or peer-to-peer relations be formed in cultures where traditional gender roles or stereotypes are salient? Lastly, I urge future researchers to strive for large data sets across incubators or accelerators and conduct quantitative studies to answer: What impact on performance do such programs have? How does the share of female founders or mentors in a program affect program experiences and outcomes? Does a female quota affect incubator or accelerator performance? Answering these questions stresses the potential of such programs to level the playing field for female founders and may encourage firms to join this journey.

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Appendices

Appendix 1. Interview Guide for Entrepreneurs

<p style="text-align: center;">1. Background Information [Generic Questions]</p> <p>1.1 Can you give me a brief overview over your personal history, e.g. university degree and previous work/startup experience? 1.2 When did you found your company and with whom? 1.3 Why did you particularly choose her/him? 1.4 What were the biggest challenges you faced as an entrepreneur? And why? How did they impact your firm's development? 1.5 [Who provided most support to you when you started your company?] 1.6 [If I were a potential investor waiting for my taxi to arrive in 1 minute, how would you best describe your company's value proposition?]</p>
<p style="text-align: center;">2. Program Information & Experiences [Generic Questions]</p> <p>2.1 How did you become aware of the incubator/accelerator? 2.2 Which expectations did you have when you applied? What did you think how it could support you and your company? 2.3 [After completing the incubator/accelerator, what do you think of the program?] 2.4 Which program activities had the biggest impact for you and your company? Which program experiences did you highly value? And why? 2.5 How did you "measure" or "feel" the impacts the program had? Do you think it had an impact on the "bottom-line results" of your company? 2.6 What were the "pain points" and unenjoyable experiences in the program? 2.7 If you were the program administrator, which things would you definitely maintain? Which ones would you discard or improve? 2.8 *How would have your venture developed without the program?</p>
<p style="text-align: center;">3. Education and Experience [if emergent]</p> <p>3.1 Which knowledge needs did you perceive when you applied? 3.2 [If you lacked ... kind of knowledge, how has this impacted the development of your company?] 3.3 How did you experience the way in which knowledge was taught? 3.4 Which kind of knowledge did you particularly find helpful? And why? 3.5 *What mentor characteristics were particularly valuable for your knowledge acquisition process?</p>
<p style="text-align: center;">4. Access to Capital [if emergent]</p> <p>4.1 What were your experiences in applying for and obtaining financial capital from outside investors? 4.2 What impact did the incubator/accelerator have on your strive for financial resources? 4.3 What is your opinion on gender quotas on capital allocation or women's representation in management in the VC industry?</p>
<p style="text-align: center;">5. Networking and Mentoring [if emergent]</p> <p>5.1 [In general, what do you think about networking? How do you approach networking?] 5.2 Can you describe your networking experiences at the incubator/ accelerator? How was "networking" made possible? What did you particularly value? What not? 5.3 In which ways are these networking experiences different from your prior experiences? 5.4 Which, if any, challenges to networking did you experience prior to the incubator/accelerator? 5.5 [Which topics did you discuss with (a) program managers, (b) mentors, and (c) fellow entrepreneurs?] 5.6 [What were the most important benefits you accrued from getting to know "these people" during your time at the program?] 5.7 To which degree has the incubator/accelerator impacted your network of contacts? How would you assess this change?</p>
<p style="text-align: center;">6. Work-Family Balance [if emergent]</p> <p>6.1 [How do you experience the work-family interface (a) in general and (b) during the time at the incubator/accelerator?] 6.2 [How do you manage the work-family interface?] 6.4 [How does your family affect your entrepreneurial career? To which extent does it provide "support" or "burdens"?] 6.5 How does your entrepreneurial career affect you and your family? What impact had the participation at the incubator/accelerator on your work-family balance?</p>
<p style="text-align: center;">7. Closing [Generic Questions]</p> <p>7.1 What are the (a) strengths and (b) weaknesses of the incubator/accelerator? 7.2 Which policies and activities would you implement at the incubator/ accelerator to specifically support female entrepreneurs?</p>

Note: After the initial interviews, the interview guide was expanded (*) and focused ([]). A separate interview guide was created for program managers to elucidate their perceptions.

Appendix 2. Coding Template

Antecedents

1. Selection

- **Entrepreneurs**
 - **Selection Criteria**
 - Flexible
 - Stringent
 - **Group Size**
 - Large Group
 - Small Group
 - **Gender**
 - Homogeneity
 - Heterogeneity
 - **Location**
 - Homogeneity
 - Heterogeneity
 - **Industry Focus**
 - Homogeneity
 - Heterogeneity
 - **Technology Focus**
 - Homogeneity
 - Heterogeneity
 - **Business Model**
 - Homogeneity
 - Heterogeneity
 - **Startup Stage**
 - Homogeneity
 - Heterogeneity
- **Mentors**
 - **Characteristics**
 - **Gender**
 - Homogeneity
 - Heterogeneity
 - **Industry**
 - Homogeneity
 - Heterogeneity
 - **Experience**
 - Industry
 - Business Area
 - Corporate
 - Startup
 - **Interaction Style**
 - Relational
 - Transactional
 - **Affiliation**
 - External
 - Internal
 - **Reputation**
 - High
 - Low
 - **Motivation**
 - Intrinsic Motives
 - Extrinsic Motives

- **Program Managers**
 - **Role**
 - Network Multiplier
 - Ecosystem Navigator
 - **Interaction Style**
 - Relational
 - Transactional
 - **Motivation**
 - Intrinsic Motives
 - Extrinsic Motives

2. Support Processes

- **Knowledge Acquisition**
 - Classroom Teaching
 - One-on-One Coaching
 - Group Discussion
- **Networking Opportunities**
 - Within Program
 - Through Program

3. Program Structure

- **Duration**
 - Extended
 - Focused
- **Intensity**
 - High
 - Low
- **Physical Presence**
 - Enforced Requirement
 - Flexible Requirement
- **Digitalization of Activities**
 - Possible
 - Impossible
- **Eligibility to Participation**
 - Applicant-Only
 - Cofounders & Employees
- **Approach to Learning**
 - Workshop Preparation
 - Learn-Apply-Feedback
- **Informal Activities**
 - Vital
 - Subordinate
- **Cultural Environment**
 - Safe Environment
 - Collaborative Environment
- **Integration with Established Firm**
 - Tight Connection
 - Independence
- **Investment Decisions** (only accelerator)
 - Mandate to Invest
 - Objectivity
 - Incentives
 - Requirements
 - High
 - Low

Outcomes

1. Spectrum of Entrepreneurs Supported

- Broad Spectrum
- Narrow Spectrum

2. Scalability of Impact

- Regional
- Global

3. Knowledge Acquisition

- **Range of Knowledge**
 - All-Encompassing
 - Tailored To Needs
- **Type of Knowledge**
 - Business
 - Market
 - Technological
- **Sophistication of Knowledge**
 - Basic
 - Advanced
- **Specificity of Knowledge**
 - Generic
 - Startup-Specific
- **Level of Knowledge**
 - Strategic
 - Operational
- **Feedback**
 - Reassurance & Motivation
 - Room for Improvement
- **Appropriateness**
 - High
 - Low

4. Access to Capital

- **Acquisition of Financial Resources**
 - Investments by Established Firm
 - Financial Value
 - Strategic Value
 - Investments by Investors
- **Preparation for Fundraising**
 - Learnings & Feedback
 - Springboard Development
 - Legitimacy
- **Need for Additional Capital**
 - Higher
 - Lower

5. Networking

- **Networking Behaviors**
 - Relational/Bonding
 - Transactional/Bridging
- **Level of Familiarity**
 - High (Strong Tie)
 - Low (Weak Tie)
- **Networking Partner**

- External Mentors
- Internal Mentors
- Program Managers
- Fellow Entrepreneurs
- **Network Characteristics**
 - **Size**
 - Large
 - Small
 - **Density**
 - Dispersed
 - Dense
 - **Diversity**
 - Diverse
 - Uniform
 - **Reachability**
 - Network Multiplication
 - Limited Introductions
 - **Strength of Weak Ties**
 - Support Obtained
 - Support Denied
- **Networking Benefits**
 - Complementary Resources
 - Advice, Information & Guidance
 - Decision-Making Support
 - Learning by Sharing Experiences
 - Emotional Support, Motivation & Confidence
 - Finding Role Models
 - Support in Work-Life Balance
 - Legitimacy
- **Longevity of Contacts**
 - Continuance
 - Fade Away
- **Customer Involvement**
 - High
 - Low
 - None

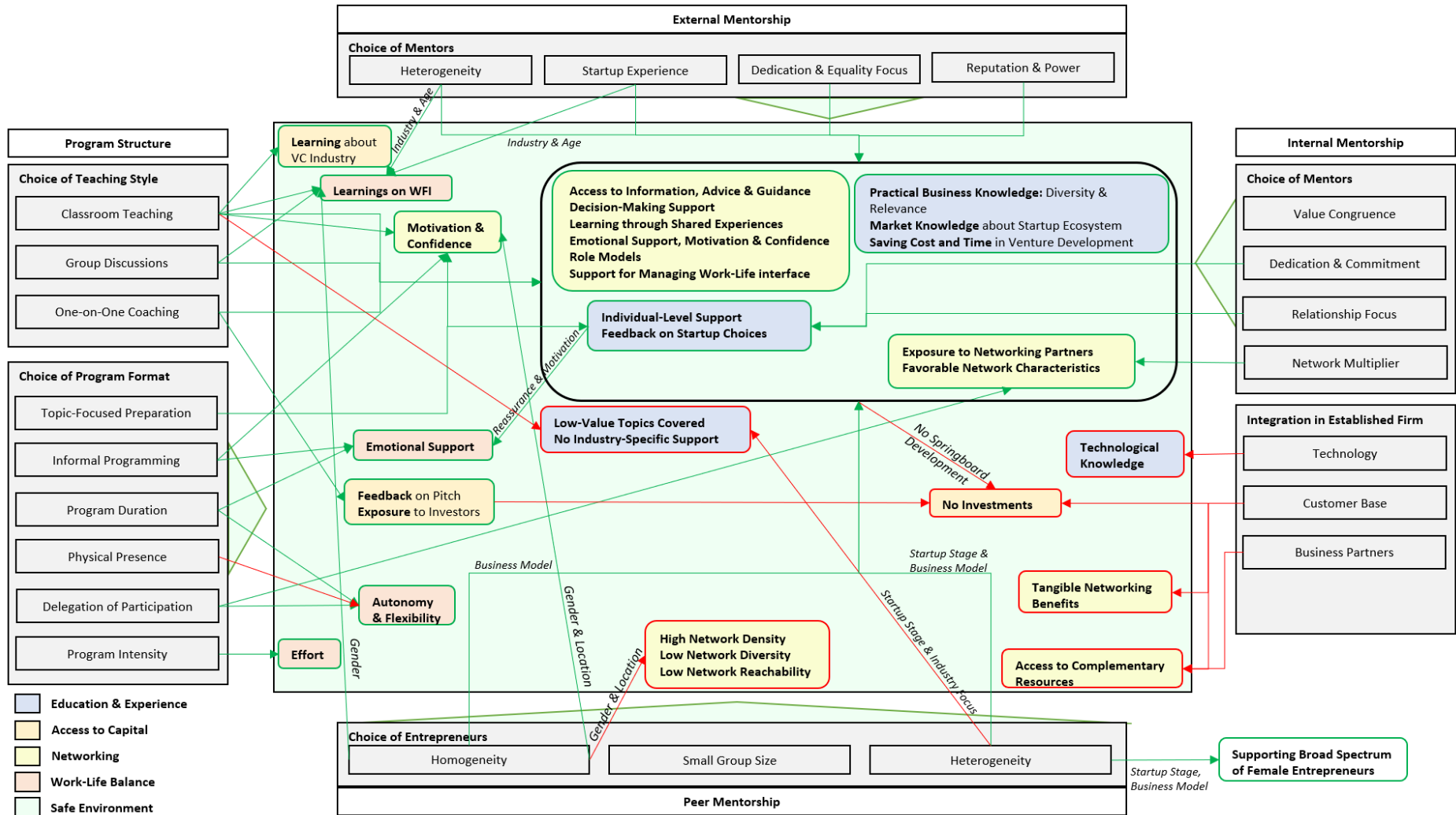
6. Work-Life Balance

- **Effort**
 - High
 - Low
- **Flexibility**
 - High
 - Low
- **Autonomy**
 - High
 - Low
- **Emotional Support Obtained**
 - High
 - Low

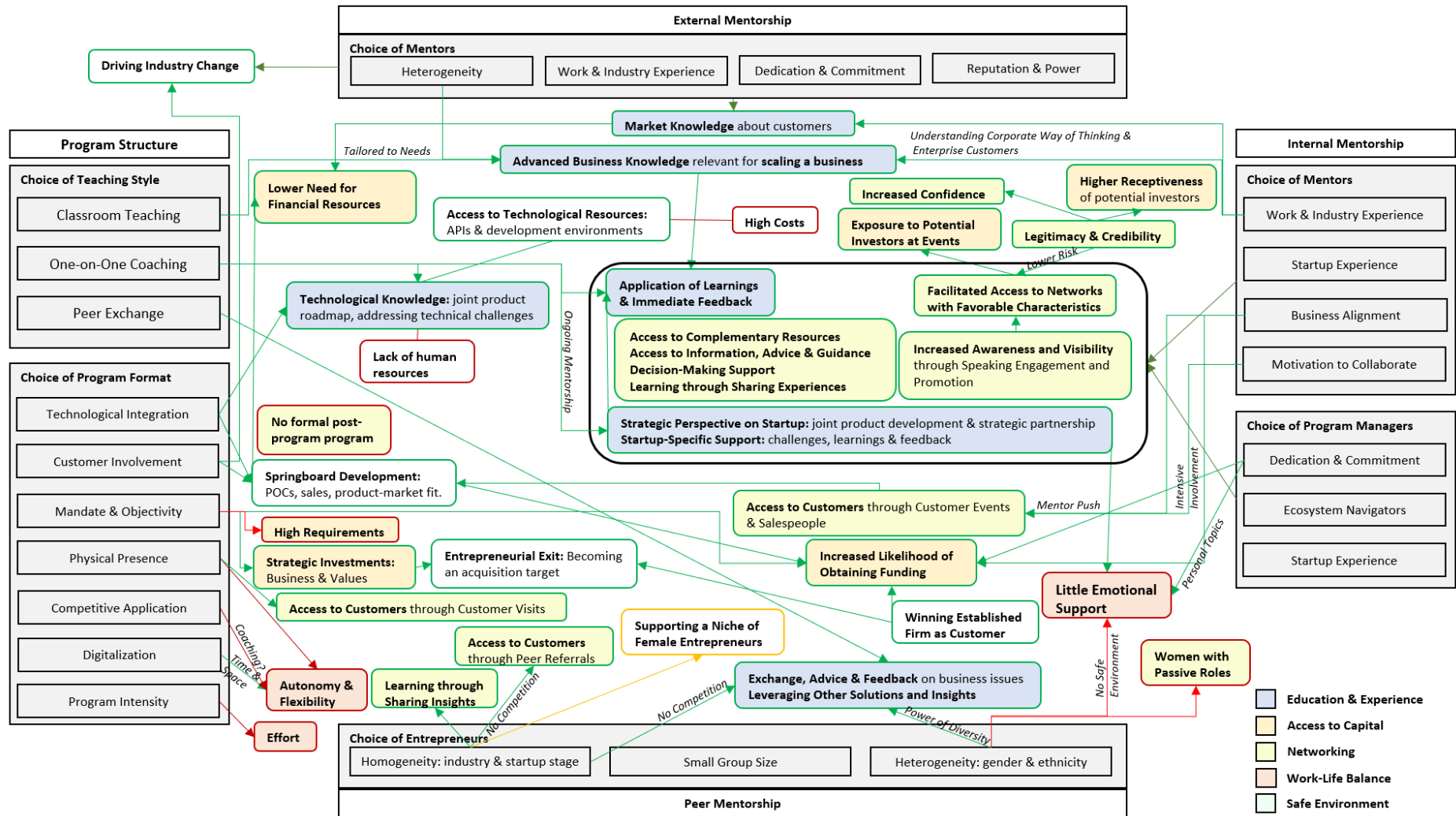
7. Second-Order Outcomes

- Cost and Time Savings
- Springboard Development
- Partnership with Established Firm

Appendix 3. The Incubator: Structure, Support Mechanisms, and Impacts.



Appendix 4. The Accelerator: Structure, Support Mechanisms, and Impacts.



Appendix 5. Evaluative Comparison of the Programs

The Incubation Program	The Acceleration Program
Corporate Goal: Mission Pursuit <i>versus</i> Profit Maximization	
Supporting startups to build a regional innovation ecosystem & to create awareness for inclusion	Supporting startups to create economic value for established firm, customers & startups
Spectrum and Type of Female Entrepreneurs: Broad <i>versus</i> Niche	
Broad spectrum of high-tech startups: stage and industry	Niche of high-tech B2B startups willing to integrate own solution
Scalability of Impact: Regional <i>versus</i> Global	
Regional impact due to high dependency on program manager	Global impact due to reliance on established firm's ecosystem
Knowledge: Topic-Focus <i>versus</i> Startup-Focus	
Intensive focus on wide array of basic business knowledge incl. little value adding topics Individual startup support in one-time one-on-one coaching	Intensive focus on business and technological knowledge needed to effectively scale business/sales and based on cohort's needs Intensive individual startup support by ongoing mentoring
Access to Capital: Preparation <i>versus</i> Investments	
Exposure to influential investors Learning, Feedback, Reassurance No investments made	Exposure to established firm's ecosystem of capital providers Springboard Development into investment-ready or cashflow-financed business Mandate to provide capital to women but high requirements
Networking: Relational <i>versus</i> Transactional Favorable network characteristics	
Intensive, relational networking with mentors and peers in a safe environment: openness and trust. Intangible networking benefits like exchange and advice, learning by sharing experiences, finding role models, and emotional support Increased motivation & confidence to future networking Lack of industry-specific networks and tangible benefits	Intensive, transactional networking in established firm's ecosystem Intangible and tangible networking benefits like exchange and advice, strategic decision-making support, and business support due to high reciprocity of relationships and shared economic interests
Work-Life Balance: Support <i>versus</i> Burden Physical presence but delegation of participation possible	
Emotional support and learnings on managing work and life Low program intensity	Digitalization of program activities High program intensity
Selection of Entrepreneurs: Heterogeneity <i>versus</i> Homogeneity	
Heterogeneous group of founders regarding startup stage & industry to leverage exchange and advice through diversity of perspectives: learning, role models, confidence Homogeneous group of founders regarding gender to provide dedicated support and to create a safe environment	Homogeneous group of founders regarding startup stage & industry to leverage peer synergies : market knowledge, shared challenges & support/cross-selling opportunities Heterogeneous group of founders regarding gender to drive inclusion rather than reinforcing distinction by gender
Selection of Mentors: Dedication <i>versus</i> Business Interests	
Careful selection of mentors based on diversity, dedication, work & startup experience, and reputation to provide adequate, relevant, and impactful support to women, yet highly dependent on program manager's own network Focus on external mentors	Selection of mentors based on commitment, industry experience & business alignment to provide business-relevant support but limited group of champions within established firm and lack of startup experience Focus on internal mentors
Cultural Environment: Safe Environment <i>versus</i> Collaborative Environment	
Safe environment : learning, networking, emotional support	Collaborative environment due to absence of competition
Integration into Established Firm: Independence <i>versus</i> Tight Connection.	
Independence of program allows to support a broad spectrum of female entrepreneurs but limits scaling opportunities	Leveraging power, resources, and ecosystem of established firm: business and technical expertise, networks, legitimacy, access to customers and partners
Tangibility of Benefits: Feeling <i>versus</i> Measuring Incorporation of learnings Development of a network with favorable characteristics Cost and time savings in venture development: accelerated growth	
No measurable impact in terms of product development, sales, customer acquisition, fundraising	Measurable impact in terms of product development, sales, customer acquisition, fundraising