The Rise of Femtech: An Analysis of the Femtech Industry and its Female Entrepreneurs' Experiences

Master's Thesis

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Abstract

Prior female entrepreneurship literature has shown that women are severely underrepresented in new venture creation, particularly in the technology industry. However, recently there has been a rise in new ventures using technology to develop products and services dedicated to serving women's health and closing the gender data gap in healthcare. These firms fall within the female technology (Femtech) industry, an upcoming industry at the intersection of healthcare and technology that has been largely unknown in the business world and academic field. Noteworthy, these firms focus on women's needs and the majority are women-led or founded by women. Prior research has shown that female entrepreneurs are a large untapped potential as they would significantly contribute to global economic development. Thus, it is deemed worthwhile to investigate the upcoming Femtech industry and its female entrepreneurs. This may advance the knowledge about female entrepreneurship as it could enhance the understanding and ways to action to counter barriers that are unique to women in entrepreneurship and beyond. As a theoretical starting point, we use theories from the field of female entrepreneurship.

We aim to analyze (1) *what the Femtech industry is* and *how it influences the playing field for female entrepreneurs*. In addition to the industry analysis, we intend to shed light on (2) *female entrepreneurs' experiences in the Femtech industry*. To fulfill our two-fold research purpose, a multi-method qualitative study is conducted. Thus, data is collected through desk research, semi-structured interviews with female Femtech entrepreneurs, and non-participant observations of a Femtech network's webinars.

Our analysis of the Femtech industry reveals that it is an untapped, lucrative, and non-male-dominated tech space. For female entrepreneurs, driven by mission and attracted by "blue ocean" opportunities, it emerged as a beneficial playing field. It is more accessible for women than other parts of the tech industry due to its female dominance in terms of entrepreneurs and end-consumers and its inherent association with femininity ("*Fem*"tech). The female entrepreneurs perceive to have an authentic footing in the Femtech industry. Thus, our findings suggest that the Femtech industry presents an opportunity for female entrepreneurship in tech. However, we identified that fundraising is a key barrier of female entrepreneurs, blocking their development and growth.

This paper contributes to academic research by shedding light on an upcoming tech industry and its female entrepreneurs. We suggest several practical implications for (aspiring) female entrepreneurs within the Femtech industry, network owners, capital providers, governments, and institutions to reduce the gender gap in entrepreneurship and health.

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List of Abbreviations

A	Appendix
AI	Artificial Intelligence
B	Billion
B2B	Business-to-Business
B2B2C	Business-to-Business-to-Consumer
B2C	Business-to-Consumer
CAGR	Compound Annual Growth Rate
CBS	Copenhagen Business School
D2C	Direct-to-Consumer
F	Figure
GDP	Global Domestic Product
HCP	Healthcare Professional
ICT	Information and Communications Technology
IoT	Internet of Things
LGBTQ	Lesbian, Gay, Bisexual, Transgender, and Queer
M	Million
OECD	Organization for Economic Co-operation and Development
PCOS	Polycystic Ovary Syndrome
R&D	Research and Development
RQ	Research Question
RQs	Research Questions
STEM	Science, Technology, Engineering, and Mathematics
T	Trillion
Tech	Technology
VC	Venture Capital
VCs	Venture Capitalists

1. Introduction

"Communities and countries and ultimately the world are only as strong as the health of their women".
– Michelle Obama (2009) at Elizabeth Garrett Anderson School in Islington

In recent years, there has been a rise in ventures leveraging technology (tech) to develop products and services dedicated to serving women's health (Menking & Kaplan, 2020). Since then, these businesses have emerged to an innovative and intriguing industry branch in the healthcare – or more specifically, the Healthtech industry – namely, the *Femtech industry*. The term Femtech is an abbreviation for "female technology" (Cambridge Dictionary, 2021) and was coined in 2016 by Ida Tin, the Danish entrepreneur and co-founder of the period and fertility tracking app Clue to describe the increasing number of women's health products appearing in the market at the time (Menking & Kaplan, 2020; Tin, 2016). Moreover, she wanted to reduce investors' discomfort when discussing women's health topics that were once – and still are – taboos, such as menstruation (Colban & Akers, 2020; Tin, 2016). Thus, Femtech is a rather new and upcoming industry, developing innovative tech solutions such as apps, devices, wearables, diagnostics, software, services, or any combination of them, catered to women's health needs (Frost & Sullivan, 2020b).

Historically, women's health has not been studied nor understood sufficiently. This is evoked by unfavorable conditions such as medical research being mostly tailored to men and women being largely excluded from drug trials because of their hormonal cycles or childbearing responsibilities (Glaser, 2019). Even nowadays, women are still underrepresented in medical research (Foley, 2019). In fact, only 4% of research and development (R&D) global funding went into research targeted specifically at women (Colban & Akers, 2020; Das, 2019b). This lack of gender-specific research has led to a gender data gap in healthcare, a lack of awareness for women's health conditions in society, and healthcare products being primarily designed for men. Due to these gender inequalities in healthcare, women are, for instance, more likely to be misdiagnosed after a heart attack as medical trials primarily include male participants (Glaser, 2019). Endometriosis and diabetes are two health conditions that are equally prevalent among women. However, the former receives much less attention and funding (DeMayo & Getz, n.d.). As a result of these huge disparities between women's and men's health the Femtech industry has emerged. Indeed, Femtech businesses offer solutions that enable the collection of vast amounts of women's health data and aim to narrow the gender health gap (Yu, 2020), improving women's health and making health solutions more accessible to women (Frost & Sullivan, 2018). Therefore, the Femtech industry offers a

space to advocate for women's health, break taboo topics about women's health and address consumer needs that have in the past been "marginalized by mainstream markets, medical institutions and practices" (Menking & Kaplan, 2020, p. 6).

Interestingly, initial statistics about Femtech entrepreneurs indicate that the majority of businesses are women-led or founded by women (at least 50% in 2019) (BIS Research, 2020; Frost & Sullivan, 2020b). To set this into context, the average share of female entrepreneurs in OECD countries was 9.2% in 2020 (Szmigiera, 2021). In Europe, women account for only 29% (11.6 million) of entrepreneurs (European Commission, 2014). Also, in the Nordic countries, known as forerunners in gender equality and inclusion of women in the workforce, the female entrepreneurship share remains low, ranging from 23% (Sweden) to 34% (Finland). These gender inequalities are even more reflected in high-growth industries such as information and communications technology (ICT) (Grünfeld et al., 2020). According to the Global Startup Ecosystem report, only 14.1% of tech entrepreneurs worldwide are women (Startup Genome LLC, 2020). In Europe, only 5% of tech founders are female (Atomico et al., 2020) and generally underrepresented at all levels of the digital sector (European Commission, 2018). Indeed, over the last years, women's involvement in the digital and ICT industry has globally not improved significantly because of still existing unconscious biases regarding gender roles and gender capacities (European Commission, 2018). Overall, these numbers clearly indicate the still prevailing dominance of men in the entrepreneurial landscape around the world. This raises the question about the phenomenon Femtech, why predominately female entrepreneurs enter it and whether Femtech may be a different playing field for women entrepreneurs.

As women make up about 50% of the global population and 40% of the global workforce in 2019 (FemTech Live, 2021a), their dramatic underrepresentation in entrepreneurial activities and leadership positions across economies and societies has severe adverse moral, social and economic impacts (Thomas et al., 2020; Woetzel et al., 2015). Indeed, "[e]ntrepreneurship is an important driver of economic development and growth, and a facilitator of empowerment for women around the world" (BIAC & Deloitte, 2015, p. 3). According to Bosma et al. (2020), the presence of gender disparities in entrepreneurship reduces the global economic potential. In line with this, prior researchers have stressed that women make substantial contributions to all sectors of the economy both as entrepreneurs and employees (Brush et al., 2006; Cardella et al., 2020). Ensuring equal participation of women and men in

entrepreneurship is projected to increase the global domestic product (GDP) by approx. 3% to 6% which would equal a boost in the global economy from $2.5T to $5T (Unnikrishnan & Hanna, 2019). Similarly, Kamberidou (2020, p. 3) argues that "[w]omen are the largest untapped entrepreneurial potential in Europe, and particularly in the tech sector". Hence, empowering women in entrepreneurship, particularly in high-growth sectors, is an opportunity to create jobs and can lead to greater economic and social transformation (World Bank Group, n.d.). Moreover, as the tech industry is a key driver of future economic growth and tends to lack diversity, scholars have raised concerns about technology-based ventures innovativeness (Wheadon & Duval-Couetil, 2019). Thus, enabling diversity in high-growth industries such as ICT is considered crucial to be able to compete with an increasingly innovation-based global economy (Wheadon & Duval-Couetil, 2019). In addition to economic value created by female entrepreneurs and workers, digital startups owned by women tend to be more successful compared to startups owned by men and investments made in female-founded ventures perform 63% better compared to ventures founded exclusively by men (European Commission, 2018). Additionally, the severe lack of funding contributes to the missed wealth creation potential. For instance, Gatewood et al. (2009) conclude in their research about funding process of female entrepreneurs that there is a significant cost in wealth creation in turning down a substantial part of the population in acquiring funding to achieve growth. Altogether, women are limited in successfully growing their businesses, contributing with innovative ideas, and creating jobs, while at the same time investors miss out potential attractive returns from investments in these ventures.

Considering the severe underrepresentation and untapped potential of women in entrepreneurship, business research aims to understand why entrepreneurial activities and behaviors unfold differently for women (Poggesi et al., 2016) and how entrepreneurship can be promoted among women (e.g., Rocha & Praag, 2020). In line with this Kossek et al. (2017) urge to identify settings and solutions that endorse women's inclusion in male-dominated careers. As the Femtech industry lies at the intersection of two industries that historically have been dominated by men (i.e., in terms of entrepreneurial engagement and leadership positions) – the healthcare and tech industry – and it is dominated by female entrepreneurs (BIS Research, 2020; Frost & Sullivan, 2020b), it emerges as an intriguing research setting to investigate female entrepreneurship. Moreover, as female entrepreneurs and women in senior positions can act as agents of change, such as transforming social norms and narrowing gender gaps (Rocha & Praag, 2020),

the Femtech industry might be a more level playing field for female entrepreneurs. Furthermore, the Femtech industry is at an early stage and thus, a very recent phenomenon with very little existing academic literature and industry-specific research (Menking & Kaplan, 2020). For instance, Menking and Kaplan (2020) suggests that future academic research should investigate who Femtech founders are, what motivates them to start a Femtech business, what barriers they typically face and how they overcome them. Thus, there is a significant academic research gap in entrepreneurship scholarship which we intend to narrow with our novel study, scrutinizing female entrepreneurs within the Femtech industry. Lastly, the interest in Femtech has increased continuously over the last decade and reached its peak in 2020, as illustrated by the number of news articles mentioning the Femtech industry and the growing trend of Google searches (*Appendix 1 (A1))*. This indicates the industry's growing importance and relevance.

Based on the preceding considerations and the spotted gaps in the literature, the Femtech industry and its female entrepreneurs are our subjects of investigation. Our aim is to shed light on the Femtech industry in order to provide a rich description and understanding of a so far largely unexplored, but upcoming female-focused Healthtech space (Google Trends, 2021; Menking & Kaplan, 2020). According to Muñoz-Fernández et al. (2019, p. 2) "[…] contextualizing entrepreneurship contributes to our understanding of when, how, and why this activity occurs and who becomes involved in it". Therefore, our analysis of the Femtech industry is a novel contribution to academic literature and crucial for our subsequent study of female entrepreneurs' experiences as it posits female Femtech founders' specific business environment. Furthermore, Cardella et al. (2020) stress that female entrepreneurs should not be seen as minors or subordinates and highlight the importance of researchers committing to investigating female entrepreneurs' complexity and diversity to generate new insights within female entrepreneurship literature but also entrepreneurship research in general. In line with this, a qualitative research design based on semi-structured interviews with female entrepreneurs operating in the Femtech industry and non-participant observations of Femtech webinars as complements is deemed appropriate. This allows us to give female entrepreneurs a voice and to offer a more profound and complex account of women's entrepreneurial experiences in this rising industry.

Therefore, the following two research questions (RQs) arise:

1. *What is the Femtech industry and how does it influence the playing field for female entrepreneurs?*
2. *What is the experience of female entrepreneurs in the Femtech industry?*

To answer these two RQs, the paper is structured as follows. In the next chapter, we outline the theoretical background of this master thesis. More specifically, we summarize key aspects from prior research and literature in the field of female entrepreneurship. Then we present our research methodology in chapter 3, including our research purpose, research philosophy, approach to theory development, research design, data collection and analysis, and research quality criteria. This is followed by the analysis of the Femtech industry in chapter 4. In chapter 5, we subsequently present our interview findings that are theoretically discussed in chapter 6. The paper terminates with concluding remarks and practical implications, limitations, and suggestions for future research in chapters 7, 8, and 9.

2. Literature Review

This chapter highlights and summarizes key aspects of research concerned with female entrepreneurship to support the answer to the RQs and create an understanding of the theoretical background of this paper. Due to the scope of our master thesis, we further touch upon women in tech.

The research field of female entrepreneurship has evolved over the past 70 years (Cardella et al., 2020). However, due to the shared assumption among scholars that there is no need for a separate investigation of female and male entrepreneurs (Bruni et al., 2004), it was not until the late 1990s and early 2000s that the research area of female entrepreneurship gained in significance (Jennings & Brush, 2013), reaching a publication peak in 2019 (Cardella et al., 2020). Since then, many researchers have investigated the persistent underrepresentation of women in entrepreneurship (e.g., Shahriar, 2018; Thébaud, 2010), and much evidence pertinent to women's involvement in entrepreneurial activities has revealed that they are less likely to start their own business (Jennings & Brush, 2013). Indeed, this gender gap is more significant as a country's level of development increases (Elam et al., 2019; Nicolás & Rubio, 2016). According to Rocha and Praag (2020), different (not mutually exclusive) theoretical explanations exist for why female entrepreneurs remain a minority in new venture creation. A vast array of research exists on the following lines of inquiry, namely obstacles to women entrepreneurship and differences between female and male entrepreneurs (e.g., Cardella et al., 2020; Poggesi et al., 2016; Wu et al., 2019). The former evolves around barriers and challenges that make entrepreneurship more demanding for women than for men. The latter investigates how female and male entrepreneurs may differ, for instance, in terms of their motivation. Both streams of research are discussed in the following sections. Furthermore, as illustrated at the beginning of this paper, female entrepreneurship constitutes a large untapped wealth creation potential (Cardella et al., 2020). In fact, the inclusion and equal representation of women benefits female entrepreneurs and ultimately, companies and the whole economy. Therefore, the proportional representation of women is briefly elucidated.

2.1. Differences between Female and Male Entrepreneurs

2.1.1. Motivation

A common line of thought in literature is concerned with the investigation of female entrepreneurs' *motivation* vis-à-vis to their male counterparts. Therefore, authors draw on the *necessity-driven*

entrepreneurship versus *opportunity-driven entrepreneurship* distinction, postulating that entrepreneurial action can be explained by push factors (i.e., the former) or pull factors (i.e., the latter) (Jennings & Brush, 2013; Shapero & Sokol, 1982). According to Kirkwood (2009), both genders are motivated by push and pull factors. However, her findings stress the importance of women's relationship to their children as a crucial aspect of their entrepreneurial career decisions. As women assess the impact of entrepreneurship on their relationships, their motivations are more strongly affected by relational thinking compared to men. In line with this, prior research has shown that women employ relationship-based management strategies (Farr-Wharton & Brunetto, 2007). Other researchers further add specificity to these categorizations, suggesting that push factors for women are linked to unemployment, lack of career options or job prospects, while pull factors refer to motives such as the pursuit of flexibility, independence or autonomy (Jennings & Brush, 2013; Kirkwood, 2009). In fact, collective evidence suggests that women are more often motivated by push factors to start an entrepreneurial career compared to men (Jennings & Brush, 2013; Kirkwood, 2009). However, Mallon and Cohen (2001), whose findings have led to the grouping of their female participants' motivation largely in the pull category, stress the importance of not neglecting the complexity of each factor in itself and their rare mutual exclusivity in order to adequately capture the richness of each women entrepreneurs' narrative. In line with this Patterson and Mavin (2009) emphasize that women's working and domestic lives are too complex to be captured by a broad dichotomy.

2.1.2. Success Definition

Another line of inquiry looks at differences in *success definitions* between men and women. For men, success is mostly dependent on achieving goals and/ or higher profits. Women, however, relate success to building ongoing relationships with employees or clients, pursuing something fulfilling or achieving empowerment, which allows them to gain power and status within their social environment, i.e., community, workplace or household (Carranza et al., 2018). Similarly, Hechavarría et al. (2017) find that female entrepreneurs are more prone to emphasize social value than economic value in their prioritization of business values compared to their male counterparts. Therefore, the authors' work draws on research about ethics of care, a decision-making framework focusing "on the needs of others, and the corresponding responsibilities and relationships" (Hechavarría et al., 2017, p. 228). Thus, it relates to values such as sustaining harmonious relationships or empathy. According to prior evidence women are

more likely to convey ethics of care compared to their male counterparts (Hechavarría et al., 2017; Jaffee et al., 2000). In line with this, other scholars find that women prefer work environments that allow them to work with people and help others, illustrating women's greater concern for relationship building and helping others (Kossek et al., 2017). Moreover, Solesvik et al. (2019) show that female entrepreneurs' opportunities frequently emerge from societal or community needs, influencing their motivation to start a company. Lastly, Buttner and Moore (1997) findings indicate that women who have left their corporate career to start a venture evaluate success with internal measures such self-fulfillment and personal growth rather than external measures such as profits or business growth. Thus, the researchers point out that traditional measures of business performance cannot capture the full complexity of female entrepreneurs' success.

2.1.3. Entrepreneurial Self-Efficacy and Fear of Failure

Another distinction between men and women can be made with regards to their *perception or assessment of their own entrepreneurial capabilities* as well as their *fear of failure*. According to Brush and Greene (2018), self-confidence comes from one's own belief to trust one's own abilities and is commonly scrutinized as self-efficacy i.e., "the conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977, p. 193). Derived from this broader construct, self-efficacy has been further specified to *entrepreneurial self-efficacy*, describing one's interest in becoming an entrepreneur as well as the self-assurance to have the capabilities associated with new-venture management (Wilson et al., 2007). As new venture creation is an intentional process, scholars have argued that entrepreneurial self-efficacy plays an important role in starting a business and thus, contributes to the explanation as well as prediction of entrepreneurial activities (Krueger et al., 2000). Interestingly, Krueger et al. (2000) find that self-efficacy largely explains gender differences in career path choices. Accordingly, Wilson et al. (2007) note that women limit their entrepreneurial career aspirations because they are less self-confident about their entrepreneurial skills and abilities relative to men. On average, women feel less effective than men in terms of their entrepreneurial capabilities (Dempsey & Jennings, 2014). In line with this, scholars highlight that women have a higher fear of failure (Koellinger et al., 2013; Noguera et al., 2013), suggesting that they have a lower risk tolerance (Grünfeld et al., 2020). Indeed, women are more conservative and careful with respect to both business and personal risks (Greene et al., 2001). Also, Croson and Gneezy's (2009) evidence shows that women have higher

levels of risk aversion relative to men. Moreover, the authors' findings suggest that women's competitive preferences differ from their male counterparts as women tend to avoid competition whereas men tend to be more willing to engage in competitive interactions.

2.2. Barriers and Challenges to Female Entrepreneurship

As mentioned above a common stream of research evolves around barriers and challenges to female entrepreneurship (Wu et al., 2019). Therefore, the following sub-sections elucidate four barriers and challenges to female entrepreneurship, namely *social, cultural,* and *institutional context, lack of networks, lack of role models,* and *lack of access to Venture Capital (VC) funding*.

2.2.1. Social, Cultural and Institutional Context

As entrepreneurship is embedded in a *social, cultural*, and *institutional context*, it influences societal perception about desirable and feasible career paths. As these contexts are often to the disadvantage of women, it results in the underrepresentation of women in certain roles (Brush et al., 2019; Rocha & Praag, 2020). According to entrepreneurship literature, stereotyped gender expectations are often subtle and rooted in common rules, practices and norms (Brush et al., 2019; Chappell & Waylen, 2013). For instance, they can impact an entrepreneur's choice of sector. Research has shown that as women and men tend to "self-stereotype" according to influences of socialization, female entrepreneurs tend to lean towards feminine industries (i.e., industries of lower growth and performance such as the service, retail or hospitality sector) while male entrepreneurs tend to direct towards male industries (i.e., high growth and highly profitable industries such as the tech sector or manufacturing) (Carranza et al., 2018; Geiger, 2020). Historically, this has contributed to women-owned businesses generating lower returns (Wieland et al., 2019).

In line with this, other scholars highlight the gendered nature of entrepreneurship (e.g., Ahl, 2006; Gupta et al., 2008, 2009). This means that entrepreneurship is typically linked to masculine traits such as being ambitious, bold, and risk-taking or the practices of having high funding goals and pursuing VC (Brush et al., 2018). Consequently, success in entrepreneurship has been associated with masculinity and achieving high-growth and high-performance ventures (Brush et al., 2018; Gupta et al., 2009). This portrayal of entrepreneurs being male leads to fewer women pursuing venture creation ambitions as they

try to align with societal expectations (Brush & Greene, 2018; Gupta et al., 2009; Thébaud, 2015). Interestingly, Gupta et al. (2009) find that entrepreneurial intentions are positively associated with an entrepreneur's own identification with these masculine traits rather than the biological sex. Conclusively, "[…] it is not the biological predisposition, but culture that defines socially acceptable behaviors for each gender" (Nicolás & Rubio, 2016, p. 57).

Unfortunately, socially learned and culturally manifested gendered stereotypes may lead to female entrepreneurs or women in other male-dominated professions (such as VCs, engineers) being perceived as less trustworthy (Brush et al., 2019; Saparito et al., 2013) and undervaluing the role of women in the economy (Bullough et al., 2019). Consequently, women are less likely to be considered for leadership roles or masculine industries (Heilman, 2012). According to the Global Gender Gap Report 2021, 42% of senior and managerial positions are women in the US (WEF, 2021). Yet, when it comes to women's representation on C-suite level positions, they account for only 21% (Thomas et al., 2020) and on CEO level just for 6% (Spencer et al., 2019). Thus, top management positions remain male-dominated, indicating the still persistent *"glass ceiling"* and *"leaky pipeline"* in many industries. The former describes an invisible barrier hindering women and other minority groups from advancing in their corporate careers (Daily et al., 1999; Kalnins & Williams, 2021). In relation to this, prior literature points to entrepreneurship as an opportunity for women to break free of it or, in other words, the "glass ceiling" being a trigger for female entrepreneurship (Jennings et al., 2016; Tonoyan et al., 2020). The "leaky pipeline" metaphor refers to the decreasing number of women with each career level (S. A. Hewlett et al., 2008). A report published by McKinsey & Company shows that companies' management of the talent pipeline varies with industry. For instance, whereas the IT, hardware and telecom industry lacks women at the entry-level, the healthcare industry has a high female workforce share but fails to advance women into senior management positions (Thomas et al., 2020). However, having female representation in leadership positions is deemed crucial to "transform social norms, narrow gender gaps, and break the so-called 'glass ceiling'" (Rocha & Praag, 2020, p. 844).

Furthermore, other authors have noted that women's entrepreneurial behavior depends on how their role in family is perceived within their societal, cultural, and institutional context. This can either facilitate or hinder female entrepreneurs (Chell & Baines, 1998; Jennings & Brush, 2013). Indeed, studies and empirical evidence have pointed out the severe difficulties women face, trying to balance family and

work (Jennings & Brush, 2013) as cultural norms still see them as the primary responsible caregiver in families (Thébaud, 2015). This role of being the caregiver may also explain why women are more likely to be engaged in social entrepreneurship. As social ventures relate to "altruism, care and protection to others" (Nicolás & Rubio, 2016, p. 57), they better align with women's culturally and socially constructed role.

Finally, in addition to the missing normative support provided to female entrepreneurs, regulatory institutions may also suffer gendered stereotypes. Policies and laws, impacting businesses' setup and operation cost, can reduce women's feasibility and desirability to start a business and thus, poses a subtle but nonetheless commonly ingrained obstacle to female entrepreneurship (Brush et al., 2019; Bullough et al., 2019; Manolova et al., 2017).

2.2.2. Limited Access to Social Networks

Another large body of research investigates social networks and their importance. Grünfeld et al. (2020) show that social networks play a crucial role in fostering entrepreneurial activity. Among others, networks allow entrepreneurs to exchange information and access (key) resources that can positively influence a new venture's success and survival. According to social network theory, the presence or absence of social ties plays a crucial role in determining the success of the business (Greene et al., 2001). Furthermore, networks enable entrepreneurs to get advice and moral support (Carter et al., 2003), form strategic alliances (Strohmeyer et al., 2005) as well as identify business opportunities (Farr-Wharton & Brunetto, 2007).

Despite networks widely recognized importance, evidence suggests that there exist still profound inequalities between women and men in their *access to social networks*. Among others, this may originate in women's tendency to have lower positions in corporations. Thus, they can often only access and attract fewer or less powerful people, making them more likely to join less influential networks and build ties with people of a lower status (McGuire, 2000; Wang, 2009). Moreover, when women embark on the entrepreneurial journey, they have fewer successful entrepreneurs as contacts to receive business advice and support (GERA, 2017). In line with this Grünfeld et al. (2020) argue that networks positively influence the likelihood of women starting their own business. Another explanation for women's lack of networks is the so-called "old boys' network" which describes men's advantages stemming from

valuable white male social system or networks (Oakley, 2000). For instance, McDonald (2011) find that people in these networks receive twice as many job leads compared to people in female networks. Interestingly, the author's findings also show that all network members i.e., also minority groups such as women could benefit from these "old boys' networks". However, since they are composed entirely or largely of men and considering the homophily principle i.e., "the tendency of individuals to associate with others based on shared characteristics" (Greenberg & Mollick, 2017, p. 341), women are often excluded from them. Indeed, research has shown that among other shared similarities such as race, ethnicity, or educational background, homophily also originates from gender. People tend to trust others with similar characteristics as it is easier to associate with them. Thus, as women's networks are often comprised of mostly women, research has shown that it is even more difficult to enter male-dominated industries (Balachandra, 2020). Indeed, a study conducted by the Bank of America and Babson College (2020) shows that there exists a real need in male-dominated industries to connect and promote female-led businesses as female entrepreneurs participating in the study highlight the importance of creating broader networks by including men and women. This is in line with prior research showing that more diverse networks tend to be more powerful (Blau & Alba, 1982; Brass, 1984; Carter et al., 2003). Altogether, it is very challenging for women to break into the "old boys' networks".

2.2.3. Lack of Role Models

Another widely discussed barrier to female entrepreneurship is the *lack of role models*. Role models can be defined as "cognitive constructions based on individual perceptions to be similar to others in particular roles, and the desire to increase this perceived similarity through emulation of attributes and achievement of identical goals" (Rocha & Praag, 2020, p. 845). Prior evidence has presented the positive effect of role models e.g., existing entrepreneurship activities among family, schoolmates, seniors and other peers on entrepreneurship (Bosma et al., 2012). Specifically on underrepresented groups such as women it has a positive effect (Gershenson et al., 2018; Kofoed & McGovney, 2019) or in settings where women's prior contact to female entrepreneurs was lacking (Rocha & Praag, 2020). According to a study conducted by Arenius and Kovalainen (2006), Nordic women who have an entrepreneur as a close contact are more inclined to start their own business. Moreover, Markussen and Røed (2017) find that in Norway having same-sex role models has a greater impact on women's decisions to become an entrepreneur than opposite-sex role models. Similarly, Rocha and Praag's (2020) findings suggest that startup founders can

influence their employee's preferences for future entrepreneurship. In line with social identification theory, this effect is greater when founder and employee share the same sex and is more prominent among women. Consequently, startups founded by a woman impact female employees' decision to become entrepreneurs themselves, thereby narrowing the gender gap. The authors explain their findings with female founders breaking stereotypes and thus, acting as role models in terms of providing mentoring, knowledge, and inspiration to their female employees. Furthermore, as suggested by the homophily principle this effect further accelerates if the female founder and the female employee share a similar background. Additionally, BarNir et al. (2011) find that role models positively impact women's self-perception of their entrepreneurial capabilities. As exemplified, role models may counterbalance stereotypes, influence career preferences, beliefs and aspirations (Rocha & Praag, 2020) as well as motivate women to start their own companies (Marich, 2014). This is deemed crucial in order to advance women's career development (Kossek et al., 2017) and overcome the gender gap in entrepreneurship. However, due to the earlier discussed underrepresentation of females in entrepreneurial activities and in companies' top ranks (e.g., Cook & Glass, 2014; Dezső et al., 2016), women have less access to role models which postulates a key barrier to female entrepreneurship.

2.2.4. Lack of Access to VC Funding

"We like to think that venture capital is driven by the power of good ideas. But by the numbers, it's men who have the keys" (Gates, 2017).

Another key barrier recognized among scholars is female entrepreneur's *lack of access to VC funding* or the so-called *gender funding gap.* Access to VC is one of the most crucial and demanding problems of entrepreneurs due to its important role as early-stage financing and for driving venture growth (Balachandra et al., 2019). Yet, on a global scale, only 2.3% of VC funding is raised by women (Teare, 2020), illustrating the very small share of capital raised by female entrepreneurs globally. Although, more research and initiatives have occurred in the past with the aim to support female entrepreneurs, there are still big disparities and challenges for female entrepreneurs seeking VC funding.

As the financing strategies of women business owners have not been investigated until the 2000, there are many hypotheses for why women receive less funding for their businesses, particularly equity financing (Brush et al., 2001). Some studies consider that women do not want to operate in high-growth ventures or are less likely to seek VC for their startups (Balachandra, 2020). Others hypothesize that

women do not have the right educational background to build large ventures and their businesses are perceived as risky investments because of their industry choice or growth expectations. The Diana project, launched in 1999, was the first study to analyze this and debunk some myths around female entrepreneurs in relation to fundraising. They identified the lack of source funding as reason for why women-led businesses tend to be smaller than the ones of their male counterparts and do not grow as much. Indeed, this has been followed by several studies and research that highlight the disparity in acquiring funding between women and men as well as the obstacles that women face (Brush et al., 2001).

To explain why there are so few women-led businesses funded by VC, Brush et al. (2018) propose three theoretical perspectives with a focus on the financial supply side. The first perspective refers to *social network*. Accordingly, the VC industry is described as a close, difficult-to-access, geographically concentrated and male-dominated network that is tightly interconnected, determining the firms' success. In fact, as most VCs invest in deals brought to them or referred by people they know, networks are deemed highly valuable. Thus, entrepreneurs can increase the likelihood to successfully raise capital if they know the VCs or people from their network (Carter et al., 2003). As women and men are involved in different networks where there are more people similar to them, women are excluded from the network of VCs, making it harder for them to connect and gain attention for their interests (Greene et al., 2001). As a second perspective, Brush et al. (2018) propose *structural barriers* i.e., the institutional environment of the VC industry. Due to the VC industry being predominantly male, the rules, beliefs and practices are influenced by men, making it harder for women to enter or succeed in this terrain. For instance, pitching tends to be "confrontational, competitive and judgmental; all practices that are 'male' in nature" (Brush et al., 2018, p. 130). The last perspective refers to *stereotypes* and *homophily*. The former, describes the obstacle of women seeking VC as successful entrepreneur are stereotypically perceived as male. Furthermore, the homophily mechanism may also explain the gender gap in raising venture funds as it implies that men are more likely to prefer investing in ventures with male founders or male management teams rather than female-led ventures (Brush et al., 2018). Due to the male dominance of the VC industry, it is less likely that gender homophily works in favor of female entrepreneurs (Brush & Greene, 2020).

A study by Kanze et al. (2018) tried to make sense of both the investor-driven and entrepreneurial-driven explanations regarding gender disparity in venture funding by analyzing questions and answers between

VCs and entrepreneurs in a pitching process. They found that a cognitive bias associated with stereotypic judgments results in gendered questions from VCs side. In fact, VCs tend to ask *promotion-focused questions* (i.e., they emphasize reaching growth-oriented gains) to male entrepreneurs while *prevention-focused questions* (i.e., they emphasize maintaining non-losses) to female entrepreneurs. Thus, they suggest that investors do not have an explicit bias against women based on their observable characteristics but rather an implicit one. These differently framed questions give female entrepreneurs less opportunities to present themselves in the same beneficial way as their male counterparts in front of investors. Furthermore, contrastingly to research findings on homophily, they observed this cognitive bias also with female VCs.

Moreover, Balachandra (2019) finds a general bias against femininity by VCs. Both men and women are less likely to be selected when they show feminine behavior during their pitch. However, the author does not discover that women are further penalized when they act "masculine", going against their gender role, as previously displayed in other studies since entrepreneurship seems to be perceived as a "manly" context (Ahl, 2006; Brush et al., 2018). Thus, Balachandra (2019) argues that in VC funding, there is not a bias against the entrepreneur because of the sex per se during the pitch but rather when the entrepreneur displays traits of femininity (i.e., a stereotyped behavior) which is more likely to occur for women. This provides a context for female entrepreneurs to act inconsistently with their gender stereotype behavior to score higher in investors' evaluations.

However, before a pitch it is also crucial to investigate how many women are considered. As VCs commonly specialize in their area of expertise and/or interest and the industry is predominantly male, it might also result in a gender bias in the evaluation of opportunities. The market or industry of the business is a critical consideration. However, as this industry or market assessment is subjective, men might disregard "female" markets. Entrepreneurs might start ventures that aim to solve problems or needs that they have personally identified. Thus, male entrepreneurs are more likely to start ventures based on needs or markets for men and likewise for female entrepreneurs (Balachandra, 2020; Gatewood et al., 2009). This means, however, that the opportunity identification process is already part of her failure when a woman seeks VC funding. Therefore, Balachandra (2020) considers a bias against the gender of the venture. Male investors may associate companies in a female market to lack strong growth potential due to lower performance assumptions for female products or services. They may also feel that ventures

focusing on female markets are not "cool" enough or "appropriate" to discuss and to fund them such as breast pump technology entrepreneurs. It can also be observed that male VCs refuse to fund a "female" product since they do not have any connection to it and cannot use it. Indeed, the author's evidence shows that male VCs are biased against ventures with female markets, thus selecting them less likely for investment considerations. However, VCs are more interested in these female market ventures when there is a male in the management team. Thus, there is a "doubled" gender bias when a female entrepreneur seeks funding for a venture in a female market. Conclusively, women are more likely to found start-ups in female markets and thus they may face greater hurdles already in the consideration phase for VC funding by the male decision-makers.

Lastly, Kanze et al. (2020) find evidence for a *"lack of fit" effect*, suggesting that female-led companies that cater to male-dominated industries receive less funding compared to female-led companies that cater to female-dominated industries since investors perceive a lack of industry fit and scepticism about executive capacities. Contrastingly, male-led companies receive similar funding outcomes independent of the gender dominance in the industry and whether it is a lack of fit by catering to female-dominated industries. This also applies to venture funding valuations. Interestingly, the scholars also find that female founders raise significantly more funding and not less when catering to female-dominated industries that are considered a fit. However, as this part of the market tends to be less familiar to male investors who are the majority of decision-makers in VC, it creates barriers for women to overcome when catering to female-dominated industries.

2.3. The Role of Proportional Representation

Researchers have investigated women's proportional representation to the total number of people (e.g., employees, board members, business owners) within different contexts such as firms, industries, or political bodies. In a firm's context, research typically finds that a high proportional representation of women at senior management is beneficial to women at all levels (Kalnins & Williams, 2021). These benefits may relate to women's performance and "more positive stereotypical beliefs and norms shared within these contexts" (Kalnins & Williams, 2021, p. 5). Indeed, evidence has shown that the fit between women's stereotypical attributes and success is assessed less favorably by women in male-dominated companies compared to women working in firms with a higher proportion of women in senior positions (Ely, 1995). Kalnins and Williams (2021) find that women-owned ventures survive longer than their

male counterparts' ventures in geographical areas that are characterized by a large proportional representation of women among business owners. Interestingly, the author further contend that their geography work could also be extended to industry. In addition, their findings suggest that entrepreneurship can enable women to break free of the "glass ceilings" experienced in corporations if there is a high proportional representation of women-owned firms among business owners. Otherwise, female entrepreneurs may encounter similar challenges in entrepreneurship as in corporations.

Besides the above-mentioned benefits for women, literature suggests that higher proportional representation of women among all career levels and business owners is expected to benefit companies and the economy. Among others, gender diversity benefits may include more successful entrepreneurial outcomes of a firm (Lyngsie & Foss, 2017), higher economic strength (Unnikrishnan & Hanna, 2019), foster creative solutions (Van Knippenberg et al., 2004), improved motivation and commitment of women in lower managerial positions (Dezső et al., 2016) and a reduced gender pay gap (Abraham, 2017).

2.4. Women in Technology

Coincident with the previously discussed female entrepreneurship literature, women are less likely to create a high-growth, innovation- and tech-based business compared to men (Wheadon & Duval-Couetil, 2019). However, tech companies play a key role in economies around the globe. "They drive economic growth, productivity gains and have created new industries and innovative products and processes" (Grinstein & Goldman, 2006, p. 122). Moreover, prior research shows that working in the tech industry leads on average to better labor market outcomes such as higher earnings (Kuschel & Lepeley, 2016). Another noteworthy aspect is that tech companies are often targeted by the financial community's investment strategies (Grinstein & Goldman, 2006). Indeed, the ICT industry has been thriving, attracting almost half of the total global VC investments (KPMG, 2020).

Despite the industry's growth and importance, there is an even more prominent gender imbalance in tech entrepreneurship (BarNir, 2021). Moreover, women account for only a small fraction of patents which posit the basis of innovative processes and products (Cetindamar & Beyhan, 2019). In research, the explanations for the significant underrepresentation of female entrepreneurs in technology are like the barriers and challenges faced by female entrepreneurs in other industries. Moreover, there is a deep link

between technology and masculinity (Poggesi et al., 2020). As a consequence, men are more likely to be associated with technology than women, which makes it a gender-biased space (Henwood, 2000; Walby, 2011). This originates from implicit, socially-constructed perceptions such as men being more innovative than women (Ranga & Etzkowitz, 2010) or men having the necessary competencies to succeed in this field (Ezzedeen & Zikic, 2012). According to Wheadon and Duval-Couetil (2019), technology entrepreneurship is a double gendered space as both technology and entrepreneurship are usually associated with masculinity, making it a challenging entrepreneurial field to enter for women. Even if women overcome the barriers to entrepreneurship, they are inclined to choose a typical feminine sector such as hospitality. Thus, the authors stress the importance "[…] to recognize the layered nature of barriers found in overlapping gendered contexts […]" (Wheadon & Duval-Couetil, 2019, p. 309). These gendered stereotypes, inter alia, impact women to choose studies without a science, technology, engineering, and mathematics (STEM) background, leading to a significant gender imbalance in these educational programs and thus, contributing to the gender gap (Poggesi et al., 2020). Other explanations include missing self-efficacy of women, female entrepreneurs having weaker networks or the scarcity of female role models (Cetindamar & Beyhan, 2019).

Moreover, Ezzedeen and Zikic (2012) argue that female entrepreneurs in the tech field are often exposed to sabotage and opposition of male subordinates. Although female entrepreneurs are self-employed, their ventures still operate within a heavily male-dominated industry and environment (e.g., in terms of capital providers or clients). This adds additional obstacles for female entrepreneurs in the tech field compared to other industries (Ezzedeen & Zikic, 2012). Furthermore, the tech industry is characterized by a demanding and hostile work environment e.g., in terms of working hours, required traveling as well as risk and technological uncertainties (Elfring & Hulsink, 2003; Ezzedeen & Zikic, 2012). The latter can negatively impact other aspects deemed important by female entrepreneurs, such as work-life balance (Orser et al., 2007), causing a considerable number of female entrepreneurs to exit the technology field (Sylvia Ann Hewlett et al., 2008; Walker et al., 2008). Lastly, scholars have also criticized and called attention for the non-inclusion and consideration of women's ideas as well as needs in technology design and implementation (Andrews, 2018). Overall, the tech industry compared to other industries lags severely behind in the matter of gender diversity (Ezzedeen & Zikic, 2012). Although, the technology

space can be very challenging for both female and male entrepreneurs, it is particularly difficult for women because of the above discussed reasons.

Another stream of literature highlights and investigates the disruptive potential of technology on entrepreneurship. These scholars see digital technologies and applications as an enabler of female entrepreneurship and recognize their ability to transform the entrepreneurial landscape (Ughetto et al., 2020). More specifically, they examine whether and how cyberspace can reduce barriers for female entrepreneurs and enable them to create new ventures (Dy et al., 2018; Martin & Wright, 2005). Among other, these studies find that digital technologies change the entrepreneurial landscape of women. These technologies lower entry barriers in terms of increased work flexibility, decreased mobility constraints, better access to business, and funding opportunities (e.g., crowdfunding), as well as improved access and absorption of knowledge (Dy et al., 2018; Martin & Wright, 2005; Rosser, 2005; Ughetto et al., 2020). Thus, these researchers argue that technologies can posit a unique opportunity to empower traditionally underrepresented groups in entrepreneurship such as women by contributing to overcome gender disparities in entrepreneurial activities (Dy et al., 2018; Martin & Wright, 2005).

Lastly, in the literature exist numerous definitions of technology. On a broader level, there is the common consensus that any firm with technological activities and technology-based innovations can be characterized as a *technology firm* (Grinstein & Goldman, 2006). However, when it comes to a more specific characterization and classification of the term technology and correspondingly, the notion of which firms belong to it, it becomes more complex. Prior scholarly work has shed light on the shortcoming in academia that business researchers in tech used to investigate primarily "high-technology" industries such as biotechnology while excluding other "low-technology" industries with significant levels of technological activities such as textile (Grinstein & Goldman, 2006). Drawing on this recognized bias in academia (Mendonça, 2009; Von Tunzelmann & Acha, 2009) and considering the context of this master thesis, namely the Femtech industry, it is deemed crucial to clarify that we include both high-tech as well as low-tech in their technology terminology.

3. Methodology

This chapter outlines the methodological path and explains the reasoning for our methodological choices. Moreover, it is concerned with showing how the collected data contribute to this study's research purpose and the connection between why data was collected and how it was analyzed. Therefore, the first section elaborates on the study's research purpose, followed by the research philosophy and the research approach to theory development. Subsequently, the research design is discussed, including the research setting, study design, data collection, and data analysis. Finally, the data quality criteria are addressed.

3.1. Research Purpose

In the present study, two dominant research purposes exist, namely *descriptive* and *exploratory* (Saunders et al., 2019). The former applies to the industry analysis which aims to provide a rich description and understanding of the Femtech industry and thus, contributes to answer RQ1; the latter refers to RQ2 and explores what the experience of female entrepreneurs in the Femtech industry is. The combination of research purposes originates in the limited availability of academic literature, industry reports, and general knowledge about the Femtech industry and its entrepreneurs (Menking & Kaplan, 2020). Thus, we deep dive into the Femtech industry through desk research (see 3.5.1.), allowing the creation and collection of important insights about what defines the industry, its characteristics and how it influences the playing field for female entrepreneurs. The industry analysis is fundamental as the Femtech industry is the context in which this study's informants i.e., the interviewed female entrepreneurs, operate (see 3.5.2.). Therefore, our research aims to offer a profound understanding of the Femtech industry, its female entrepreneurs' experiences, and their interrelation. Thus, the descriptive part acts as a forerunner to the exploratory part. Moreover, we intend to advance the knowledge about female entrepreneurship as it could enhance the understanding and ways to action to counter barriers that are unique to women in the context of entrepreneurship and beyond.

3.2. Research Philosophy

According to Saunders et al. (2019, p. 130), the research philosophy "refers to a system of beliefs and assumptions about the development of knowledge" and influences the way scholars understand the RQ, select their methods and interpret their findings. Thus, reflecting and recognizing these philosophical underpinnings is crucial.

For this master thesis we take an *interpretivist stance*. According to this view, different people make distinctive meanings and thus, create and experience different social realities (Saunders et al., 2019). Interpretivist studies try to take account of this complexity. Their purpose is to create new and deeper understandings and interpretations of the social world in which multiple meanings as well as realities exist (Saunders et al., 2019). Hence, this study incorporates *subjective* perspectives and seeks to gain an in-depth understanding and new insights into female entrepreneurship in the Femtech industry, rather than finding a universal law or general explanation. Moreover, we are aware that the factual data used for the analysis of the Femtech industry describes a certain reality depending on the author. Thus, it can be considered an interpretation. Lastly, we and the informants are not assumed to be able to detach ourselves from our values. Therefore, our and our informants' values and interpretations are expected to influence our research.

Besides the above discussed standpoint of interpretivism, a *feminist stance* is taken. This originates in our sensitivity towards and awareness of existing inequalities between women and men, for instance, regarding entrepreneurship or healthcare. These gender inequalities between women and men are also recognized in academic literature. Thus, we desire to explore the experience of female entrepreneurs in the Femtech industry. By interviewing and observing female entrepreneurs within the Femtech industry, women's experiences are put at the center of research and knowledge creation. This is in line with Du Bois (1983, p. 108) who argue that feminist research should "address women's lives and experiences in their own terms, to create theory grounded in the actual experience and language of women". Further, among feminist scholars, qualitative methods, including interviews, are considered highly valuable because they give women a voice (Mauthner, 2020). However, even though women are at the center of this research, we conduct it for *both women and men*. This is deemed crucial to counteract structural barriers embedded in societies and promote equality in the context of entrepreneurship but also beyond.

3.3. Research Approach to Theory Development

In qualitative research, the research approach to theory development encompasses the relation between data and theory and should be considered by researchers (Kennedy & Thornberg, 2018). It enables scholars to make informed decisions about their research design, make methodological choices, think about their research strategies, and adapt their research design catered to possible constraints (Easterby-

Smith et al., 2012). There are three research approaches to theory development, namely deduction, induction, and abduction. For this master thesis, an *inductive research approach* is chosen. Inductive logic starts by collecting data. From this data a pattern is identified and a general theory or a richer theoretical perspective than the one that already exists in literature is derived (Kennedy & Thornberg, 2018; Saunders et al., 2019). Hence, data is the basis from which conclusions can be inferred (Thornberg & Charmaz, 2014). However, inductive conclusions emerge from a scholar's interaction with the data and without pre-supposing a specific outcome at the beginning. They are in nature speculative and subject to error (Kennedy & Thornberg, 2018). In light of this shortcoming, all collected data throughout this paper's research is considered *interpreted data* rather than raw data i.e., we claim to have an interpretive portrayal rather than an exact picture of the phenomenon studied and are aware of their hypothetical nature (Charmaz, 2014; Kennedy & Thornberg, 2018). This is in line with Saunders et al. (2019) who stress the importance of subjective interpretations for an inductive research approach which is typically informed by an interpretivist philosophy.

3.4. Research Design

According to Saunders et al. (2019, p. 815) the *research design* is a "[f]ramework for the collection and analysis of data to answer RQ and meet research objectives providing reasoned justification for choice of data sources, collection methods and analysis techniques". To explain it simpler, the research design can also be described as the blueprint for a scholar's research project starting from the RQ (Philliber et al., 1980; Yin, 2014). Thus, it explains all decisions made throughout the entire research process and how we intend to answer our RQs, starting with the outline of the research setting.

3.4.1. Research Setting: Healthtech and Femtech

To better understand the context in which Femtech ventures operate, in the following we provide a brief status-quo overview of the healthcare industry. The *healthcare industry* is defined as "industries that develop and provide solutions and/or services across the care spectrum for diagnosis, treatment, and prevention" (Frost & Sullivan, 2016, p. 14). Under this broad category lies the industry branch *Healthtech*. According to Devenyns et al. (2021), Healthtech is the "broader term which covers any technology or offering within the consumer care, medical care, or broader healthcare system that has been enabled or revolutionized by modern computing and/or engineering". Within Healthtech, *digital*

health plays a large role which "includes technology and computational approaches associated with generating and analyzing large datasets in order to build knowledge or optimize outcomes" (Devenyns et al., 2021). The ultimate goal is to achieve better patient outcomes while improving efficiency and enhancing cost-saving (Frost & Sullivan, 2019b). As outlined, there is limited availability of general knowledge about our research object itself i.e., the Femtech industry, for which we aim to provide a rich description and understanding through our industry analysis (RQ1). However, we can situate it under the industry branch Healthtech, which in turn is part of the healthcare industry. Thus, Femtech lies at the intersection of the healthcare and tech industry.

There are several trends that have started in the last years and are transforming the healthcare industry, impacting Femtech as well. Firstly, there is a general trend of consumerization that gains momentum also in the healthcare industry (CB Insights, 2020). Thus, this trend of customer-centricity in healthcare has replaced one-size-fits-all approaches, leading to *personalized medicine*. In fact, precision medicine takes everything related to the patient into account, namely from genetic conditions over environment to lifestyle or mental health. Secondly, there is a shift ongoing from reactive care with a focus on treatments of diseases to *proactive care* where prevention and wellness are the focal points having the aim of "prevention is better than cure". Thirdly, reimbursement regulations will evolve from procedure-based/fee-for-service payment models to *outcome-/value-based payment models,* taking complete care pathways into account and incentivizing quality rather than quantity of treatments. Lastly, primary care will be available *anywhere* and *anytime* i.e., patients are unrestricted from their location or working hours of healthcare professionals (HCPs) to benefit from healthcare (Frost & Sullivan, 2016, 2020c). These trends are supposed to lead to overall higher customer experience and satisfaction which is the top priority of healthcare businesses (Frost & Sullivan, 2020a). Moreover, these trends are highly correlated and driven by the rise and application of technology in the healthcare industry resulting in a *convergence of technology and healthcare*, leading to a boom in Healthtech. The advancements in AI, augmented reality and big data analytics impact the rise of new technologies such as Wearables and devices, Telemedicine, mHealth or Healthcare IT (Frost & Sullivan, 2019a). These tools allow healthcare to be more personalized, accessible and affordable (Colban & Akers, 2020).

The disruption of the healthcare industry has been accelerated by the outbreak of Covid-19, which has shown both the importance of the healthcare industry and its digitalization. More particularly, it has

accelerated the acceptance and demand for digital health and (digital) consumer-centric services (CB Insights, 2020; Safavi & Kalis, 2020). Furthermore, telehealth has been growing over the past years and particularly compared to 2019, the openness towards telemedicine and treatments via webcam has significantly increased (Brainwave Hub, 2020; STADA, 2020). In fact, telehealth startups have raised a record of $3.3B in the fourth quarter of 2020 (CB Insights, 2020). Venture funding for digital health companies has almost doubled in 2020 compared to 2019, reaching an all-time high (DeSilva & Zweig, 2021). Moreover, companies that develop products and solutions that address well-being and care delivery are expected to receive the major share of investments in 2021 and beyond (Micca et al., 2021). Overall, most funding goes into categories that involve the patient journey rather than the operational side of healthcare, illustrating the trend of customer-centric care (Brainwave Hub, 2020).

To conclude, this research setting is useful for situating Femtech and therefore, providing the context in which Femtech ventures operate. Moreover, it gives a more profound background knowledge to the subsequent analysis of the Femtech industry. For a more detailed characterization, we refer to chapter 4. Lastly, for simplicity reasons, we refer to Femtech as an industry, being a sub-category of Healthtech, in the healthcare industry.

3.4.2. Multi-Method Qualitative Study

"Insights obtained from qualitative research can not only add texture to an analysis but also demonstrate meanings and understandings about problems and phenomena that would otherwise be unidentified" (Berg & Lune, 2012, p. 154).

To explore the RQs, a *multi-method qualitative study* research design is considered most appropriate. Therefore, this study uses different qualitative data collection techniques and analytical procedures (Saunders et al., 2019), encompassing desk research to collect archival data such as online newspaper articles, industry statistics, and reports, 13 semi-structured interviews and non-participant observations of seven Femtech webinars. Both numeric and non-numeric data are included, the former being less common in qualitative research. However, the use of numeric data (e.g., growth rates, investment amounts, market size) is deemed fitting because it is solely used for the descriptive part of the research and complemented by non-numeric data (e.g., newspaper articles). Accordingly, no quantitative methods are used. Looking at the entire research project, the descriptive, numeric data plays a minor role compared to the explorative, textual data gathered during the interviews. Commonly, qualitative studies are

underpinned by an interpretive philosophy as scholars have to "make sense of the subjective and socially constructed meanings expressed about the phenomenon being studied" (Saunders et al., 2019, p. 179). As discussed in section 3.2., this corresponds to the present study's underlying research philosophy. Hence, female entrepreneurs are given a voice and meaning is derived from their words. This enables us to gain a deeper and more complex account of women's entrepreneurial experiences than a quantitative research design. Moreover, many qualitative studies rely on an inductive approach to theory development which is consistent with this study's approach. Lastly, due to this study's limited time horizon (January to May 2021) and the subsequent snapshot provision of the Femtech industry and its female entrepreneurs, it can further be characterized by its *cross-sectional scope* (Saunders et al., 2019).

3.5. Data Collection

This part of the methodology chapter illustrates how the data of this study has been collected. Therefore, different types of data sources are used, namely desk research, semi-structured interviews, and observations.

3.5.1. Desk Research

To answer RQ1 and build a profound knowledge base about the Femtech industry, we collected *archival data* through extensive desk research. Therefore, public, reliable, and on the Internet available secondary data (i.e., data that was originally collected for a different purpose) such as newspaper articles, websites, industry statistics, reports, and databases (such as Frost & Sullivan, CB Insights or Statista) relevant to the Femtech industry are gathered, reviewed, and analyzed. Thus, the industry analysis relies heavily on pre-existing data. Besides the publicly available secondary data, we also contacted key stakeholders within the Femtech industry such as network owners, investors, and researchers to gain access to more industry-related sources. Unfortunately, only very limited useful sources were provided. Lastly, over the course of the research, the scholars have been able to access additional and new secondary data through newsletter of Femtech networks as well as tech market intelligence platforms, Femtech media platforms and by joining Femtech LinkedIn groups.

3.5.2. Semi-structured Interviews

To answer RQ2, we have used *semi-structured interviews* to collect primary data (i.e., data collected specifically for a research project) from female entrepreneurs in the Femtech industry (Saunders et al., 2019). Semi-structured interviews are a data collection technique in which the interviewer prepares several specific questions and topics that are asked and covered in a pre-determined order. However, the interviewer has the freedom to digress from that and vary the order or to probe about different topics (Saunders et al., 2019). The latter is particularly important in studies underpinned by an interpretivist philosophy. Probing allows the researchers to add significance and depth to the obtained data by asking the informants to explain or build on their previously shared thoughts (Saunders et al., 2019). Furthermore, given the research's exploratory nature, we try to remain flexible and willing to adapt to any new insights that appeared during the data collection process (Saunders et al., 2019). Lastly, conducting semi-structured interviews in explorative studies is typical for feminist research to give women a voice (Mauthner, 2020) and to understand the reasons for the decisions, attitudes, and opinions that the participants have taken (Saunders et al., 2019).

Sampling

We chose the respondents on the basis of purposive sampling, a "non-probability sampling procedure in which the judgement of the researcher is used to select the cases that make up the sample" (Saunders et al., 2019, p. 813). In qualitative research designs this approach to sampling is widely used (Saunders et al., 2019). The respondents have been selected according to criteria that enable the researchers to answer RQ2 in the best possible way. Furthermore, purposive sampling is often used when working with rather small samples and the selected cases are intended to be particularly informative. In line with this, the interviewees are selected based on the following four selection criteria:

First, in line with the research objective of this master thesis, they must be *female entrepreneurs operating in the Femtech industry*. In this study, a female Femtech entrepreneur is defined as a female (co-)founder of a Femtech business, including networks and accelerators. Second, the respondents are chosen based on their *type of product* i.e., apps, devices, wearables, or services. This is regarded as highly valuable because of the unique challenges, opportunities, and entrepreneurial decisions that companies with diverging product types might be exposed to. Third, throughout the participant selection, the

scholars overarching goal is to create a sample as diverse as possible. Therefore, per type of product 50% of the participants shall be *female founder (solo or teams)* and 50% *mixed founder teams.* Fourth, to increase variation, *no geographical restrictions* exist but rather female entrepreneurs worldwide are considered. In line with the definition of female Femtech entrepreneur, one network and one accelerator founder have been interviewed. Both the network and accelerator founder are highly engaged in the Femtech industry and in contact with a great variety of female founders, thus, they are considered very informative and enriching informants. They are expected to add new perspectives and different insights about the entrepreneurial landscape for women in the Femtech industry as well as offer a more holistic view on female entrepreneurship within the Femtech space.

Based on these selection criteria, we identified several female entrepreneurs in the Femtech industry and contacted them via email or through contact forms on their firms' websites. Moreover, we were featured in a weekly newsletter of a European Femtech network, advertising our research to reach additional female entrepreneurs. However, due to low positive responses, we were not able to acquire an equal number of founders for each type of product (in fact, no founder was acquired for the product type wearables) and we could not achieve the desired 50%-50% split between female-only and mixed-teams. Thus, additional founders were contacted and existing contacts within the Femtech industry were leveraged to get access to new informants on an ongoing basis. In the end, a total of 36 female entrepreneurs were contacted. Despite these difficulties, we always tried to contact female founders as diverse as possible while following the pre-defined selection criteria as far as possible. In the end, the subsequent list of informants emerged *(Table 1)*:

Entrepreneur	Company Description	Type of Product	Team Composition	Country
E1	App that helps tracking menopause symptoms, seeing trends and getting tips on what to do to feel better	App	Female-only	Sweden
E2	Platform to learn about and manage PCOS symptoms	Service	Female-only	UK
E3	Personalized App coach for female athletes	App	Female-only	US
E4	Virtual health care assistant with a focus on endometriosis and PCOS	Service & App	Female-only	UK
E5	App and community helping women with hypnotherapy for sleep, confidence and anxiety	App	Female-only	UK
E6	Digital health clinic and app for women in emerging markets	Service & App	Female-only	Sweden
E7	Egg freezing, fertility tests and education about fertility	Service	Mixed	Germany
E8	Sexual wellness device and wellness coaching	Device	Female-only	US
E9	Kegel fitness (pelvic floor) device and tracking solution	Device	Female-only	US
E10	Digital clinic for women in menopause	Service	Female-only	US
E11	App for personalized treatment of menopause symptoms	App	Female-only	UK
E12	Femtech network that provides resources to Femtech founders and connects healthcare professionals, investors and entrepreneurs	N/A	Female-only	US
E13	Femtech accelerator and media platform	N/A	Female-only	UK

Table 1: Interviewee Overview

Commonly, in interview studies researchers tend to perform 15 +/- 10 interviews (Brinkmann & Kvale, 2019). For this study, 13 interviews were conducted, which is in line with Guest, Bunce and Johnson (2006), who state that data saturation often occurs with the analysis of the 12th interview. Because of the current Covid-19 crisis and the large geographical distance between the informants and us, all interviews were conducted online on Microsoft Teams in English and they lasted between 45 and 90 minutes. The initial email sent to all interviewees provided an overview of the research project, its problem statement, and some general information about the interview itself such as time horizon and duration. To ensure the quality of our collected data and increase the understanding and interpretation of the interviews, we prepared ourselves for each interview individually (Saunders et al., 2019). Besides our knowledge gained through the analysis of the Femtech industry, we researched the individual female entrepreneur and her company to familiarize ourselves with the interviewee and, if relevant, address specific questions. At the beginning of each interview, we repeated the research objectives, and the interviewees were given the opportunity to ask questions to clarify any remaining ambiguities. This ensured the interviewees' understanding of the research topic. All informants were confirmed confidentiality regarding their

collected data which was deemed crucial to prevent any misunderstandings or misinterpretations during the data analysis and thus, to produce high-quality data. Moreover, we asked each informant for their permission to record the interview and to use their own and their company's name in the analysis. As researchers, it is also important to consider how data can be accessed and collected ethically. An ethical way can be described by "the standards of behavior that guide your conduct in relation to the rights of those who become the subject of your work or are affected by it" (Saunders et al., 2019, pp. 252–253). Thus, it is of utmost importance to us to ensure that the informants have the option to refuse being recorded and publicly stated in this master thesis. As one informant wished to be anonymized, we decided to anonymize all participants.

The interview guide was developed simultaneously and interactively to the industry analysis. In fact, key insights of the industry analysis, such as common barriers or dominance of female founders, are embedded in the interview guide. Furthermore, thematic fields such as motivation or role models commonly discussed in academic literature investigating female entrepreneurship and women in tech determined the interview questions. The interview guide was further aligned for the interviews with the Femtech network founder and accelerator founder because of their diverging area of expertise. As commonly seen within qualitative research (Saunders et al., 2019), the interview guide was altered by us after a couple of interviews due to our shared impression that a modified structure and different wording of the question would contribute to a better understanding of the questions by the informants. Finally, this resulted in 14 key aspects (e.g., fundraising, female entrepreneurship in Femtech) and more sub-aspects that were addressed throughout the interviews (*A13*).

3.5.3. Observations

For the purpose of this master thesis (RQ2), we gained access to webinars hosted by one of the largest Femtech networks worldwide by asking the network's co-founder for permission (*A12*). More specifically, we observed their panelists who were mostly female entrepreneurs speaking. Therefore, we have a *non-participant observer* role which classifies the observations as *non-participant observations* (Spradley, 2016). During the observations, we share no physical or virtual proximity to the female entrepreneurs. Thus, we are not present at the online events but instead watch the online recordings of the webinars to conduct our observations. Traditionally, when using observations as a research method,

aspects such as body language or facial expressions are observed. However, for this research project, the focus is on the textual aspects. Consequently, we are interested in observing the thoughts and opinions shared by the female entrepreneurs as well as their entrepreneurial experiences. All observed statements deemed relevant for answering the RQs are noted, analyzed and ultimately, interpreted. Hence, the observations provide us with additional personal experiences of female founders within the Femtech industry beyond the selected interview informants, complementing and enriching the interview findings. However, when leveraging non-participant observations, some ethical concerns may arise such as from a consent, data use and confidentiality standpoint. As we did not organize or host the webinars, we are not in direct contact with the entrepreneurs and cannot ask them for their consent to participate in this research project. Even though the webinars are accessible online, the speakers may have shared their experiences and opinions in the belief that they will not be subsequently used and analyzed or "harvested" for academic purposes (Saunders et al., 2019). Even though the network's co-founder granted us access to the webinar recordings, knowing our real identities and research objectives, we keep all informants anonymized. All statements and opinions shared by these female entrepreneurs are made for the webinars. Thus, it could be that these words are interpreted differently or even wrongly by us. However, as all topics discussed in these webinars relate to the Femtech industry – some even overlap with the topics covered during the interviews – and considering our in-depth understanding of the Femtech industry, this bias is believed to be minimal.

3.6. Data Analysis

The dataset from the interviews have been analyzed with the aim to answer our RQ2. According to Berg and Lune (2012), the analysis of qualitative research is undoubtedly the most difficult and creative aspect. "Because of the creative component, it is impossible to establish a complete step-by-step operational procedure that will consistently result in qualitative analysis" (Berg & Lune, 2012, p. 153). However, to reach our answer, we undertook a series of steps. Firstly, after each interview, we started with a debriefing session where we brainstormed and noted down the insights and opinions that we kept in mind (the most) and deemed most interesting or relevant for our research purpose. With each additional conducted interview, we could already identify some similarities and broad patterns among the interviewees. This constituted the first step of an in-depth understanding and analysis of the interviews. Secondly, we transcribed the audio-recorded interviews rather short after the interviews took place to get more familiar

with the content of the interviews. For the transcription of the interviews, we utilized the software "konch.ai", provided by Copenhagen Business School (CBS), which retrieved a first draft of the transcripts. However, the software missed a lot of the content and tone of the interviewees. Therefore, we filled the gaps by relistening to the interviews and transcribing them in the meantime. This step was important to gain additional contextual information such as non-verbal communication as without it, essential incidents affecting our interviews may have been missed (Saunders et al., 2019). The person who did not transcribe the interview proofread it after the other person completed the transcribing. In this way, we both got very familiar with the data and could refresh our memories, which is crucial to engage in subsequent analytical procedures. Thirdly, after the last interview was conducted and transcribed, we relooked through all our notes from the debriefing sessions and the transcripts and developed first codes based on a thematic analysis. *Thematic analysis* is thought of as "foundational method for qualitative analysis" "[…] for identifying, analy[z]ing and reporting patterns (themes) within data" (Braun & Clarke, 2006, pp. 78–79).

Due to our explorative research approach towards analyzing the experience of female entrepreneurs in the Femtech industry, thematic analysis is deemed the appropriate approach as it offers a systematic but flexible and accessible approach to analyze our whole data set (Saunders et al., 2019). Following our inductive approach, the identified patterns, derived from the data itself, guided us towards building our first codes. The process of coding is "how you define what the data you are analyzing are about" (Gibbs, 2012, p. 38). A code can be a single word as well as a short passage of text that have a similar meaning. Our first codes derived from the data itself as we were already quite familiar with our data set and were developed before we started the coding itself. Moreover, due to our inductive approach, we coded all our data to explore all possible meanings, resulting in additional sub-codes for every identified aspect to capture every possible nuance. For facilitating this process, we used the "NVivo" software, provided by CBS. An example of a code can be found in A2. After we coded all data, we identified themes based on relevant and interesting aspects, while keeping our research purpose in mind. A theme is defined as a "broad category incorporating several codes that appear to be related to one another and which indicates an idea that is important to your research question" (Saunders et al., 2019, p. 657). The identification of codes and themes has been an iterative process that involved going back and forth to arrive at our final themes. Noteworthy is that we cannot exclude that our pre-existing knowledge from the Femtech industry

analysis (RQ1) and theoretical underpinnings might have affected this process. Finally, after rearranging codes to themes and eliminating some codes that were not directly related to the experience of female entrepreneurs in the Femtech industry (e.g., Femtech market development), we arrived at several themes that could be grouped into our four main themes based on relevance and relation to one another *(A3)*. This ultimately defined the four key dimensions, presented in chapter 5 that lead to the answer of our RQ2 in chapter 6.

Lastly, as mentioned in sub-section 3.5.3., the observations have been utilized to complement and enrich our interview findings. Therefore, once we had established our four dimensions, we (re-) watched the webinars and read our notes to identify whether our findings could be confirmed or complemented, deriving our observations.

3.7. Research Quality Criteria

"All field work done by a single field-worker invites the question, why should we believe it?" (Bosk, 1979, p. 193)

In the context of research, it is important to show the reader that collected data and derived insights are of high quality and credible (Pratt et al., 2020). In quantitative, positivist and deductive theory testing research, this is achieved through the quality criteria validity and reliability (Saunders et al., 2019). However, due to the different philosophical and methodological underpinnings of qualitative research, many researchers have advocated the application of alternative quality criteria (Lincoln, 2004; Saunders et al., 2019). As suggested by Lincoln and Guba (1985), the trustworthiness and authenticity criteria may be appropriate for this qualitative study.

3.7.1. Trustworthiness

The *trustworthiness* criteria refer to the "degree to which the reader can assess whether the researchers have been honest in how the research has been carried out and reasonable in the conclusions they make" (Pratt et al., 2020, p. 2) and they consist of credibility, transferability, dependability, and confirmability (Bryman, 2015).

Credibility ensures the plausibility of a research project and relates to internal validity. It warrants that the socially constructed realities of the informants are correctly represented by the researchers (Saunders

et al., 2019). In this research, credibility is achieved through the application of triangulation by data source, method, and observer (Mabry, 2012). Concerning our sources, we relied on a wide variety of sources and participants to ensure the credibility of primary and secondary data while presenting different perspectives on the Femtech industry and its female entrepreneurs (see 3.5.). Moreover, to answer our RQs, multiple research methods were used. Lastly, triangulation by observer applies as we both were equally involved in the data collection and analysis. Thus, we continuously reflected and discussed new insights to guard against subjectivity and balance our interpretations. Ensuring triangulations adds value to this study by offering greater complexity and richness to our data (Saunders et al., 2019).

Transferability refers to the ability to transfer a study's findings to another setting that is of a reader's interest and thus, is equivalent to external validity or generalizability. However, transferability of findings is recognized to be problematic in qualitative research as these findings are often specific to a social context and the circumstances under which the study was executed (Bryman, 2015). In line with this, Pratt et al. (2020) argue that replication hurts or undermines the key strengths of an inductive, qualitative methodological approach, namely theory building and elaboration. In order to enhance transferability while recognizing the unique philosophical assumptions and strengths of a qualitative research method, we thoroughly outlined, described and reflected on our methodological decisions throughout this chapter (Lincoln, 2004). This offers the reader a "thick" or detailed description of how our findings are derived (Lincoln & Guba, 1985).

Dependability corresponds to reliability and is typically described as "auditing approach". Thus, it is deemed crucial to provide a reliable account of one's research by tracking and recording all steps along the research process in an accessible manner. Thereby, other people, such as peer researchers, are enabled to evaluate and review a study's findings and methodological decisions made (Bryman, 2015). As mentioned before, we outlined every step of our research process throughout this chapter. Moreover, all interview transcripts, calculations and sources are provided, giving readers sufficient data to judge the soundness of methodological decisions and reliability of findings. As a final remark, since we are two scholars carrying out this research project, we both continuously review and discuss all datasets and written materials.

Finally, *Confirmability* ensures that all data used for this master thesis is clearly traceable to the original source (Lincoln, 2004). It is equivalent to reliability and objectivity in quantitative research (Jensen,

2008). Thus, this final criterion of trustworthiness is concerned with measuring the study's accuracy in terms of truthfulness and meaning. However, as this criterion recognizes that complete objectivity is not possible, we shall show that we "have acted in good faith" (Bryman, 2015, p. 386). Therefore, we are expected to be open about any biases and show that our research and findings are not evidently influenced by personal values or theoretical inclinations (Bryman, 2015). To enhance confirmability, we both have been acting in a sincere and transparent way throughout this study which are deemed important aspects of confirmability (Jensen, 2008).

3.7.2. Authenticity

Additional to the trustworthiness criteria, the *authenticity* criteria cater specifically to the nature of interpretivist research and include the fairness as well as ontological, educative, catalytic, and tactical authenticity criteria. Thus, it is unique to qualitative research (Saunders et al., 2019). However, among scholars, their application has been subject to criticism. Bryman (2015, p. 386) claims that they are "thought-provoking" and "have not been influential". Moreover, there exist diverging opinions among researchers related to which form of social research the criteria are most appropriate for (e.g., Bryman, 2015; Pratt et al., 2020). Therefore, their "emphasis on the wider impact of research is controversial" (Bryman, 2015, p. 386).

Based on these considerations and after a careful assessment of each criterion, we decided to proceed only with the *fairness criteria*. In line with this, Amin et al. (2020) state that fairness is the most important authenticity criterion of all because of qualitative research's value bounded inquiry nature. In this study, female entrepreneurs are given a voice and their different perspectives and socially constructed realities are included and represented independently of the scholars' own views. Thus, the study is considered fair as each informant's viewpoint is considered regardless of their consensual or competing character and their different views are represented in a well-balanced way. Moreover, because of the semi-structured nature of the interviews, all informants are mostly asked the same questions, giving everyone the opportunity to express their opinions on all addressed aspects. Thus, we try to equally include all perspectives when making sense of the women's entrepreneurial experiences in the Femtech industry. Lastly, in chapter 5, many participant quotes are used to show and convey their realities in the most authentic way.

4. Findings of RQ1

This chapter presents the findings from our analysis of the Femtech industry and ultimately, leads to the answer of our RQ1: *"What is the Femtech industry and how does it influence the playing field for female entrepreneurs?"*.

4.1. Setting the Scene

The following sub-sections define and explain the origin of the Femtech industry and its entrepreneurial female dominance in more detail.

4.1.1. Definition of the Term Femtech

In 2016, Ida Tin first coined the term *Femtech,* which is the abbreviation for *female technology* (Cambridge Dictionary, 2021), to describe the increasing number of women's health products occurring on the market at the time and to reduce investors' discomfort when discussing women's health topics such as menstruation (Menking & Kaplan, 2020). Since then, Femtech has increasingly gained traction and is commonly used to describe "technological solutions such as device, diagnostic, product, software, app or services or any combination thereof, catered to the needs of women's health" (Frost & Sullivan, 2020b, p. 16). Thus, the early-stage and upcoming Femtech industry is developing products and services using technology to serve women's health. However, the rise of the Femtech term has also been seen as controversial. Some critics argue that creating a distinctive term for women's health products and services reinforces the stigmatization of men being the norm and women being the "other" (Capriccio, 2020; Untitled Kingdom, 2020). This critique is usually underpinned by the question why there is no Mentech term to describe technology serving men's health (Kleinmann, 2019). According to Martikainen (2020), most health solutions cater to the needs of men and thus, Mentech is the default. Another critique has been that Femtech is a sexist category, limiting women to their reproductive biological functions (Goldhill, 2019). Contrastingly, Capriccio (2020) argues that the Femtech label is required or necessary to advocate for women's health and achieve gender equality. Another common concern has been that Femtech excludes individuals identifying with the transgender, nonbinary and other non-conforming individuals who face similar health issues as women (Frost & Sullivan, 2020b). Yet, not everyone understands the definition of Femtech limited to only cis-gendered women but rather more broadly and applicable to "anyone with female sex organs and hormones" (FemTech Live, 2021a). In line with this,

Capriccio (2020) highlights that the Femtech term's intention is to stress women's health – a part of the tech world that has historically been left behind – rather than dismissing other people on the sex and gender spectrum. Thus, the female emphasis with "*Fem*" is needed to make women's health a priority in tech, an industry that has historically been dominated by men who tend to ignore women's needs. Considering these critics, alternative and more inclusive definitions were suggested such as "technology, services and products that improve women, girls or female's health and wellness including problems that solely, disproportionally or differently affect women" (Barreto, 2021). As discussed above, the Femtech industry is still at its infancy and so is its definition. Thus, the Femtech definition is expected to continue evolving. For now, however, the term Femtech creates a space in which women's health can be addressed and awareness can be increased. It is a "vehicle to challenge the status quo, tackle taboo, and empower startups and entrepreneurs to openly question what it means, what it might mean, and what problems it solves" (Stover, 2021).

4.1.2. The Gender Data Gap in Healthcare

Historically, women have been underrepresented in healthcare across fields such as leadership positions (Stone et al., 2019) or medical trials (Dusenbery, 2018), leading to predominately male-skewed data and insufficient availability of women's health data. This is known as the *gender data gap in healthcare* or *gender health gap* (Criado Pérez, 2020). Indeed, many health issues unique to girls and women or health issues that predominantly or differently affect them remain poorly understood. While women's sexual and reproductive health has been studied in the past, other health issues such as mental health or depression have only been studied comparatively little (Temin & Roca, 2016). Another example is cardiovascular conditions (e.g., stroke), affecting both women and men. However, for women, they occur differently, such as in terms of symptoms or risk factors (Harvard Health, 2016; Maas & Appelman, 2010; Mauvais-Jarvis et al., 2020). This has led to, for instance, misdiagnosis and higher coronary heart disease mortality among women in the past (Van Hagen et al., 2021). Thus, medical areas concerning women's health still lack a lot of data. Moreover, it is important to note that the gender health gap is even more profound when considering the great variety of women, such as in terms of age, ethnicity, or geographic location (National Institutes of Health, 2014; NPFWF, 2018). In the past, among others, the gender health gap has led to the development of Healthtech solutions, such as a cardiac resynchronization therapy device tailored to the needs of men while neglecting the diverging needs of women. As a

consequence, female device users suffered from a higher heart failure and death risk compared to male device users (Hernandez, 2020). Collecting gender-specific data that describes women and men separately and including a diverse set of women is crucial to gain new and vital insights into women's health, counteract data biases and close the gender health gap. As Femtech companies collect large amounts of health data about women by leveraging their technology-driven solutions catered to women's needs at all life stages, they contribute to closing the gender health gap (Yu, 2020). To sum up, Femtech companies foster the comprehensive understanding of women's bodies (Yu, 2020) and help save more lives of women (Temin & Roca, 2016).

4.1.3. Dominance of Female Entrepreneurs

As most Femtech companies are founded and led by women or all-women teams, the Femtech industry is characterized by a *high share of female entrepreneurs* (Mahfoudhi & Wetzel, 2021). The exact share ranges depending on the source. For instance, BIS Research (2020) reports that 92% of the Femtech companies are founded and led by women. While Frost and Sullivan (2020b) state that as of 2019, at least 50% of the Femtech companies are founded or led by women. Despite these notable variations in percentages, there is a trend apparent across reports indicating that women are more likely to start a business in the Femtech industry. Contrary to this, academic literature stresses that women are less likely to start a business than their male counterparts, leading to a relatively low participation rate of women in entrepreneurial activities and thus, a prevailing dominance of male entrepreneurs globally. This applies especially to high-growth industries such as the technology industry (see chapter 2). However, also in the healthcare industry, in which women are considered the core workforce (making up nearly 80%) (Frost & Sullivan, 2020b), they are not sufficiently represented in managerial positions and venture founding (Malone & Stillman, 2021). According to Stone et al. (2019), women account only for 30% of C-Suite teams and 13% of CEOs in healthcare. Also, in terms of entrepreneurial activities in healthcare, women are less engaged. For instance, only 9% of businesses are founded by women in the Healthtech industry (Woods, 2017). Besides the high share of female entrepreneurs, it is also notable that 80% of the Femtech firms that successfully raised capital in 2019 were women-led. This is significantly higher than in digital health, amounting to 15% (Sandhu et al., 2020). In fact, between 2015 and 2018, only 2.5% of the European VC-backed female-founded startups with several founders had only women on their founding team (Kupor, 2019). Lastly, although research indicates that women account only for a

small fraction of patents (Cetindamar & Beyhan, 2019), it is striking that around 35% of the Femtech industry's patent filings have at least one female inventor compared to 19% in other tech areas (Forsyth, 2018). Overall, these statistics show a dominance of female entrepreneurs in the Femtech industry.

4.2. Market Overview

4.2.1. Market Size

As of 2019, the global Femtech market generated $601.2M in revenue and is expected to grow at a forecasted compound annual growth rate (CAGR) of 12.9% between 2019 and 2024. It is expected to reach $1.10B in revenue by 2024 (Frost & Sullivan, 2020b). Other reports, such as BIS Research (2020), indicate global Femtech market revenue of $820.6M in 2019 and estimated market revenue to surpass $3.04B by 2030.

To put the numbers into a global health context, according to the Global Digital Health Outlook report, the global digital health's market revenue is predicted to grow from $147B in 2019 to $234.5B in 2023 with a CAGR of 12% (Frost & Sullivan, 2019b). At the same time, the global healthcare industry as a whole has had estimated revenue of $2,001.23B in 2020, growing with a CAGR of "only" 5.5% to $2,615.53B in 2025 (Frost & Sullivan, 2020c).

As these numbers show, the market revenue of the Femtech industry represents a minuscule fraction compared to the revenue of the digital health market or the total healthcare industry. However, it is expected to grow at a faster rate than the global digital health and healthcare industry.

Moreover, the market potential is much higher. Frost & Sullivan (2019d) estimates the market potential of the Femtech industry to exceed $50B by 2025. Emergen Research (2020) values it at $60B by 2027 and Femtech Focus' recent estimation goes even up to $1.073T by 2026 (Barreto, 2021). Overall, this indicates that market penetration of the Femtech industry is still low and there is enough room for growth.

4.2.2. Market Segmentation

The Femtech market can be *segmented* in different ways such as *by type* i.e., services, software, or devices, *by application* e.g., reproductive health, mental health etc., or *by end-use* e.g., Direct-to-Consumer (D2C), fertility clinics, hospitals etc. (Emergen Research, 2020; Zion Market Research, 2020).

For this analysis, the *segmentation by application* has been utilized as it is deemed the most comprehensive. It encompasses and shows health needs across all stages of women's lives and the areas where Femtech companies are actively trying to find solutions. Following the corresponding market segmentation of Frost & Sullivan (2020b), the Femtech market can be divided into *pre-adolescence*, *pre-menopausal*, *menopausal*, and *post-menopausal* or *geriatric care segments*. Additionally, there is a segment for *cancer and other chronic diseases* and a *general health and wellness segment*, including nutrition, fitness, and sexual health.

The *pre-adolescence care segment* is usually covered in pediatric care and consists of very few companies addressing it with first-period kits. Thus, it is excluded in this study as it represents a neglectable segment for the purpose of this study.

The *pre-menopausal care segment* can be sub-segmented into menstrual care, fertility solutions, pregnancy, post-partum care[1], and pelvic health.

The *menopausal* and *post-menopausal/geriatric care segments* are strongly interrelated since the symptoms, conditions, and care overlap and include peri-menopausal, menopausal, and post-menopausal stages. Therefore, hereinafter it is called *menopausal care segment*.

Cancer and other chronic diseases is another segment of Femtech as women are prone to suffer more than men under certain medical conditions such as depressions, specific forms of cancers such as breast or ovarian cancer or autoimmune diseases such as rheumatoid arthritis.

Lastly, companies operating in the *general health and wellness segment*[2] address various issues like mind and body wellbeing with educational content through digital platforms, telehealth, or home-based tests (Frost & Sullivan, 2020b).

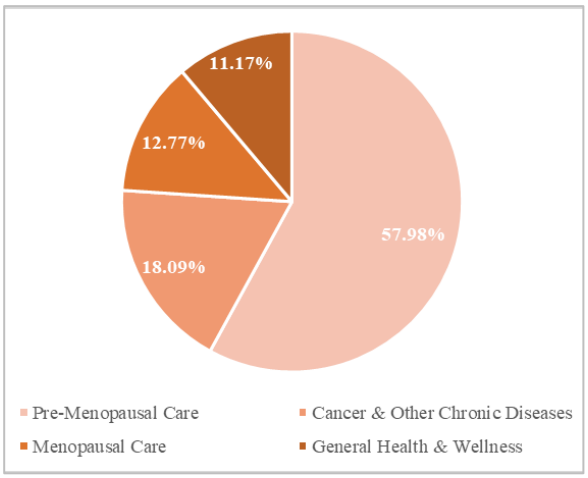
Throughout all segments, the Femtech solutions are offered via *apps, devices, wearables,* or *services* like digital platforms or care delivery (Frost & Sullivan, 2020b). According to BIS Research (2020), while apps represent the primary type (i.e., 62.3% of the entire Femtech market), services are expected to grow the fastest with a CAGR of 15.58%. At the same time, devices and wearables are likely to demonstrate

[1] Hereinafter post-partum care falls under pregnancy care
[2] Nutrition, fitness and sexual health are not discussed in Frost & Sullivan (2020b)

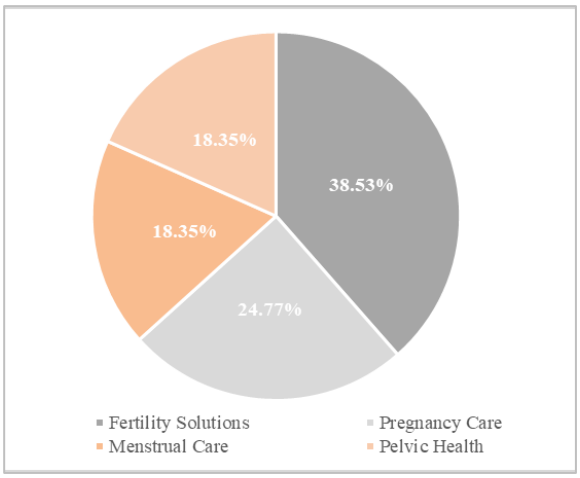
potential as well as they help understand what is happening in female bodies and what is affecting them driven by cutting-edge technologies (Jaramillo, 2020; Zion Market Research, 2020).

There are significant differences among sources in terms of the number of companies operating in the Femtech industry. It ranges from BIS Research's (2020) overview with 200 companies over Heimann's (2020a) table including 269 companies to Dealroom's (2021c) database having 734 companies with the tag "Femtech".

However, the distribution of companies operating in the various segments remains similar. The most heavily addressed Femtech segment is the *pre-menopausal care segment* with almost 60% of Femtech startups whereby the majority operates in fertility solutions, followed by pregnancy care, menstrual care, and pelvic health. The second-largest segment is the *cancer and other chronic diseases segment*, followed by the *menopausal care* and *general health and wellness segments* (Frost & Sullivan, 2020b) *(Figure 1 and 2 (F1 and F2))*.



F1: Femtech Companies by Segment



F2: Companies within Pre-Menopausal Care Segment

(own depictions based on A4)

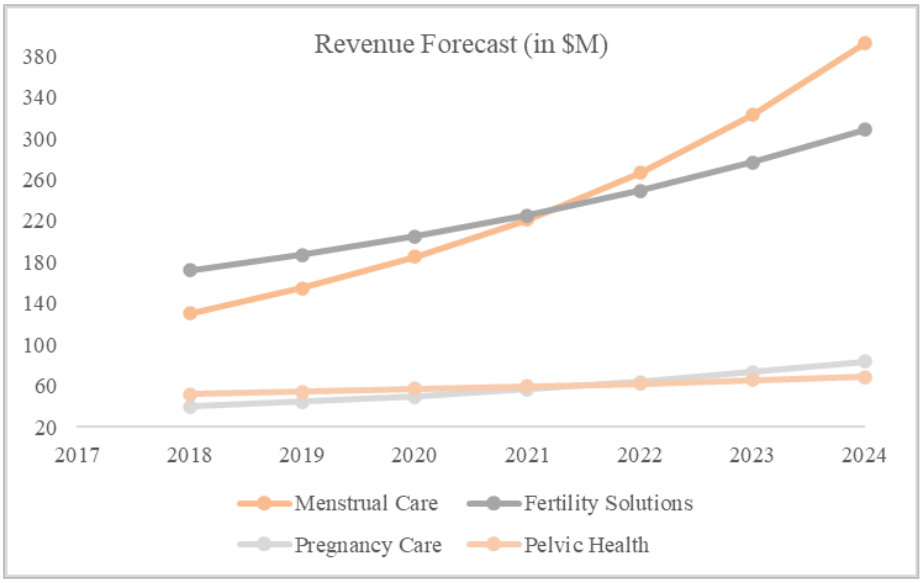
While the pre-menopausal segment is undoubtedly the most heavily targeted by Femtech companies, it can be argued that the percentage of companies operating in the general health and wellness segment is higher as the study of Frost & Sullivan (2020b) excludes sexual health. However, sexual health constitutes an important area within Femtech. For instance, according to Heimann's (2020a) sample, the companies operating in the general health and wellness segment constitute 32.34%, of which 17.24% are in the sexual health space *(A5*).

4.2.3. Market Outlook

In this sub-section, the market revenue and the forecasted revenue growth until 2024 are discussed for each segment. Moreover, the underlying reasons for the various growths are explained and the market penetration. Finally, an outlook of promising subsegments and areas is illustrated.

The *pre-menopausal care segment* is not only the most heavily addressed segment but also the one with the highest revenue share. In 2019, it constituted almost 75% (73.20%) of market revenue, and it is forecasted to reach 77.40% of market revenue in 2024 (Frost & Sullivan, 2020b) *(A6)*.

Within the pre-menopausal care segment, menstrual care is expected to grow the fastest with a CAGR[3] of 20.50%, expected to surpass forecasted revenues of fertility solutions in 2022 as its revenue share is expected to decline, as illustrated in F3. Pregnancy care displays the second-highest CAGR of 13.50%, expecting to reach higher revenues than pelvic health by 2024. In fact, pregnancy care has the highest penetration rate of all other (sub-) segments (Frost & Sullivan, 2020b).



F3: Revenues of Pre-Menopausal Care Segment (own depiction based on A7)

Compared to the pre-menopausal care segment as a whole, the revenues of the *general health and wellness segment* are predicted to grow the most with a CAGR of 20.32%, driven by the younger and tech-savvy population. The *cancer and other chronic diseases* segment constitute a significant revenue

[3] All CAGRs are calculated from 2019 (base year) until 2024.

share and ranks third with a CAGR of 9.45% *(Table 2)*. A rising awareness of cancer and other chronic diseases will impact the prevalence of medical devices such as breast cancer screening devices or genetic tests (Frost & Sullivan, 2020b).

Revenues by Segment								
	2018	2019	2020	2021	2022	2023	2024	CAGR
Pre-Menopausal Care	393.71	440.08	496.69	562.42	641.69	738.42	853.34	14.16%
Menopausal Care (incl. Post-Menopausal Care)	24.95	25.85	26.81	28.57	29.71	30.85	33.08	5.05%
Cancer and Other Chronic Diseases	119.85	129.86	141.43	154.14	168.91	185.09	203.96	9.45%
General Health and Wellness	4.34	4.81	6.03	7.52	8.49	10.60	12.13	20.32%

Table 2: Revenues by Segments (own calculation based on A8)

Surprisingly, the *menopausal care segment* has the lowest CAGR with 5.05% stemming from the fact that even though there are so many women in menopause, it is still difficult to reach them. The penetration rate is low at 1.9% in 2020, explaining the declining share of revenue. On the one hand, older women (i.e., the target market of the menopausal care segment) are less likely to look for solutions to their problems and be open about certain "taboo" topics. On the other hand, they are less tech-savvy and thus, it is more difficult to reach them via new marketing channels and technologies. However, young women who are currently adopting solutions of other segments more easily, will be more likely to rely on menopause solutions in their later life stages, making this segment very promising in the long-term (Frost & Sullivan, 2020b).

Until now, Femtech founders have largely avoided menopause due to its complexity and intersection of factors affecting it, such as hormones, mental, metabolic, and heart health. However, as research is increasing, there will also be more startups targeting this segment to develop innovative products and solutions (Colban & Akers, 2020). As a matter of fact, it is a very lucrative segment. There will be 1.1B expected menopausal women by 2025, with 47M women passing through this stage of life every year (Hall, 2020; Mahfoudhi & Wetzel, 2021) whose purchasing power is steadily rising (Colban & Akers, 2020). Thus, investors also start to increasingly see the potential of menopause, being an impactful but so far untapped opportunity (Jaramillo, 2020). In fact, the market spending potential is estimated to be $600 B (Hall, 2020).

Overall, all segments display considerable potential, reaching a market revenue potential of $9.4B in 2024[4] (Frost & Sullivan, 2020b). As shown in 4.2.1., other sources value the potential even significantly higher than this.

However, the overall market penetration rate is still quite low, taking the high potential versus current revenues into account. Particularly for the general health and wellness segment it is low (0.5% in 2020) as so far health solutions have mainly not been developed gender-specifically. For the menopausal care segment, the penetration rate is small as well (1.9% in 2020) due to the mentioned adoption challenges of the target group, leaving much room for growth and indicating many possibilities for Femtech companies. While pregnancy care had the highest penetration rate in 2020 with 23.2%, menstrual care and fertility solutions lie in the middle with 9.7% and 7.8% respectively since the shift of women's preferences from traditional solutions to new and innovative solutions needs time and (public) attention (Frost & Sullivan, 2020b). Simultaneously, due to Femtech companies' high focus on menstrual care and fertility solutions, the market is saturated in terms of solutions due to many period trackers, monitoring women's menstrual cycles and helping them to avoid pregnancy (Frost & Sullivan, 2020b; Sandhu et al., 2020). However, due to their large target group, the solutions have promising potential to grow, as indicated above.

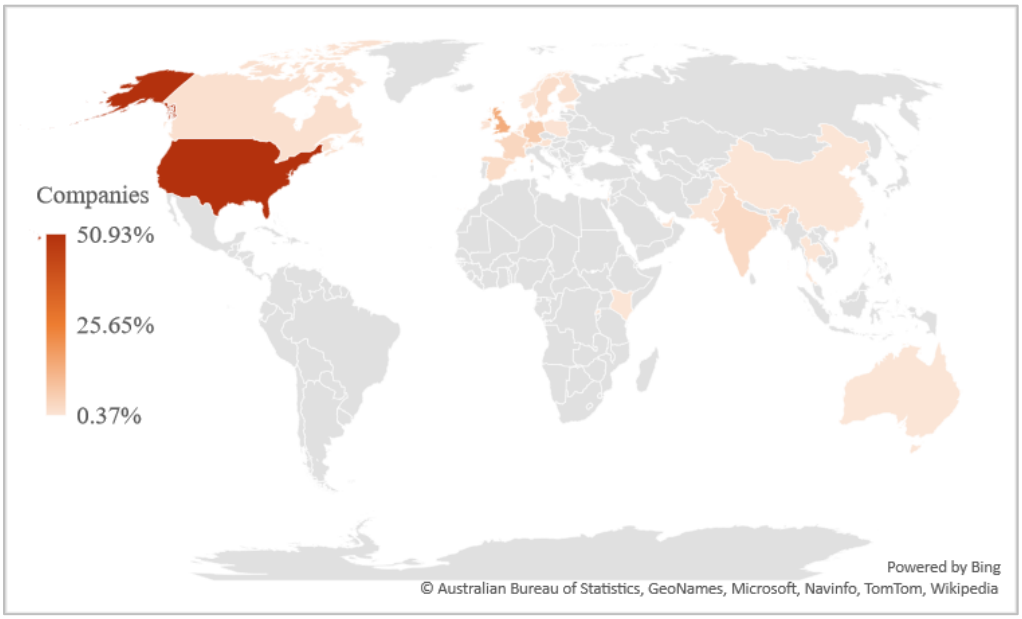
Other areas predicted to display significant growth and potential for products and services are endometriosis, a painful disorder that affects one out of ten women which correspond to the same amount of people infected by diabetes. However, the funding for research for endometriosis is just a tiny fraction of the funding designated for diabetes. Over the next five years, the global endometriosis market is forecasted to reach $2.3B (Colban & Akers, 2020). Furthermore, Mahfoudhi and Wetzel (2021) are convinced that startups will increasingly target other specific medical pathologies such as hormonal imbalances or premenstrual syndromes.

Among the general health and wellness segment, mental health across all life stages, which is generally overlooked, is highlighted in particular as an area of untapped opportunity (Frost & Sullivan, 2020c; Jaramillo, 2020). Particularly because women suffer more frequently from mental illnesses such as depressive disorders than men (Mahfoudhi & Wetzel, 2021; Untitled Kingdom, 2020).

[4] The cancer and other diseases segment is not included in this number given its tremendous potential.

4.2.4. Regional Analysis

On a geographical level, out of a sample of 269 Femtech startups, the US has the highest number of startups with just above 50%, followed by Europe (24.16%) *(F4)*. Within Europe, the UK is leading, followed by Germany, France, and Switzerland. Apart from these countries, there are also some individual startups in other countries such as Denmark or Belgium. Besides the US and Europe, Israel is lying far ahead, being the epicenter in the Middle East (Heimann, 2020a). As explained in sub-section 4.2.2., the amount of Femtech startups varies from source to source and therefore, the number of companies operating in the respective countries might vary from the sample of Heimann (2020a). For instance, according to Femtech Insider (2021c), there are 106 startups only in Israel, indicating the importance of Israel firstly as a Femtech location but secondly that Heimann's (2020a) sample list is not exhaustive. However, the geographical distribution is assumed to be very similar across sources, having the US as main location with more than half of Femtech companies and Israel, UK, Germany, Switzerland, India and China as other top sites for Femtech startups (Frost & Sullivan, 2020b).



F4: Geographical Distribution of Femtech Companies (own depiction based on A9)

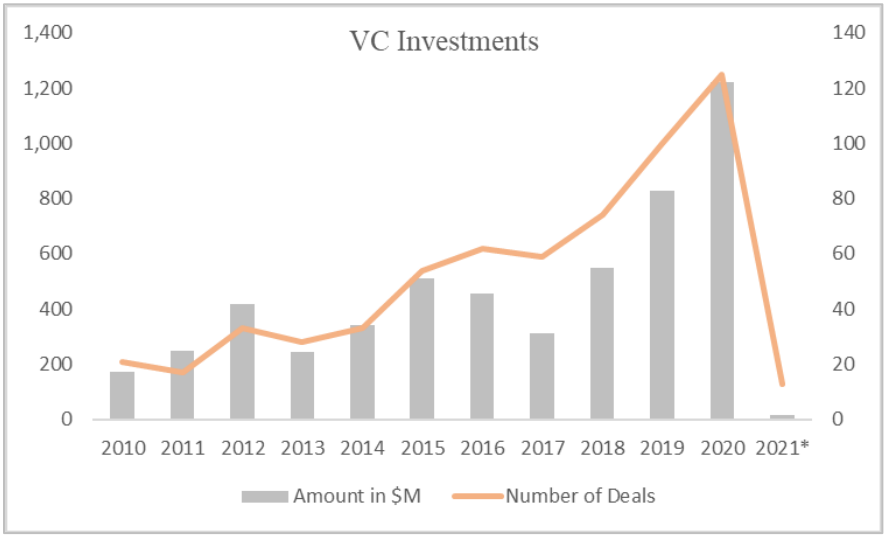
Interestingly, in terms of market potential, Europe is the leading market due to a higher population than in the US, while prices and affordability are equally high. Asia claims the second-largest potential due to its high female population and thus vast patient pool, followed by the US. Africa and Latin America have a very large population of women. However, due to low affordability and cultural issues, the

penetration possibility is still relatively low (Frost & Sullivan, 2020b). Overall, Asia, Latin America, and Africa are considered more to be target markets for the usage of Femtech products and services rather than developers and creators of them (Pascucci, 2019). Furthermore, Asia, particularly China and India, will exhibit tremendous growth due to its rise in numbers of chronic and infectious diseases and in China additionally due to healthcare reforms (Zion Market Research, 2020). In fact, Asia Pacific is predicted to exhibit the highest CAGR of 16.1% (Emergen Research, 2020).

While European startups focus more on women's self-empowerment, primarily with digital health apps, US startups are more interactive and community-based, and education plays a crucial role (Barreto, 2021).

4.3. Funding Analysis

Out of all equity funding activities into companies targeting woman's health, the majority is VC-backed. *VC investments* into companies focusing on women's health have constantly been increasing with a CAGR of 21.53% from 2010 until 2020. VC funding amounts being just over $170M in 2010 have surpassed $1.2B in 2020. The same applies to the number of deals that have increased from 21 deals in 2010 to 125 deals in 2020, as shown in F5 (CB Insights, 2021a). Despite its improvement, the capital raised by Femtech companies from VC accounts for only 0.4% of total funding amounts in 2020 (Mahfoudhi & Wetzel, 2021).



F5: VC Investments in Femtech Companies (own depiction based on A10)

In terms of funding stages, pre-seed and seed stages make up most deals, indicating the growing number of founded Femtech startups seeking capital. However, Series B and in particular Series C stages have been increasing the fastest from 2015 until 2019 as more and more startups are moving forward in the business lifecycle and becoming larger players (Dealroom, 2021a).

In fact, there is also a rising trend in designated Femtech funds such as Rhia Ventures or Portfolia who after the success of the first Femtech fund in 2018, launched the new Femtech II Fund in 2021 (Femtech Insider, 2021b; Portfolia, 2021). They are mainly located in the US and do not only function as investors but also as advocates for women's health (Femtech Insider, 2021b; Folkendt, 2021).

The trend of increasing amounts and deals i.e., interest for Femtech startups gets also confirmed by angel investments and investments from incubators and accelerators. *Angel investors* constitute an important source of funds for Femtech companies, having contributed overall $900M in the past ten years with a peak of approx. $169M in 2019. The number of deals has also increased significantly with four deals in 2010 and reaching 50 deals in 2020 *(A10)*. *Incubators* and *accelerators* have tremendously increased their importance as source of funds with a peak of approx. $58M in 71 deals in 2019 (CB Insights, 2021a) *(A10)*. This can also be explained by the increasing amount of designated Femtech accelerators and incubators such as FemTech Lab in the UK, Tech4Eva in Switzerland or Eve Femtech Hub in Israel (Femtech Insider, 2021a).

Grants from governments, foundations, or health institutions represent an alternative source of funds that have been increasingly utilized since 2015 as well (CB Insights, 2021a) *(A10)*.

Whether it is VC investments, angel investments, or governmental grants, the trend for providing equity funding for Femtech startups is increasing, thus confirming the interest shown in this area.

Geographically, the US is leading with 71.1% of total VC investments into Femtech in 2015 until 2019, followed by China with a share of 11.9%. Israel ranks third, holding 3.7% of investments. Within Europe, the UK is the country with the highest share of funding (3.6%), followed by Switzerland (2.5%), Sweden (2.2%), and Germany (1.8%) (Frost & Sullivan, 2020b) *(A11)*. This trend is also confirmed by CB Insights (2021b), where the US has more than 50% of investments from 2016 until March 2021 (51.2%), followed by China (11.8%) and India (6.1%).

The majority of VC funding flows into reproductive health i.e., the pre-menopausal care segment focusing on menstruation, contraception, and fertility, partly due to these areas being key concerns of the tech-savvy target groups (Klein, 2020; Sandhu et al., 2020). Only 0.03% of Femtech investments have gone into the (peri-) menopausal care segment (Klein, 2020). In the B2C space, apps, wearables, devices, and telehealth solutions are commonly attracting the interest of investors, while in the B2B space, the focus lies more on clinical solutions used by HCPs such as gynecologists (Frost & Sullivan, 2019d).

Despite Femtech's potential and the positive investment trends, the industry is still tremendously underfunded. It accounts for only 1.4% of aggregated capital that flows into healthcare (BIS Research, 2020). In Europe, it only accounted for 0.6% of the deals in Healthtech in 2020, amounting to $70.89M[5] while worldwide, it accounts for 1.7% of all Healthtech deals (Dealroom, 2021b; Mahfoudhi & Wetzel, 2021). In the US, Femtech investments represented just 3.3% of digital health funding in 2019 and 1.5% in the first semester of 2020 (Sandhu et al., 2020).

To put it into a global context, in 2020, the healthcare industry has been disrupted by the impact of the Covid-19 pandemic which has accelerated the ongoing transformation of the industry towards solutions shaped by technology and innovation (Frost & Sullivan, 2020c). Thus, not surprisingly, 2020 has been the record year for global healthcare funding, reaching a total of $80.61B in equity funding. Also, digital health jumped by 45% to $26.5B in 2020 compared to the previous year. Total equity funding for women's health of $1,661B in 2020 clearly indicates that only a small fraction of healthcare investments flow into Femtech (CB Insights, 2020).

Regardless of whether Femtech investments are compared to the overall healthcare industry, the Healthtech industry or digital health, the numbers indicate that Femtech represents only a minor fraction of investments made and thus, that it is clearly underfunded.

Lastly, only a few Femtech firms have succeeded so far in terms of sizable exits (Colban & Akers, 2020). Although only six exits happened in 2019, it represents an increase of 64% compared to 2018 (Wern, 2020).

[5] €60.4M converted with a rate of 1EUR/1.17378$ from 01/04/2021 to $70.89M

4.4. Business Models of Femtech Firms

In a *D2C business model*, a subset of Business-to-Consumer (B2C) business models, the company sells its product or service directly to the consumer without any middle distribution channel. D2C business models, leading to a compression of the customer value chain, are one of the eight strategic imperatives that will disrupt the healthcare industry as a whole due to technological advancements and customer-centric solutions (Frost & Sullivan, 2020c). As the majority of Femtech solutions are customer-focused, it illustrates why most Femtech firms choose a D2C business model (Frost & Sullivan, 2020b). In fact, individual women account for approx. 66% of the overall Femtech market, making the D2C segment the largest (BIS Research, 2020). In the US, 70% of Femtech companies have a D2C strategy, either as primary business model or as one of their go-to-market-strategies (Sandhu et al., 2020). As mentioned, most Femtech companies offer apps or smart devices and therefore, digital health solutions. Thus, this section focuses on D2C business models for digital health companies.

Looking at digital health firms more broadly, Business-to-Business (B2B) business models are predominately used. According to a digital health survey in 2017, 85% of digital health startups' business models were enterprise-focused i.e., either B2B or Business-To-Business-To-Consumer (B2B2C) (Evans & Shiao, 2017). This makes it surprising that Femtech companies are predominantly B2C companies but that is likely to change. In fact, D2C digital health business models oftentimes lead to two problems. Firstly, a *problem of scalability* can occur as some solutions are very specific and focused on a particular issue and thus are difficult to scale. This is also a major concern of VCs as growth and expansion plans are some of their main interests (Ellis, 2021; Mortensen, 2020). Secondly, *monetization* i.e., finding a suitable pricing and revenue model, of these solutions represents a common challenge for firms. HCPs and patients have a low willingness to pay and at the same time expect evidence-based content or solutions (Schnell et al., 2017). Finding the right pricing model is also essential for offering a good tech product for an affordable price, particularly if women beyond developed countries are targeted and supposed to get access to these solutions. Women in developing countries and rural areas have much lower affordability than women in the current main Femtech markets US and Europe. Therefore, setting prices to make solutions affordable is crucial to increase the adoption rates in low-income target groups (Frost & Sullivan, 2020b).

Some common pricing strategies of B2C Femtech companies are business models with freemium strategies i.e., offering the basic version for free while requiring a fee for a premium version, or business models with one-time subscription fees. Others include revenue streams from subscriptions with monthly cost plans (Frost & Sullivan, 2020b).

Because of the mentioned reasons, particularly due to scalability problems, it can frequently be observed that Femtech companies shift from a D2C to a *B2B2C business model* after they have gained some traction (Heimann, 2020b). B2B2C business models involve selling a service or product to customers through employers or insurance companies. They allow to scale the business more quickly and to validate the value proposition through gathered data. Healthcare companies are frequently driven to this shift to have a more achievable and sustainable business model as acquiring new customers through D2C solutions can be rather difficult and costly, while in B2B2C business models with one partnership, the company gets access to a changing new pool of users (Mortensen, 2020). Furthermore, it is an opportunity for Femtech companies as employers are looking for ways to build a more inclusive work environment. Employers will start increasingly offer fertility and other health-related benefits (Seedtable, 2021). However, B2B2C involves a *double sales problem* as Femtech companies need to approach businesses such as clinics, insurers, or employers first that then in turn address the end-consumer (Heimann, 2020b). Moreover, another particularity that healthcare startups need to understand is that the customer is often not the payer, resulting in a complex relationship between patient, provider, and payer (Mortensen, 2020).

Lastly, a crucial part of most Femtech companies' business model is technology and as a result, the data surrounding a product or service. Technology enables Femtech companies to reach many women and collect primary health data about their customers. Many companies need to collect their data first due to the lack of data and research in healthcare to learn more about the area they are operating in. Thus, having an appropriate strategy of collecting and analyzing customers' health data is crucial to Femtech companies' business model, especially in digital health.

4.5. Barriers and Challenges in the Femtech Industry

From our analysis, five *barriers* and *challenges* specific to Femtech companies emerged and are outlined in the following sub-sections.

4.5.1. Taboos, Lack of Scientific Knowledge and Awareness for Women's Health

As of today, there are many *cultural* and *societal "taboos"* as well as *stigmas* surrounding women's health issues such as menstruation, incontinence, menopause, and postnatal depression (Bannon, 2020; Woodford, 2018). In Europe, for instance, only 48% of women feel comfortable talking about contraception, 36% talk about lack of sexual desire and 33% talk about sexually transmitted diseases (STADA, 2020). Since Femtech companies tackle women's health issues by designing innovative tech solutions, they inevitably touch upon these taboo topics.

Closely intertwined with the presence of taboos and stigmas is the *lack of scientific knowledge* and *medical education* about women's health issues. As gender, among other factors, is known to have a substantial influence on people's course of disease, the lack of gender-specific research and education illustrates a severe shortcoming (Criado Pérez, 2020; Temin & Roca, 2016). Thus, it is crucial and necessary for Femtech entrepreneurs to collect data to advance research and build the base for their products and services, creating additional challenges.

From the taboos and stigmas and lack of scientific knowledge and medical education stems a *lack of awareness for women's health*. In most cases, women themselves do not know or understand common female health issues such as endometriosis or polycystic ovary syndrome (PCOS). According to a report published by Untitled Kingdom (2020), most women do not even understand their own menstrual cycle – a monthly hormonal change accompanying women throughout most of their lives. Often they are not aware of undergoing a particular medical condition, do not recognize their symptoms, and do not seek medical help (Frost & Sullivan, 2020b). However, health literacy is focal to "[…] women's ability to understand, process and act on health-related information […]" (Corrarino, 2013, p. 257). Even if women seek help, they may not be treated because doctors fail to recognize their symptoms (Leigh, 2021). For example, in the UK the diagnosis of endometriosis takes in many cases on average eight years (Leigh, 2021). Thus, women may end up reading unfiltered content on the Internet and try to self-diagnose and self-treat (Frost & Sullivan, 2020b). Also, other key stakeholders of the Femtech industry such as capital

providers may lack awareness for women's health issues (Das, 2019b). Altogether these three aspects are closely intertwined, influence and reinforce one another and are considered a key challenge for Femtech companies. In fact, they are the root of barriers and challenges which are discussed in the following sub-sections (see 4.5.2.-4.5.4.).

4.5.2. Lack of Visibility and Communication

The presence of taboos and stigmas surrounding women's health and the globally missing awareness for women's health issues contribute to the *lack of visibility* and *communication* about Femtech (Frost & Sullivan, 2018; Mahfoudhi & Wetzel, 2021). Consequently, target customers, such as female users and HCPs, are either hesitant to use Femtech products and services (Frost & Sullivan, 2018; Zion Market Research, 2020) and/ or not aware of their existence and value creation (Untitled Kingdom, 2020). For instance, women's hesitation in using Femtech products and services may manifest itself among others from women's lack of awareness for their conditions and their non-prioritization of self-care. Despite taking the most responsibility for their family, women tend to put themselves as last, foregoing or postponing care. Even though 80% of women worldwide are aware of self-care, only 1% are willing to change behavior and enhance self-care (Frost & Sullivan, 2020b). Thus, it is crucial to reach the target customer and educate them about women's health issues and to nurture them for Femtech solutions (Untitled Kingdom, 2020). However, reaching and educating the target group is often very challenging as Femtech companies, for instance, face difficulties in leveraging important marketing platforms such as Facebook or Twitter.

4.5.3. Marketing of Femtech Products and Services

Another barrier of Femtech entrepreneurs posits the *marketing of Femtech products* and *services*. Big social media platforms such as Facebook, Instagram, or Twitter often block and remove Femtech advertisements from their platforms as they have strict policies about the use of language i.e., what can and cannot be advertised. These platforms' algorithms identify words commonly needed to market Femtech products or services such as vagina or pelvic floor as inappropriate, leading to additional costs (e.g., due to a delay in the marketing campaigns) and difficulties in leveraging social media for facilitating market growth (Lovett, 2020; Mahfoudhi & Wetzel, 2021). Moreover, this illustrates how technology can be biased against women as the same is not necessarily true for words used to advertise

men's health products (e.g., sperm, erectile dysfunction) (Lovett, 2020; Untitled Kingdom, 2020). Since these social media platforms are important communication and mainstream spaces for advertisement, Femtech entrepreneurs are restricted in their ways to reach and educate target audiences about women's health as well as advertise their products and services.

4.5.4. Fundraising

Fundraising is an important part for any business' growth and represents a challenge for any entrepreneur. However, fundraising can be particularly difficult in the Femtech industry compared to other industries due to several reasons.

Firstly, companies within the Femtech industry are founded mainly by women (see 4.1.3.). However, as highlighted in sub-section 2.2.4., raising funds is particularly difficult for female entrepreneurs. In fact, women are usually less likely to receive funding. Moreover, as highlighted in section 4.3., the Femtech industry is clearly underfunded. Thus, Femtech companies might struggle more to raise funds.

Secondly, since the Femtech industry is relatively new, Femtech companies often enter the market with completely new products or services i.e., these types of products or services have not existed before. Therefore, relevant market data such as market size or market potential are only limited or not available at all. This lack of market data makes it challenging for Femtech founders to prove their businesses' attractiveness and raise funds. In fact, the novelty of Femtech products and services can also be challenging for capital providers (Mahfoudhi & Wetzel, 2021). Being exposed to new products and services in combination with the limited amount of large Femtech companies on the market and successful prior exists of Femtech companies results in difficulties for capital providers. Defining important investment metrics (e.g., serviceable obtainable market) to base their analysis on and evaluating whether Femtech products and services fit into their investment decision-making process might be challenging for capital providers (Mahfoudhi & Wetzel, 2021; Yokoi, 2021). Lastly, as the financial industry is male-dominated (see 2.2.4.) and because of the general lack of awareness for women's health issues (see 4.5.1.), capital providers might misevaluate a business opportunity due to a lack of understanding for the female-focused health market and/ or the need for the product.

4.5.5. Data Privacy and Consumer Trust

The last challenge refers to data privacy and consumer trust. Most Femtech companies offer solutions such as wearables or apps that go directly to consumers and collect extensive amounts of highly sensitive and complex data about the consumer such as personal, clinical, and reproductive data (Untitled Kingdom, 2020), putting data privacy and protection and ultimately, consumer trust at the forefront of Femtech companies (FemTech Live, 2021b; Singh, 2020). For instance, the *Ava* bracelet collects personal health data such as body temperature or heart rate in order to provide women with personalized information about their fertility, pregnancy and general health (Ava Science Inc., 2021). Thus, Femtech solutions allow users to easily collect and track their personal health data and educate them about their own bodies (Narwani, 2021). Despite these benefits, consumers may be hesitant to use Femtech solutions and services because of data privacy concerns (Untitled Kingdom, 2020). This is partly fueled by negative reactions or backlashes against tech giants (i.e., techlash) because of data privacy concerns of recent years (Day & Kaganoff, 2020). Also within the industry, companies have been accused of disclosing sensitive data (FemTech Live, 2021b). In the future, this could further spillover to the Femtech industry and constrain the free flow of health data (Day & Kaganoff, 2020) as well as increase the growing wariness about this topic (FemTech Live, 2021b). In line with this, respondents of a study about the adoption of digital health tools report that they put the most trust in physicians, health insurance companies, pharmacies, and research institutions to share their personal health data with (Untitled Kingdom, 2020). Altogether, gaining consumer trust is crucial to drive innovation in the Femtech industry (Butkovic et al., 2020).

4.6. Industry Drivers

Despite the outlined challenges, it emerges that the Femtech industry is estimated to exceed $50B by 2025 or even more (Frost & Sullivan, 2019d). Three drivers have been identified that will contribute to the growth of the Femtech industry in the upcoming years.

4.6.1. Gender Equality Movement

Despite the global gender gap still being large and women being hit more severely than men by the pandemic (WEF, 2021), there has been an increasing *movement towards gender equality* in different areas in the past years. From #MeToo movement to studies showing the importance of women in the

workplace or quotas for boardrooms have led to more women speak and stand up for their rights and society acknowledging the potential of women (Woetzel et al., 2015). Also in healthcare, the role of women has increasingly been recognized – not only because they constitute a high amount of the workforce (80% of HCP are women, primarily nurses) but the potential as customers and decision-makers have been recognized (Frost & Sullivan, 2020b).

In fact, women constitute a *large market opportunity* as they are half of the world's population and thus, account for 50% of global healthcare customers (Frost & Sullivan, 2020b). Moreover, women are considered the "Chief Medical Officer of the home" (Welson-Rossman, 2020). They are the primary caregiver and decision-makers regarding health for their family and advising friends. In fact, 90% of women are the principal healthcare decision-maker for their family, and household healthcare spending is mainly done by women (80%). Additionally, women are 75% more likely than men to utilize digital tools such as apps for gathering information and treatment in healthcare than men. Furthermore, women spend 29% more per capita on healthcare than men. Thus, so far women have been underestimated as consumers, while these facts clearly show women's potential in the healthcare industry (and beyond that) (Frost & Sullivan, 2020b). As the focus on women in treatments and solutions has been largely neglected (see 4.1.2.), there are many unmet needs, presenting infinite opportunities for Femtech companies.

Furthermore, *supportive industry trends* also shape the growth of Femtech. On the supply side of the funding landscape, public awareness about the underrepresentation of women in VC has significantly increased over the last five years. This is correlated to a spike in the number of women-led funds, which has almost quadrupled. A higher number of female VCs results in more investments into female-led startups and products targeting underserved markets (WVC, 2020). A study of the Kauffman Fellows Research Center shows that female VC partners undertake twice as much Seed and Series A investments in female founding teams, which is essential to give women-led startups a chance early in their startup journey. Moreover, female VC partners are 63% more likely to invest in female tech founders than males (West & Sundaramurthy, 2020). Thus, this underlying trend might positively influence the funding dynamics for Femtech startups. Lastly, despite the percentage of women in STEM still being low, female representation in STEM has been growing, leading to a higher recognition of women in the tech domain (Athena, 2020). To sum up, the rise of the gender equality movement and increasing recognition of the

importance of including women in all different areas are expected to positively impact the growth of the Femtech industry.

4.6.2. Societal Shifts

Other factors driving the growth of the Femtech industry are societal shifts such as a rising middle class, higher access to smartphones, and the impact of tech-savvy generations.

Firstly, the *rising middle class*, particularly in developing countries, will lead to higher consumer spending accounting for a third of GDP growth by 2030 (European Commission, 2021). Moreover, women play a large role in consumer spending being the driver of most consumer spending decisions (Frost & Sullivan, 2019c). Secondly, *access to smartphones* has continuously been rising in the last years, allowing people to access the Internet or apps, which is important for Femtech companies operating in digital health. However, it should be noted that the use of the Internet and smartphones is still more common in wealthier countries, but the gap has narrowed in the past years (Poushter et al., 2018). Moreover, the *adoption of wearables* has increased significantly, whereby health is the primary reason for purchase and women are more likely to use them to seek health information (BIS Research, 2020; PwC, 2016). Thirdly, another aspect contributing to the large market potential of the Femtech industry are the *tech-savvy generations* such as Millennials or Generation Z. They adopt digital solutions more easily and talk more openly about female health issues that are still largely stigmatized and considered as taboo topics such as menstrual or mental health (Hoffower, 2020; SWNS, 2019). Globally, they will account for 45% of the total population by 2025, making them the new consumer base (Frost & Sullivan, 2019c). Thus, these target groups will be driving the demand and growth of Femtech solutions, considering that they will be the future customers of the menopausal care segment which is heavily expanding.

4.6.3. Healthcare Industry Transformation

Another main driver of the Femtech industry is the changes in the healthcare industry paired with disruptive technologies, leading to a considerable *healthcare transformation* as outlined in sub-section 3.4.1. The shift to personalized medicine and digital customer-centric approaches accelerates the demand for Femtech services and products. Moreover, as only 4% of the worldwide funding for R&D in

healthcare is specifically designated for women's health despite women's diseases representing an economic burden of $500B (Colban & Akers, 2020; Das, 2019b), there is a lot of untapped opportunities for Femtech companies to advance R&D.

Furthermore, there is a *rise in chronic diseases*, which inhibits achieving better healthcare globally (Frost & Sullivan, 2016). In addition, in many cases, women are more likely to suffer from these diseases. For instance, women are three times more likely to suffer from autoimmune diseases or two times more likely to suffer from depression than men. This leads to a high demand for gender-specific treatments and personalized solutions as it impacts their lives severely and often results in death, particularly in developing countries where appropriate screenings and treatments are not ensured (Das, 2018; Frost & Sullivan, 2020b).

However, *advancements in technologies* allow Femtech startups to make innovative solutions more accessible and affordable and achieve a wider reach (Colban & Akers, 2020). This is particularly relevant for targeting women in low-to-middle-income countries or in rural areas facing difficulties in accessing healthcare solutions. This constitutes significant opportunities for digital health solutions that enable women to take better care of themselves and detect early signs of diseases such as breast cancer (Das, 2019a). Thus, technology contributes to the growth of the Femtech industry, facilitating the offer of products and services through apps or smart devices (Das, 2018).

4.7. Summary of Findings

This section summarizes the key aspects of the previously presented industry analysis. Thus, we present an answer to our RQ1: *"What is the Femtech industry and how does it influence the playing field for female entrepreneurs?"*. Table 3 outlines the main derived aspects that define and characterize the Femtech industry.

What is the Femtech Industry?	
	Definition: Femtech are **"technological solutions such as device, diagnostic, product, software, app or services, or any combination thereof, catered to the needs of women's health**"
	Female-dominated in terms of **entrepreneurs** (at least 50% of Femtech companies are founded or led by women) and **end-consumers** (products and services target women at all life stages).
	Customer-centric business models: Femtech companies offer their products mostly through apps next to wearables, software and devices (mostly D2C but emerging trend of B2B2C).
	Femtech segments: Pre-menopausal care (largest segment in terms of companies and revenue), menopausal care, cancer and other chronic diseases, general health and wellness segment
	The Femtech market has generated **$601.2M revenue** in 2019 and expected to grow at a **CAGR of 12.9%** from 2019-2024 to reach $1.1B by 2024.
	The Femtech **market potential** is estimated at $50B by 2025. The current **market penetration** is low.
	Main target markets: US, Europe (UK, Germany, France) and Israel. However, there is a high potential in developing countries.
	Highly underfunded (only 1.4% of aggregated capital flows into healthcare) but investments in Femtech companies (VC, Angel, Accelerators) are growing with VC investments surpassing $1.2B in 2020.
	Main barriers and challenges: Taboos, stigmas and lack of scientific knowledge about women's health resulting in lack of awareness; Lack of visibility and communication of Femtech; Marketing of Femtech products and services; Fundraising; Data privacy and gaining consumer trust
	Drivers: Gender equality movement (recognizing importance of including women); Societal shifts (rising middle class, higher accessibility to smartphones, tech-savvy generations); Healthcare transformation (shift to digital customer-centric approaches and personalized medicine, rise of chronic diseases, advancements in technologies)

Table 3: Summary of Findings – Industry Analysis

These findings suggest that the playing field for female entrepreneurs is influenced as follows:

The Femtech industry encompasses predominantly female-led companies and tech solutions that cater to the needs of women across all stages of life, making this part of the tech industry a female space and therefore less "masculine". Moreover, the persisting stigmas surrounding women's health have led to the clustering of these companies and tech solutions under the name "*Fem*"tech, enabling Femtech entrepreneurs to present their Healthtech solutions in a less stigmatized way, especially when talking to male stakeholders (e.g., investors), and clearly signals the industry's female focus. This association with femininity makes the Femtech industry more accessible for women and potentially more encouraging to female entrepreneurs than other male-dominated parts of the tech industry. As the Femtech industry emerged from the unmet health needs of women due to health solutions and treatments being primarily tailored to the needs of men and the lack of awareness for women's health, the market is still highly

underserved. Thus, the Femtech industry offers female entrepreneurs a platform to advocate for women's health and tackle gender inequalities i.e., close the gender health gap and empower women. Moreover, they can pursue lucrative business opportunities in a so far untapped, highly promising, and non-male-dominated tech space.

Overall, our analysis suggests that the Femtech industry is a *different playing field* for female entrepreneurs in tech. It indicates a more level playing field for women compared to other parts of the tech industry. However, it is crucial to consider how the female Femtech entrepreneurs themselves perceive the Femtech industry. Therefore, the following chapter outlines our main findings from our interviews and observations to explore the female entrepreneurs' perceptions of the Femtech industry and thus, gain a deeper understanding of female entrepreneurship in the Femtech industry.

5. Findings of RQ2

This chapter outlines the findings from the analysis of the collected data from the interviews and observations. Therefore, we present the four key dimensions that have emerged from our data analysis. These findings ultimately lead to the answer of our RQ2: *"What is the experience of female entrepreneurs in the Femtech industry?"*, elucidated in chapter 6.

5.1. Female Femtech Entrepreneurs' Motivation

As outlined in our industry analysis, the Femtech industry is female-dominated. Therefore, as a first step, it is required to understand why female entrepreneurs enter the Femtech industry, what motivates them and what the underlying incentives are to start and grow a business within this space.

Firstly, for some of the interviewees, the business idea was born out of a personal need. For instance, E2, diagnosed only in her 30ies with PCOS, says that *"[…] how can I live into my early 30ies without ever having heard of hormonal conditions?"*. This experience opened her eyes to the world of women's health (E2). She explains, *"It's actually my 'I care so much about this problem because it personally affects me' that I'm putting up with the fact that I have to do a startup to solve it"*. While researching for her diagnosis, she tells *"I started to obviously learn more about PCOS for my own sake and then explore tons of other different areas of women's health that […] are very under-researched, underserved, underfed, under everything"*.

Similar to a long diagnosing time, E4 explains about her and her co-founder's experiences with misdiagnoses in the UK:

So, I guess how it [her company] came about was that myself and my co-founder both had negative experiences when it came to women's health care here in the U.K. We found it quite hard to get the help we needed. And we went through a series of misdiagnoses for various kind of conditions that we actually were eventually diagnosed with. Some more serious than others. So, for us, it was about creating accountability and allowing people to take control of their own health care.

Also, E5 wanted to help other women after she had been through a mental breakdown which *"was the inspiration"*. It took her years until she decided to go all-in into her side-project, which eventually became her company, giving her so much joy compared to her previous corporate job that *"had become just about money"*. That was not enough for her anymore, and *"[t]hen there was the community, the women in the community. Seeing something that I had built that was actually making an impact on people*

is quite an incentive". Lastly, E9 started her company while she was pregnant for the second time and reflected upon her postpartum experience in France, where she attended a postpartum pelvic floor recovery training that did not exist as such in the US. Thus, she recognized the need for it as she got strong reactions back home when she talked to women about it.

Secondly, other female entrepreneurs were not directly impacted by the health condition their company is addressing. Nevertheless, they saw the urge and need to found a business within the Femtech industry to fill the research and knowledge gaps (see 4.1.2.). E6 explains:

[...] I was really frustrated about the fact that we spent all this time and energy on solving things for people who already have everything and micro-optimizing flows that already are quite good, but they could always be a milli percent better. So, what if we could use this energy innovation power, this methodology to solve issues at scale was kind of the question I was asking myself, and that in conjunction with me getting pregnant, realizing I didn't know anything about my own body and being quite shocked at how little I understood when I actually started learning more. So those two flows in parallel ended up being the idea for [my company], which I have been harboring for many years.

Similarly, E3 shares why she ended up building her app:

Originally it was an app helping both men and women, but then I realized that as a woman, there was very little understanding for specifically the female body. Whereas our bodies are very different, and then as I got more into that, I realized that 80% of the medical research is still made on male mice and even worse when it comes to research and investments in sports done for females specifically. And as I got more and more into that, I realized that there was this massive gap of knowledge and of interest and investment.

Further, E10, who had worked for many years at a large tech company and always had a philanthropic approach in her life, decided to found her company, a digital clinic for menopause, as she realized that:

Any time [during our life cycles] we face a moment where our self-confidence gets again, it is challenged by society, by our role in the world, we're going through a transition. And so that was at the heart of what drove me to leave my job and do this, because it spoke so strongly to me.

Initially, she started with an e-commerce platform selling lubricant and surveying women about their menopause experiences, recognizing that her overriding insight out of that research was: *"I was completely unprepared. Please start the conversation. So, from that, I was like, OK, there's more we need to be doing here than just selling a lubricant. We need to be educating women"*.

Furthermore, the huge research gap combined with the mission to make a change is seen as an attractive business opportunity like in E1's case: *"We are very passionate but also we have been strategic in the*

way that we've seen a gap on the market […]". E11 recognized that women increasingly have decision-power and access to cash, explaining *"And I just looked around at my friend group and I thought if something helped us, we would buy it. And it's the fact that the stuff isn't out there, that we don't buy it"*. Therefore, she saw the potential in the Femtech industry and decided to start her company:

[…] and I knew it was going to be in Femtech because again, I just strongly believe in this investment thesis that there are women who want to spend money on goods and services, but the goods and services are not there for them.

Whether founding the startup was out of a personal need or rather out of a spotted gap or opportunity in the market, all founders recognize the untapped potential of this industry. Firstly, there is a lack of innovation as E4 says, *"It's because […] there's a lot of innovation lacking within this space and there has been for many years"* and a huge gap of solutions catered to specific needs of women as pointed out by E13: *"[…] there's so much unmet demand and there's so many problems that haven't been solved"*. Secondly, besides the huge gap in innovation and solutions, there is a significant lack of awareness and literacy about women's health from consumers, investors, research, and society as a whole (E2, E6, E10). Therefore, E12 saw the need to build her network as she fell in love with the Femtech industry and wanted to get more involved. She elaborates, *"[…] I could not find a conference. I could not find an accelerator. I could not find a community. And so, what I realized was that the industry needed a lot more foundational work and a lot more networking"*. She saw the need for Femtech founders and the world in general as many people do not know what Femtech is. Further, she aims to increase awareness and literacy about women's health. The outlined gaps create an opportunity as E9 says, *"[…] I think most women have a personal need and they see that there's not a lack of opportunity"*. E6 explains, *"And there is a huge market. I mean, half the world's population are women. And so, it's a super underserved audience that hasn't had enough at all. […] It's an untapped field subject. It's such a great earning potential"*.

The rationale for founding a business within Femtech is closely intertwined with the current feminism movement (E1, E9, E10, E12, E13). Women increasingly stand and speak up for their rights, among which health, as expressed by E1: *"I do think that Femtech comes from the feminism where it is like 'Why don't we get a seat at the table? OK, then we're going to build our own table.'"* This stems from

the fact that women do not accept the bare minimum anymore and realizing that they can have more (E12). This is confirmed by E10 who states:

I'm seeing it a little bit as women are starting to rise up and take control of their own destiny. And I like that. Especially in younger generations coming up now. You are less willing to go with the status quo of what's been. And you are like no, it's in our hands to change. Why wouldn't we change it?

The wave of feminism also occurs in other industries such as VC, where there are more and more female VCs and investors have started recognizing the potential of women's health (see 4.3.). At the same time, everything up until today is built and designed for and from men as E6 explains: *"If you look at cars have been built for male bodies. Medicine have been produced for male bodies. There's so much to be done in building for a more united society"*. Thus, the respondents see it as their responsibility to drive this change and build products for and by women. E12 states: *"And I now have the empowerment, the education, the background, the belief that as a woman, I could do whatever the hell I want. There's no limits as a woman. So, I'm going to make the solution"*.

Another aspect that the interviewees have in common is that they are highly mission driven. Also from the personal observations, it has emerged that female founders in the Femtech industry are driven by mission (personal observation). Each of the entrepreneurs of this study has her individual mission that ultimately aims to contribute to women's empowerment and ensuring that women can take health into their own hands as expressed by E5: *"We want to democratize mental health so that it's available to all women, not just the fortunate few who can afford it […] We just want to see a world where no woman is left behind"* or E3 who says, *"[…] what we're doing is basically giving the tools and power to women to form, understand their body in real life and make an advantage of it"*. Similarly, E8 wants to empower women to *"[…] really explore their sexuality with positivity and confidence […]"*. Furthermore, accessible healthcare for every woman is an important aspect of their businesses, as highlighted by E4: *"We [want] to create accessible health care for poor women"*. Another driving force is to make sure that women can be more autonomous, as stated by E6:

[…] our aim is to serve the 1.6 billion women out there in the emerging markets or low- and middle-income settings, who owns her own phone and who is in the fertile age. So, we see all these women being able to make decisions for herself and being the household brand to go to for anything, for information, to access.

Similarly, E10 says, *"It's empowering women to take control of their health versus it controlling you"*.

Also, educating women and society plays a large role in the entrepreneurs' missions. This has emerged both from our observations and interviews. For instance, E9 explains:

[…] one thing that was incredibly important for the company became the mission to educate women, because really what we found from the beginning, I expected obviously men not to know anything about this, but really, women didn't know anything about this fitness or health need, including me, by the way. I only knew about it because I did research after having my first baby.

Also, E7 conveys that *"we want to educate about fertility. I think there is an information gap and we want to close that information gap and want to help women. But also men like fertility is a super stigmatized topic […]"*.

All founders had good jobs before starting their companies in the Femtech industry. Most of the entrepreneurs had worked for renowned and larger companies, had a certain level of seniority and responsibility, or had previously already founded a company. This leads to the question of what exactly led them to quit their (safe) jobs and start a company in the Femtech industry. From the interviews, it becomes evident that the underlying mission drives and motivates the entrepreneurs to follow this path. The reasons that have emerged are the positive impact that they are making with their companies and the perceived reward they get through working in the Femtech industry, as described by E4:

So, it's definitely more rewarding in terms of what I'm doing. I may be working the same if not more hours than I was as a consultant. […] But for me it is quite rewarding hearing some of the positive feedback that we get from people. And for me, that kind of really drives what I do. And I wouldn't be doing it if I didn't enjoy helping people out within the space.

Another quote that illustrates the drive of making a positive impact stems from E5 who says:

I think the biggest thing is that we come to work because we know that we're making an impact, a positive impact in the world, whereas before was I making a positive impact in the world? I don't know. I couldn't see that or feel that. I felt quite disconnected, I suppose. So, it feels good [working in Femtech].

However, leaving a well-paid corporate job to start one's own business comes along with personal sacrifices such as having less security and earning less money or nothing at all (at least at the beginning). For instance, E10 reflects upon that and explains what anyways drove her to accept these personal sacrifices. On the one hand, it comes from educating other women and sharing her experience with them to lift each other up. On the other hand, it is the meaningful work she is doing for her customers: *"I want those women to know they don't have to suffer. There are solutions to feeling better and living up to your potential and not having to be minimized in the way that you think you are"*. Further, she describes it as

a *"different personal connection to it [her patients and customers]"*. Women share personal issues and stories with her and this *"[…] makes it meaningful and mission driven work, which is awesome"*. Lastly, E13 shares how she got overwhelmed by the passion and dedication of all the women working in the Femtech industry when she attended a Femtech conference. *"I need to - I want to participate in this. What am I doing?"*, she explains. She could not see the purpose in her previous job as *"[i]t is just not as stimulating in terms of how it motivates you"*. Thus, she had to change job, making her realize *"[…] once you're in here, it's hard to go somewhere with less impact because of the mission behind what you're doing - it's such an exciting space"*.

To sum up, the analysis of the interviews gives a clear answer to the motives of female entrepreneurs entering the Femtech industry. The reasons and motivations have emerged from the following factors. Firstly, some founders start their companies out of a personal health-related need. Secondly, other founders are triggered from a lack of knowledge and research about women's health and aim to fill these lacks. In fact, all founders recognize the huge gap of products and solutions catered to women's needs and the lack of awareness and literacy about women's health. This ultimately leads them to leave their previous jobs. They want to positively impact women's lives by developing innovative products and solutions that make women's lives better and healthcare more accessible and targeted to the specific needs of women, ultimately contributing to women's empowerment.

5.2. Female Entrepreneurs' Relation to the Femtech Industry

During the execution and analysis of the interviews, it clearly stood out that the term "Femtech" causes controversial opinions, and the founders relate to the industry called Femtech in different ways.
Some founders recognize that Femtech as an industry has gained traction and attention in the past years, which benefits female entrepreneurs (E2, E4, E5, E13). Therefore, the existence of Femtech to cluster companies tackling women's health in one industry is regarded as positive, as explained by E13:

But I think it's good that it exists because once you give something a name, you give it power. That's why I think the fact that [this] sector exists actually gives women power, [it] gives them something to organize around, something to rally around.

E10 describes it as legitimizing, also playing a role when it comes to fundraising:

It does legitimize us because if you're a tech company, then it gives you some added respect or legitimacy. And so having a category of Femtech, just like Fintech […], by having a tech associated with women's health, it legitimizes us that there's something there behind what we're doing.

According to another entrepreneur, Femtech is empowering for women:

I think Femtech is a really powerful way for women to be able to find their own voice and make their way. Not just in the business world or the tech world, but really culturally and globally and to shift the narrative around a woman's position in society (E9).

Further, interviewees describe that it helps people to understand what Femtech companies are doing (E8) and allows to talk more openly about innovation and technology regarding women's health and *"get people in the door"* (E12). Thus, the term Femtech makes it more approachable and broader than just limiting women's health to fertility (E12).

Simultaneously, these interviewees are aware of the negative connotations i.e., by labeling the industry and categorizing the companies as Femtech, they are all put into one category. However, they agree that it is necessary to drop the "Fem" at a later stage and just have tech where "female" and "male" tech combined is the norm, as pointed out by E8:

So, at some point we're going to have to drop the "Fem" because we don't call male entrepreneurs, male entrepreneurs. We don't call tech for male sexual libido, male sex tech. So, I think that those signifiers that denote marginalization are important now. The acknowledging of the intersectionality that we are submitted to now is important […] because what it does is it highlights the fact that you are just as capable as anybody else. But at some point, we're going to have to start to drop those and acknowledge the fact that we are just founders. We are just entrepreneurs, and we are just as good as anybody else. These signifiers are needed now but eventually my hope is that they won't need to be needed.

Similarly, E10 views the label Femtech as additional attention that is beneficial for initiating conversations about women's health, the industry itself, and Femtech becoming the norm. She adds:

Some people might say, 'oh, we don't want to be special, we just want to be the norm.' Well, we're not there yet. We still need special attention on it. So, let's just take it. Let's soak up the attention. Let's use this platform and continue to innovate and grow this so it does become the norm.

Another interviewee compares the label Femtech to the quota for female representation on management boards. In the past, she was against the quota. However, today she is in favor:

And today I'm all for a quota. Because I do think that if we don't have it, it will take us another 200 years until we are like at par. So, we need it now in order to make young girls and women see 'Ah. I also can be on the management team.' (E7).

She continues:

Maybe it's the same with founding companies like now we need this huge shift for women only companies. So that at some point it can be, again, a company for human beings. […] So that in the future it can be for everyone again (E7).

Besides the implications of the Femtech term for external stakeholders and society, it also impacts the way entrepreneurs perceive the space for themselves. For instance, E5 describes it:

I suppose what it means to me personally is that it kind of aligns with my purpose, which is I feel like I'm here on earth to lift other women. […] And it feels good to be in safe company of a collective, I suppose. Of other women who are trying to pave the way and march their own path to do the same sort of thing.

Likewise, another interviewee describes it as a space that gives a sense of belonging, as illustrated by this quote:

[…] it finally gives us a place that we can call home. And we needed that for a very long time. We have needed a space that is just our own. And I hope that someday we can meld all of that together [the different tech industries]" (E8).

On the other hand, some entrepreneurs weigh more the risks related to labeling Femtech as such. E6 does not like being labeled as a "female" entrepreneur and does not define herself as Femtech entrepreneur even though her company is a female Healthtech company. She says, "*I think it really plays into the narrative of this being separate from being a normal entrepreneur which is male. And this is problematic"*. She adds, *"[…] it gives kind of a lower value to the award. Being a female CEO says that I'm something extra or something else than a normal CEO. I'm just the CEO of my company"*. So, *"if someone says I'm on the top Femtech companies, I don't mind that. But I'd rather be on the top startups"*.

The aversion against being labeled as a female founder also resonates with E13 and E7. E13 explains:

So, I have this perception about female tech, female anything, is that you're like competing in the lower league. So, I always hate that. But I also recognize that there are certain problems that exist, and we need to empower women.

Another interviewee raises the concern that other female-led companies, not falling under the categorization of Femtech, do not benefit from the attention:

[…] it's great for me because I am both a woman and doing something in Femtech. But I do think […] for the women who are trying to do things like build a blockchain-based financial services product or want to work in insurance or something like that, that they don't get the benefit of all of this kind of pop

culture press focus on Femtech. And so, it is as hard as it has always been to be them. And so, I think that Femtech can [be quite negative for female entrepreneurs] (E11).

Furthermore, E4 shares that she does not necessarily like the word Femtech as it is not super inclusive in terms of whom they serve or what they do and thus, they do not call themselves Femtech. She adds, *"[We are targeting] women's health. But then, the way we say it, is that it is just people with uteruses, so it can be those from the binary, trans community as well"*. On the other hand, she thinks that Femtech is such a broad category while the needs and requirements (e.g., in terms of investments or regulatory aspects) of the individual Femtech companies are so different, but then *"[…] we're all bucketed as Femtech. So then, you're being compared against people who don't necessarily have the same experience as your company"*.

Lastly, E3 views it as description, as pointed out in this quote: *"It's a categorization, I guess. And it is fine. But I mean more than anything, we are solving a big, big issue in a big market […], it is a description of what we are doing. It is for women"*.

Summing up the different viewpoints, there are two divergent opinions on how female entrepreneurs relate to the Femtech industry. On the one hand, some interviewees regard the label "Femtech" as something positive and vital. According to them, it creates a unique and safe space that empowers the female entrepreneurs working in this industry. Clustering the companies tackling women's health and giving the industry a name makes it more tangible for people to understand what the companies are doing and legitimizing. On the other hand, other founders raise concerns. Attributing the companies to Femtech, distinguishes them from the other tech, decreasing its value and equality according to them. However, both "sides" are very reflective about the problem behind and aware of the pros and cons of labeling Femtech as such. In other words, the entrepreneurs that regard the label as crucial are also not entirely convinced of the categorization, yet they see the current necessity to create awareness and recognition. At the same time, the entrepreneurs who do not like adopting the label female or Femtech are conscious of the structural problems in society as well and why there arises the need to call it "*Fem*"tech.

5.3. Value Creation of the Femtech Industry for Female Entrepreneurs

Another key theme that has emerged during the analysis is the female entrepreneurs' shared perception that the Femtech industry creates value for them. Therefore, the following section discusses different

elements that shed light on the Femtech industry's value creation for female entrepreneurs. These include breaking gender stereotypes, the Femtech industry as an attractive entry point into (tech) entrepreneurship, spillover effects to other industries, the function of role models and mentors, the role of women and men in the Femtech industry as well as the supportive and collaborative environment of the Femtech space.

5.3.1. Breaking Gender Stereotypes

As indicated in sub-section 2.2.1., there are several stereotypes towards women when it comes to attributing women to entrepreneurship. Many founders believe that the Femtech industry contributes to breaking these gender stereotypes as there are many women successfully building companies (E4, E5, E8, E9, E10, E13). E13 elaborates:

I don't think it enforces the stereotypes. No, I think, in fact, it does the opposite. It breaks them. It shows that there are women building companies. The sector is becoming more and more successful and that these conversations are coming to the front line as a result about health and about female founders and entrepreneurs.

Another interviewee differentiates between the success of the business itself and the female entrepreneur. The former will ultimately result in the success of the female entrepreneur, as highlighted by this quote:

I think first it's going to break negative stereotypes around products. I think the business has to come before the entrepreneur […]. But as the businesses prove themselves, I think the female entrepreneurs will have stronger footing. So as these products start launching, as they start proving themselves, as everyone sees there's a market for these products. Then when you walk in as a woman with a product for women, I think you get taken more seriously (E9).

Similarly, E8 shares *"I think it [Femtech industry] has cracked the egg, so to speak, but now we have to make a freaking omelet. So, we've broken into this space and now people are taking female entrepreneurs seriously"*.

Gender stereotypes towards women also occur in fundraising (see 2.2.4.). As it is possible to observe more women in the Femtech industry trying to raise funds and are successful leads to *"[…] [W]e've seen plenty of women-led companies raise money, a lot of money these days. So, I think it is definitely breaking stereotypes. It's great to see",* according to E4. Lastly, E5 thinks that due to more women being entrepreneurs in the Femtech space, helps to break gender stereotypes.

However, there are some contrasting opinions towards whether the Femtech industry helps to break gender stereotypes. For instance, E11 raises concern that having so many female entrepreneurs in the Femtech industry underlines these gender stereotypes as stated in this quote:

No, I think it reinforces them, unfortunately, because if all women can do is focus on women's products, that is not good for us, right? So, if there's a reinforcement that women should be working in only women's things, that's really bad for us.

However, she thinks that *"[…] [i]t could have this effect [breaking stereotypes] in the next couple of years if we see some really big raises. So, if there is a Femtech unicorn, that might do something"*. Similarly, E7 also expresses concern:

And actually I do think that it might be even counterproductive if we now have a huge boost of female founders only in the Femtech scene. Because I mean, as idiotic as it is, but there are probably many men out there who then say, 'let the women take their female topics and we do the real stuff'.

Moreover, she adds, *"[…] I'm a bit afraid of this attitude that women just feel so drawn to female topics and we don't again dare of doing the business ideas that are for everyone and that we cannot super easily relate to"*. Thus, she hopes to see more women everywhere and this might help to break these stereotypes. On that note, another founder thinks that breaking gender stereotypes does not necessarily only be due to Femtech, but she argues:

Any role model is good in any field, whether it's Femtech or not. I think it's just having representation is always helpful, whether it's a black woman, whether it's an Asian woman, whether it's women in general, young or older. The more representation and diversity you have, the better for anyone who wants to come in, of course (E6).

5.3.2. Attractive Entry Point into Tech

During the analysis, it became apparent that the Femtech industry might lower barriers for women to found a company and thus, represents an entry point for women into (tech) entrepreneurship. For instance, E7 recognizes the benefits for both women as the end-consumer due to "female topics" receiving higher attention, and female entrepreneurs. She says:

Also, it is good for all people founding in that area. Maybe it also lowers the hurdle of founding because there is an area that gets a lot of attention where women feel they can contribute and have an idea and maybe that's what it needs to get them founding and starting their own companies. So, I think that is a really positive effect.

Similarly, E4 thinks that there will be several successes of female entrepreneurs with the time: *"And I feel like this will open the door to people realizing that this is a valuable industry to go into. A, as an entrepreneur and B, to invest in"*. Thus, the opportunity to innovate and the female dominance in the industry will lead to more female entrepreneurs (E4). The opportunity to innovate is closely interrelated with the huge gap of solutions and lack of research that has been addressed in section 5.1. As more women want to stand up for these gaps because they feel underserved, the Femtech industry offers a big opportunity for women to enter it (E3). Furthermore, female health is of such high relevance for women's life *"that those become easier things to shape an idea for a company around"* (E6). Thus, *"[...] many might feel more inspired to build a company that resonates with their needs"* (E6). Additionally, from the personal observations, it has been inferred that the Femtech industry is seen as a space of opportunity for female entrepreneurs. Spaces like the Femtech industry that focus on women are crucial to allow more female entrepreneurs to emerge (personal observation).

Another mentioned aspect in the interviews is that examples are needed to encourage more female entrepreneurs, and the Femtech industry is significantly helping by providing many opportunities for female founders to rise. E10 describes:

I think the Femtech industry just gives us a whole new platform with which to be successful and to run a business that we are set up for success in because we natively understand the topic and the subject. So, again, in terms of entrepreneurship in general, we all need examples by which you see great case studies. And Femtech is a wonderful platform for creating case studies of success that then can be used for other industries as well.

Similarly, E8 views it as *"extremely empowering"*, not only for women entrepreneurs but also for founders from (minority) demographic groups such as LGBTQ: *"I love that because what it does is, it's literally changing [...] the demographical landscape of what founders look like"*. She thinks that the Femtech industry's impact on female entrepreneurs is *"incredibly valuable"* because having this own space helps to feel seen and validated. According to her, this is the first step to feel empowered and find the courage to make a change as:

[...] empowered individuals who can embrace their identity are the kinds of people that can go out and make big changes in the world. Those are the people that go out and start their own companies because they were inspired, and they were empowered.

Another interviewee believes that the Femtech industry gives women the opportunity to become entrepreneurs because they understand the problem, resulting in more female entrepreneurs:

So, it's a great sector for them to get into and they understand it. So, they're more likely to also seeing other examples of women. I do think it will offer for more female entrepreneurs. And be that kind of outlet for that moving forward, which is amazing (E13).

Thus, what comes through is that the Femtech industry is a potential entry point into tech for women as clearly pointed out by E9:

Femtech is a great entry point because on some level, no one can tell us that we're not the authority on Fem products for women, on Femtech. So, I think it's a fantastic entry point for women to come into the tech space.

Similarly, E5 says:

And it [Femtech industry] does help you right at the beginning, it does help open doors. In a way, it's a marketing point of note. […] Because people are interested in it. […] it gives other women the hope to then go and say 'I am going to do this'.

Contrasting to this, E11 believes that it should be considered whether Femtech has been quite negative for female entrepreneurs, as illustrated in this quote:

This idea that where women should be innovators is only in the space that is Femtech. I think that is dangerous. I think conflating Femtech and female founders as like one thing is really dangerous. And I see a lot of funds doing it. So, an analysis that I would think is really interesting is to actually look at companies and strip out any Femtech deals and say: 'Have you invested in any women doing something else?' because women should be able to do whatever they want. And so, it's awesome that you're investing in Femtech because the externalities, the value creation there, is about better products for other women. I don't think it's about the benefit to those particular founders, necessarily.

Moreover, she realizes that it could be a way for women to get into entrepreneurship. However, this only creates value if these women get funded. Otherwise, they cannot grow and *"[t]he point of founders is businesses, not writing media articles about being founders"*. Another concern comes from E7 who despite seeing the opportunity for women, says: *"I hope that it's not an area which now draws all potential female founders in there and then we lack female founders on, let's say, gender neutral topics"*.

5.3.3. Spillover Effects to Other Industries

Some interviewees are very confident that the boost in female entrepreneurs within the Femtech industry will positively impact other industries as well and thus, create spillover effects to other (tech-) industries. For instance, E10 shares her view:

I bet it will, absolutely. I think it's going to give women confidence and embolden them. We're also going to see more successful female entrepreneurs. You need volumes of success. And the more women we have starting businesses, the more it will start to just proliferate into any industry, which I think is great.

Likewise, E5 explains:

I think it's a bit like a Trojan horse, isn't it? You get a group who pave the way and then it doesn't just show that it's possible in a space. It shows that it's possible. So, these women are doing things, they're doing it differently and they're achieving amazing things. And therefore, why shouldn't they be doing it in different spaces?

Apart from inspiring female entrepreneurs in other industries, some founders also see the possibility that successful Femtech founders at some point will get involved themselves into other companies and industries, creating a spillover effect in this way (E12, E1). E1 describes:

[...] I do think that if a Femtech founder maybe sells her company and then will move over to another company as a leader, it's going to be that the bricks are going to start to fall when we are creating this and then moving forward to do new things.

Another founder elaborates that the required skills in the Femtech industry, such as operational skills, knowledge about fundraising, or building a network, are the same as in any other tech industry. Thus, building a company within the Femtech industry gives *"the skills to run almost any kind of company"*, apart from specific expertise (E9). E13 confirms it as well:

[...] if you once founded a company, you catch the bug and then you want to do it again. And doing it the second time is easier because you just know. The things that seem scary, you just do them quicker. You move on. So, I think, it definitely will be a spillover.

Another interviewee also reflects upon the effect on future generations. She hypothesizes (and hopes) that children and young people watching their mums or dads working in (Fem-)tech while growing up are *"[...] going to be inspired to just work in tech and just to be empowered to go into a classroom where they're not the only person that looks like them"* (E8).

5.3.4. Role Models and Mentors

As illustrated in the academic literature (see 2.2.3.), role models are crucial for the development and success of female entrepreneurs. During the interview analysis, it became apparent that also for the female entrepreneurs in the Femtech industry, role models are valuable.

For example, E5 reveals:

They do play a major role because it's the confidence thing, we need to see that there are women out there who are doing it and succeeding. That in a way reflects how we want to live our lives and run our businesses.

E4 gets inspired by women who are "*farther ahead in their journey"* i.e., have closed some funding rounds and proven the success of their product. *"And I think that's really inspirational to see people towards the end of their journey, maybe with their startup"* (E4). Along with the previous interviewees, E6 points out the importance of role models:

Role models are always hugely important, I think. As soon as you can see someone being in a role or in a position that you never imagined yourself in, being moved slightly closer to that being, you know, feasible for you to attain. So, role models are hugely important.

However, for instance, E3 says that it is not easy to find female role models. *"For instance, if I want to know, how to pitch or like how to be as a female CEO, I find it hard to find examples that I can really inspire myself on"*. Similarly, E11 shares that she does not have any female role model in tech, and she wishes there would be more of them.

A more frequently cited example who inspires the entrepreneurs is Whitney Wolfe, the CEO of Bumble, who took her company public as the youngest female CEO (E4, E6, E7, E11). E4 believes that role models like her are aspirational and have an impact on female entrepreneurs because *"[…] just seeing someone like you who is similar to you succeed and prove some of the basic concepts of company growth, whether that be in Femtech or outside of Femtech. I don't really think it matters too much"*.

Similarly, mentors play a crucial role as well. Many interviewees share that they have mentors that support them in various business aspects and comfort them (E4, E5, E6, E11). For instance, E5 says that she has created "*quite a formal structure around this"* through a group of women who are *"always on call"*, in very senior positions, and have very different skill sets. They help and support her when she needs it. *"That is crucial for us [her team]"*, she adds. E2, on the other hand, benefitted from mentors specifically on the personal growth side. Further, E1 says, *"I think it's really important to get someone that you can talk to, someone who has done it before"*. Simultaneously, they also want to give back to other people as expressed by E4: *"But I would feel like it would be almost irresponsible not to give back to the community and help other entrepreneurs grow within this space"*.

Thus, it becomes evident that role models and mentors are essential for the Femtech entrepreneurs, motivating and inspiring them to keep going. E10 claims that *"[...] I think that the more women have role models that set precedents for what it looks like, the more than they can quickly learn and get up to speed faster than without a role model"*. Further, as pointed out in the previous sub-section, some founders are confident that due to an increasing number of female entrepreneurs within the Femtech industry, they can act as role models for entrepreneurs also outside of the Femtech industry, creating spillover effects (E5, E10, E11). Lastly, E11 adds, *"And so, I hope, again, that if we're creating great role models through Femtech, I also really hope we're creating great female role models elsewhere"*.

From the analysis of the last four sub-sections, it becomes apparent that the opportunity to innovate, the lower entry barriers for women, and the female dominance can arguably encourage more female entrepreneurs. Furthermore, due to a high share of female entrepreneurs in the Femtech industry, it can contribute to breaking gender stereotypes. Moreover, it can potentially produce more female role models that positively influence not only other female entrepreneurs within the Femtech space but also beyond, thus, creating spillover effects to other (tech) industries. Indeed, the interview analysis led to the outcome that role models and mentors are viewed as essential by the Femtech founders. Noteworthy is the aspect not to lump together female entrepreneurs and the Femtech industry. This might create more harm than benefits since women should not be told they cannot do something else than female health.

5.3.5. Gender as Determinant Factor in the Femtech Industry

Another prevalent aspect stressed by the entrepreneurs throughout the interviews is the role of gender in the Femtech industry. Therefore, both the role of women and men in the Femtech industry are elucidated.

Role of Women in the Femtech Industry

Based on the interviews, there is a general agreement that being a female entrepreneur has been advantageous in the Femtech industry for several reasons.

Firstly, they inherently understand the problems related to women's health and the market better than men as women equal end-consumers (E3, E5, E6, E7, E9, E10, personal observation). Moreover, they live the products (E5). This allows them to create products and solutions that target these specific needs and problems, as explained by E5: *"When you relate to the problem, it's easy to see ways to design the*

solution that a man wouldn't be able to do" or by E7: *"I think if you understand your potential customer, you will always have an advantage"*. Further, she adds, *"I do think that I am better equipped to sell female fertility test compared to my male counterparts"*. E4 confirms that it is advantageous to be a woman in the business itself and grow it.

Secondly, some founders have the opinion that being female is beneficial to gain customers' trust and credibility. For instance, E10 discloses:

I do think that in this space it very much matters that it's led by a woman who understands her constituency. We just operate differently. And I think it also engenders your patients trust more too. So, I think it's a big deal […] in Femtech.

Furthermore, in this context E6 points out that if a man represents a female health company, there might be credibility issues when attempting to establish a dedicated connection with the user base. Similarly, she compares it to *"[…] it's like if you start a company for erectile dysfunction, it's easier maybe for a man to represent it"*. However, it is not impossible, she adds as *"everything has to do with curiosity and speed"*.

Thirdly, also from other stakeholders such as investors, it is expected at least to have a woman in the founding team. E2 would bet on a female co-founder because of her lived experience, particularly from VC side. Likewise, E9 conveys her impression when meeting with investors: *"[…] they were looking at me to see if I could be a spokesperson for the product. I think that was probably an advantage"*. Further, E13 reveals that some men strategically choose a female co-founder because *"[…] they get drilled by investors in this space as to like 'where are the women on your team?'"*.

Interestingly, some founders believe that men have an advantage or that it is beneficial to at least have a male co-founder. E9 thinks her experience would have been different if she had a male co-founder, particularly in fundraising. She noticed that she got a very different set of questions when she brought her engineer to pitches than she would normally do. Similarly, E2 adds to her previous statement (in terms of a female co-founder being required) that a male co-founder is beneficial in fundraising also in the Femtech industry as *"there's the pattern matching going on the VC side"*. Even if E4 agrees that it is advantageous to be a woman for growing the business, she raises a similar concern as E2. She explains that when talking to other industries such as the financial industry, it might be that they are not as diverse as her team: *"So, you're speaking to people that are maybe not like you at all […] [and] [d]on't know*

anything about Femtech […]". Thus, being a woman might make it harder to persuade people as *"[…] people tend to kind of trust and understand what they know"*.

Other interviewees claim that it is even harder for men, particularly in terms of fundraising for female health. E12 says:

So, investors want to know that the founder is obsessed with the problem and obsessed with finding the solution. That's why oftentimes investors look for founders that have experienced the problem that they're solving, because then the investor knows that that founder is committed. […] And so, they understand men leading fertility companies, but they cannot understand why a man would lead a period or, you know, yeast infection or menopause company. And so, they almost never get funded.

E13 confirms and says that *"[…] fundraising in Femtech can be hard for women, […], but surely it's harder for men"*.

Lastly, there also is the point of view that disagrees with women having an advantage in the Femtech industry. For instance, E11 shares her opinion:

No, women have no competitive advantage in tech. The numbers are so clear. So, if you take the whole of tech and you reduce it to Femtech, you are now at point zero zero zero zero percent of money raised. And so, if women have an advantage in that tiny pool, that's not an advantage. I also bet that if you look over real time – let's say five years at least - that all female teams will not have founded more Femtech companies than mixed teams. I don't know that to be true, but I bet that's true.

Further, she adds that there are so few large Femtech companies from which it is possible to draw any conclusions. Additionally, E1 believes that many men are doing Femtech companies as well and that also in the Femtech industry *"the kind of 'heavier' roles are led by men"* such as the CEO, CFO or CTO, while women hold more the softer values such as HR or operations. However, *"I definitely think that's changing"*, she continues.

Role of Men in the Femtech Industry

From the preceding outlined reasons, it stands out that women seem to have an advantage in the Femtech industry. However, in business processes such as fundraising there are concerns if being a man is advantageous after all. Thus, it remains to be seen what role men play in Femtech and whether they are sufficiently included.

The interviews with the entrepreneurs as well as the personal observations revealed that the female founders all agree on the importance of including men in the Femtech industry and in the conversation

around females' health to create a positive change. For instance, E3 says that they need men because *"[i]mproving female health is not just improving the health of women. It is improving the health of humanity like men come from women and we will only change things if we include men […]"*. Therefore, she also includes men in her team. Moreover, E1 says:

[..] I also think it is very, very important that we understand that Femtech can't be like a close group of only women. […] We're not going to get anywhere if we're going to be excluding other people. […] Feminism and Femtech and everything around it, is a problem for everyone.

E4 thinks that:

[…] we, within the Femtech industry, tend to work in silos and in these women only spaces and women only groups, which is great. And I love that. […] But I also think introducing men into the conversation can really help make change.

Some founders say they would like to see men as their allies, showing support and interest (E2, E4).

Noteworthy is that there are some differences in opinions regarding the hiring of male employees in the female founders' Femtech companies. E5, who employs predominantly women, explains that she is not excluding men when hiring, but that it depends on the role and *"for some roles, it was so important that we had a woman […]"* because they need to understand and be able to relate to the product. Similarly, E1 shares that they tend to hire women as well. *"Whenever I talk to a man and talk about the company, I can tell that they don't understand it. And then I'm kind of like 'Oh, why should I have this person on board who doesn't understand the business idea?'"*, she explains. At the same time, she also believes that it is important to hire the right person for the right role and being mindful about it. She is aware that they cannot only hire women that look like her *"[…] but it comes down to whether we have a diverse team"* and not only in terms of gender (E1).

A different approach comes from E6. She has a criterion that half of her team is supposed to be male because *"not knowing is also a skill"*. She believes that there is a sensitivity and curiosity when one has not experienced something. Further, E13 is optimistic that men obviously can bring some skill sets into the industry that add a lot of value (E13). In E7's company that tackles fertility, they included products for men as well because (in-) fertility is a gender-neutral topic. She says*:*

[…] infertility is evenly split. It concerns women as it concerns men. So even though we definitely have a female focus, we definitely do not want to leave men out of the equation. Also, men should know that they are part of the equation. Like this is not a female topic where only females should worry about and take all the responsibility and so on.

Lastly, E10 believes that diversity in thinking is always important. Thus, also in the Femtech industry she wants a *"diversity of thinking that includes male and female thinking"*.

Overall, it emerges that diversity is viewed as a priority and necessity, which implies including men into the Femtech industry as employees, customers, and into the conversations. However, there are some diverging opinions regarding whether men are already sufficiently included in the Femtech industry and women's health or not.

Some entrepreneurs think that men are not sufficiently included such as E13. In her opinion, both extremes do not work i.e., having just men or just women. She adds that men play a key role in terms of investments as the VC industry is heavily male-dominated. However, she hopes for more male entrepreneurs within the space. E12 is excited to see more men involved because *"[…] it's always only been women for women's health. […] And we actually need men to know what is happening and we need to get rid of that gender divide in talking about women's issues as 'taboo'"*. Further, E10 describes:

So, I would absolutely love more men involved, primarily because they are involved. They have women in their lives. They've got wives and moms and daughters and sisters. And they want to be educated. They want to be supportive. They don't want to just have the woman go it alone or they want to know how to be if she's going through a tough time. So, we certainly need more men involved in all sorts of capacities.

Other entrepreneurs feel that men are already sufficiently included. E6 refers to more prominent Femtech companies, which have both women and men in the management team. However, she distinguishes this from men being included in conversations and creating awareness: *"So men as part of the change in accepting female health and being part to make it acceptable to speak about. That's hugely underserved"*. Another thought stems from E7 who refers to men being sufficiently involved since they include themselves and she does not have the impression that it is a women-only area. Furthermore, E11 clearly says that men are sufficiently included for two reasons. On the one hand, because of investors being predominantly male:

I don't think anyone is excluding them. They hold all of the cash and so people are more than happy to talk to them about how they can invest in their businesses. More than happy. You could not be more inclusive, but they are in fact the only people who can make these companies happen.

On the other hand, because of men dominating in science and healthcare-related industries:

[…] I think all the pharma companies, all the scientists working on non-hormonal birth control, there are men everywhere there. I bet the CTOs that most Femtech companies are men. Yeah, I think it's probably a bit of a myth to say that they're excluded in any way.

She views it as an entirely open space for men that want to start companies in female health since none of the big companies operating in female health are run by women (E11).

Another aspect that emerged during the interviews is that everything else is Mentech and there is plenty of it (E1, E3, E4, E6, E8, E10, E11). This is *"because everything is coming out of men being the standard"* (E6) and the default being male (E11). E10 says, *"[…] I think society's been built on men and so we live in a Mentech world to begin with"*. Also, according to E5, we live in a world where the products and services have been designed by and for men *"[a]nd now we've got women who have decided that they want to create products and services and it's still a minority. We should all be able to coexist. They've already got a world"*.

Therefore, the default being male is related to the lack of innovation and large gap of products and solutions in women's health elucidated in section 5.1. This represents an opportunity for female entrepreneurs as illustrated in E7's quote:

[…] if we look at the past decade, I think predominantly men have produced products for both men and women. I think they were really good in producing products for men. But in many industries, they were really bad at producing products for women. And still they sold the products. Still, they created value, right? But I think now acknowledging that there are products which will be better, if a woman conceptualizes and thinks them for women. I think this is a huge, huge opportunity.

To conclude, from the analysis of the factor "gender", it emerges that an inherent understanding of the problems related to women's health and the market as well as the expectations from consumers and other stakeholders (e.g., investors) give women an advantage in the Femtech industry. Regarding the role of men, it can be inferred that it is essential to include them (more) in the Femtech industry. However, whether they are sufficiently included or not is controversial.

5.3.6. Collaborative and Supportive Environment

As the Femtech industry is in its early stages, the question of how the female entrepreneurs perceive the competitive landscape is explored.

Firstly, all the interviewees agree that so far, there is not so much competition within the industry and thus, there is enough space for everyone (E2, E3, E6, E11, E13). For instance, E2 tells *"I don't really see*

too much competition specifically on what I'm doing" or E6 feels that her company does not have much overlap with other Femtech companies. Further, E5 says *"Because I think the thing is we realize that even if you have something that's similar, it's not really similar because it's your story and there's enough people in the world to buy everybody's product"*. E4 states, *"I think there's space for everyone within Femtech"*. Even in sectors such as fertility where it has been started to get more competitive, E13 describes it as *"healthy competition"*.

Overall, when the interviewees talk about competition, it emerges that they perceive competition as something good. E6 says:

And I mean, competition is always healthy and should be there. But I think with regards to half of the world's population being female, I'm sure that there's enough of a market to serve many different things. […] I have an idea that there are many exciting companies on the uprise. So, I see that as a positive thing, not a bad thing.

Similarly, E1 regards competition as a source of inspiration as illustrated in this quote:

We look at a lot of our competition, like 'What are they doing? Why did they do this?' And then they stopped doing it. Did that mean that people didn't want to have it? So, for us, it's more like we look at the competition as something that makes us more excited to go to work, that we want to be better.

E11 explains that in the Femtech industry it is a different way of looking at competition since they are not competing for customers but fundraising. At the same time, she hopes that there will be more high-quality companies in her sector *"[…] because there is so much that needs to be done"*. What bothers her more is mediocre ideas or non-science-based information because *"[…] what women don't need more of is crappy products"*.

Some founders share experiences where a certain level of competition was perceived such as E4 who describes: *"But there are other companies that are quite competitive and will take whatever you say and do it themselves. And so that has happened before"*. Another example stems from E8's experience who shares that there were times where it was debilitating being part of the Femtech industry because there are women with the mindset that if you are a woman, *"there is only so much room for you at the top"* and so they attack you. *"I have experienced female misogyny more than I have experienced overt male chauvinism in this space, which is really disheartening"* (E8).

However, both add that they experienced collaboration and support as well. E4 says that in her company they like to take *"a more collaborative lens on it"* since they *"[…] don't really like to see the point of doing things in silos. I don't think anyone wins in the end"*. E8 describes that:

[f]or the most part, everybody is extremely accommodating. We lift each other up and we realize that all ships rise with the tide and that […] if we're going to move our individual businesses forward, you need to move the whole industry into the limelight. And in order to do that, we all need to work together.

Related to the positive perception of competition, it emerged from the interviewees that the Femtech industry is a very collaborative and supportive environment, thereby confirming our personal observations. More specifically, during our personal observations, we observed that the conversations and discussions are very friendly interactions. The female participants listen to each other, do not interrupt each other, and carefully respond to each other. Thus, we received the impression that the atmosphere in the Femtech industry seems to be very collaborative and supportive (personal observation). Combing back to the female entrepreneurs of this study, E10 views it as a *"friendly landscape"* and E5 says, *"I find it really supportive. I think we all get it. We're like, we are only going to grow if we all partner together and collaborate together"*. Similarly, E9 says:

And I do think one thing that's very special about the Femtech space is, it's a very supportive space. I think all the women who are doing Femtech are very supportive of each other, want each other to succeed, because the mentality is if you succeed, we all succeed.

The supportiveness also represents one reason for her why the Femtech industry is a great entry point for female entrepreneurs (E9). Many founders recognize the benefits of collaboration because they all follow the same mission and share the same goals. For instance, E10 explains:

And we also realize because what we're doing is kind of pioneering work and we know the stakes are kind of against. It is hard. No one's ever done this before. Otherwise, if it were easy, someone would have. So, I honestly see it as more friendly than hard core competitive simply because we know it's a rising tide lifts all boats. The more you ban together, the more the population is educated about it, the more they're going to seek out the solutions that you have to offer. And so, I think the more that the Femtech industry really bands together, it's good for all women and it's also good for business, too.

E2 regards it as highly important to collaborate in order to bring women forward:

We're like in Tech. We're active in these largely male-dominated spaces. And so, you work so hard to break into a space like this and you're already working so hard against all this male-dominated environment. And then another woman comes […] [a]nd it's about net worth, the more there are of us and the louder our voice is, the better it is for all of us. […] I definitely trust in sort of this abundance. I

think there are specifically in such an underserved space, there is enough for everybody. And we're actually not fighting each other. We're fighting the system together.

Similarly, E9 reveals that she changed her mind about how she stands towards competition. Being competitive is part of being an entrepreneur, she says.

But in the last year, I had a change of heart and I thought, there must be a way for everyone to work together because we have a similar mission. It is a huge mission. And really, if we want to make an impact, sort of the more the better (E9).

One interviewee also believes that this collaborative spirit comes on the one hand from the fact that the majority in this industry are women and thus *"[…] we [women] have an inherent sense of community and collaboration that is enforced. It's very natural"* (E12). On the other hand, she thinks:

because we all have a bigger mission, we all know that this is about women's health equality. We're saving women's lives. We know that there's this bigger moral mission. […] I think that it changes the female entrepreneurship experience because it's very collaborative, we all share resources. We give recommendations (E12).

In fact, many entrepreneurs reveal that they felt very much supported in terms of introductions to investors, sharing knowledge, getting advice or opinions from experts or other founders (E1, E9, E12, E13). Lastly, E13 shares the dynamics observed from the female participants of her accelerator cohort:

[…] let's talk to each other. Let's support each other. Let's share what we're going through. This kind of sharing is very interesting. And I think it does give women a competitive edge of supporting each other, partnering, building better and more long-term companies.

To sum up, from the personal observations and interview analysis, it emerges that the competitive landscape is described as friendly and welcoming and that the market is largely underserved. Furthermore, competition is generally perceived as something positive in the Femtech industry. Another aspect that stands out is that the environment in the Femtech industry is supportive and the female founders recognize the benefits of collaborations due to their shared mission and goals.

5.4. Main Barriers for Female Entrepreneurs in the Femtech Industry

During the interviews, barriers such as recruiting i.e., finding the right employees, implementing technology, or healthcare regulations have been mentioned by the respondents. A key barrier that the founders experience is the lack of awareness around women's health literacy and the taboo topics surrounding their products and companies. Further, it has emerged that fundraising is the most

reoccurring mentioned challenge and perceived as the most challenging barrier in the Femtech industry for female entrepreneurs. This is also closely related to the lack of knowledge and stigmas around women's health. Therefore, the fundraising experience of the female entrepreneurs in the Femtech industry is explored in the following.

Most of the founders describe the process of raising funds as a very challenging experience (E1, E4, E6, E9, E10, E11), as illustrated for instance by E10's quote: *"[…] the funding of women's health, health innovation is very challenging"* or E1 who says, *"It's though for everyone"*. E11 reveals that *"[…] fundraising is so hard, no matter what"*. E4 expresses that fundraising *"[…] takes a lot out of you, mentally as well"*. Similarly, E5 describes it for her personally as the most stressful experience of her career, except going through her mental health issues. One of the reasons for this is because of the narrative. She explains:

And it's true that it's not just a narrative, it's the fact that women are less funded. So, you go into it knowing the statistics. You're like only 2% of women globally get these VC funds and you have it in your head and actually is unhelpful in a way to know that because you go into it almost with a negative frame of mind, constantly thinking, 'Oh, well, I'm not going to because I'm not good enough'.

This creates a lot of mental barriers (E5). Another noteworthy aspect that some entrepreneurs mentioned is that fundraising is a full-time job and *"everything else is not important"* (E4, E5).

Furthermore, women tend to receive more risk-averse questions than their male counterparts, making it more challenging. (E6). E13 conveys that in her opinion there is some gender bias: *"Like when men pitch, they just buy or invest in the dream. When women pitch, they do ask 'what have you done to back this up?'"* Similarly, E6 feels that as a woman *"[y]ou have to prove so much more […]"*. She received many risk-averse questions such as *"But what if this doesn't happen? What if you can't monetize on this? What if you don't manage to go there?"*

5.4.1. Underlying Problems

Different reasons for why fundraising is so challenging and the key barrier for all female founders can be identified. These reasons are similar to the ones pointed out in sub-section 4.5.4. However, the personal experiences of the female entrepreneurs visualize the challenges in fundraising on a more detailed and personal level and add individual difficulties they encountered. Subsequently, the lack of

awareness about women's health, the stigmas, the underestimation of the Femtech market size and the male dominance in the VC industry are elaborated.

Lack of Awareness and Taboo Topics

One underlying reason for the challenges in fundraising is the lack of awareness and the stigmas surrounding Femtech products and solutions.

Most Femtech topics are considered taboo topics and investors often do not feel comfortable talking about them. For instance, E4 explains:

When we mentioned things about menstruation and periods, they'll just say something like 'stuff' or 'that stuff' to avoid saying the word, which is a bit weird because half of the population is female. But I feel like some people are a little bit uncomfortable, maybe don't necessarily want to speak about it up front.

E3 confirms that from her experience, investors are uncomfortable using these words. She finds it difficult to understand as most (heterosexual) men live with women and therefore, it should not be weird talking about the menstrual cycle. Also, E10, whose company tackles menopause, says: *"The topic with which we are innovating on menopause, nobody wants to talk about it, it's taboo. Investors don't know anything about it. It's shameful"*. She continues: *"But during the very early days, there were some moments where I just went away from a conversation [pitch] angry or just like majorly pissed off because they were so dismissive or uneducated […]"*. Furthermore, E11 wants to clarify that: *"I don't think we struggled because we were talking about menopause and men are grossed out by vaginas. I think that that is an incredibly simplistic view of the issue"*. She explains that VCs are seeing thousands of deals a year and therefore, they have to rely on pattern recognition to quickly make sense of a pitch. So, if they are not used to see women pitching in the first place and additionally, they talk about menopause which is something investors may or may not have ever heard of, it results in: *"So our pitch didn't offer any hooks for them to say 'I've seen that before' or 'I've seen that elsewhere'. And that's a real challenge. When everything's new, you have to be so compelling"* (E11). Similarly, E12 explains that when investors decide to invest in a startup, they rely on their intuition next to key metrics such as market size. If they have not experienced the problems that Femtech startups tackle or if they are unfamiliar with the health condition itself, then they *"[…] will not have that intuition to feel driven to invest in it"*, causing a huge lack of investments in Femtech startups. Another example stems from E8 who operates in Sextech

and who shares her experience of talking to investors: *"They knew that it was a good idea and that there was market opportunity. They just didn't know enough about it"*.

Contrarily, E5 had a positive experience in terms of investors' understanding for the topic and market size. She felt that mental health is a topic that investors like talking about and she describes:

I think that is so helpful if they can relate to it. And because mental health has been a topic of discussion for the last two years now, and also we sort of intersect a number of conversations, which is feminism, women in the workplace, gender pay gap and then mental health. And these all create from an investor point of view it's like a bit trendy. If you think about what investors care about, they like a bit of 'Oh, we've got them on our portfolio.'

Moreover, E7 neither experienced any situation like *"It's a female topic and the male investors didn't get the topic"*. In fact, it was quite the opposite in her case. Interestingly, her company is operating in fertility and also encompassing products for men. Lastly, another founder leverages the taboo topics as a stress test for investors:

It's like it's been a really good way to stress test as well. If you can say those words out loud, without someone getting a red face, then it's a good match. […] So, we never allowed space for any giggles, so if we don't take our own product seriously, then how are they? (E6)

Another underlying problem cited from some entrepreneurs is that investors often refer to Femtech as being a niche market, which is hard to understand for the interviewees because women constitute half of the world's population (E2, E3, E4). For example, E4 reports that she often got asked whether many women truly have "the issue" endometriosis. Even when she tells investors that around 10% of the female population is affected by it, they still do not believe that there is an actual need and consider it niche. This has happened mostly with male investors but also with a few female investors. Similarly, E3 explains, *"I think one big challenge is when I speak to investors, for instance, they would often see female health as a niche. […] So, they don't see themselves interested in the topic just because they will never be a woman"*. Lastly, E9 shares that she has been confronted many times with the situation where investors say, *"Well, I'm not sure the need is out there"* and she has to prove *"that half the world needs this"*.

Male-dominated VC industry

When talking about their experiences with investors, the entrepreneurs refer mostly to male investors as the VC industry is heavily male-dominated (see 2.2.4.) (E1, E5, E7, E12, E13, personal observation).

E5 describes it as *"[…] it's still the old boys' network […]"* where there are *"[…] mostly white men, middle-aged"*. Not only the male dominance might cause difficulties for women, but everything around pitching and fundraising is a *"[…] very masculine way of doing things […]"* (E5). E5 states: *"[…] even the language within it and the way that the pipeline of how they bring people into it, needs to be radically changed to encourage more women to want to even think 'I'm going to get investment for my business'"*. She knows many women from her community, running small businesses that hold promising potential *"[…] [b]ut because of the language around it like […] 'come to a pitch day', none of them would ever, ever consider doing that because it's scary and it's judgmental. And so, they don't even enter the arena"*. Similarly, E1 believes that pitching how the business is going to generate revenues and appeal to what investors want to hear *"[…] maybe that is something that comes more naturally for men"*. Further, women tend to suffer from a lack of confidence and the impostor syndrome whereas fundraising requires to be *"extra ballsy, extra confident"* (E13).

Most of the outlined female entrepreneurs' experiences, including the lack of understanding they faced, came from male investors. For example, E1 shares her experience with male investors that just do not understand the issues. She mentions one experienced investor who considered menopause to be like puberty. However, she describes the differences between some of them who are willing to learn who say *"[…] when we booked this meeting, I asked my wife and my wife explained to me"* while others do not show interest at all and do not take it seriously. Further, in the former case, there is the risk that the woman that the (male) VC talks to has not experienced the problem either or is not familiar with it and thus *"[m]en will come back and say 'This is not really a problem'"* (E13) (E1, E13).

E12 refers to male VCs having an ego problem as she heard from several female founders that they had to argue with investors because men were trying to "mansplain" issues related to women's health to female founders. So, they had to defend how something related to female health actually works or convince them of the problem's existence. According to E9, even if they understand the issue the biggest hesitation is *"[t]hey don't think or don't believe yet that women are basically going to take their health seriously"*.

However, dynamics are changing in the VC industry as more and more female investors are entering it (E1, E4, personal observation) (see 4.6.1.). Some entrepreneurs are very excited about it, such as E1 who says, *"[…] I think it's amazing what is happening right now"*. Similarly, E4 explains:

I can find a lot of female VCs reach out to us and they tend to have an interest in Femtech. It tends to be more of the female [recently]. But I think that has definitely changed from what it was a few years ago. So that's quite exciting to see.

One would argue that these underlying problems decrease with female investors. One respondent does not agree when founders want to pitch to only female VCs. She is convinced that male VCs can learn about Femtech in the same way as they do about Bitcoin (E2). She says:

I honestly don't see this excuse and I think it's kind of their responsibility. But it's also - I feel founders are sometimes even apologetic about working in this space. And I think, you need to just stand up for yourself and be like, 'look, you have a very unique opportunity here for great returns. These are blue ocean opportunities'" (E2).

In fact, some founders also mention the difficulties they faced with female investors. For instance, E9 shares that pitching to men or women in Femtech is a completely different experience. She followed the advice of people to talk to female investors, but she realized that *"[…] women were squirming almost even more"*. She believes the difference is that men can see everything as a business because they are not personally connected to female health issues. However, each woman has a story and as her product concerns pelvic health, she is talking *"[…] about an area of our body that we have so much stuff wrapped up in, so much emotion, so much history […]"*. So, in situations where she was pitching to a woman, she realized *"[…] I don't know her story. […] And I'm trying to get her to think about something that she probably wasn't ready to think about and who knows what it connects to in her life"*. Thus, she overall finds it more complicated talking to women than to men who focus on numbers, market size and business opportunity. Furthermore, E10 describes that she had negative experiences both with male and female investors because of the taboo topic surrounding her company. According to her, while men do not understand it because they have not experienced it, women said, *"Well, you're never going to get that number"*. One even said, *"You have the ick factor going for you"*, upsetting her and at the same time emboldening her. Further, she adds that she believes the female investors were discouraging her because *"[t]hey were trying to almost help me shortcut, not sending myself up for such rejection over and over or just setting my expectations because in their sort of way felt like they had been there, done that"* (E10). However, the belief in her mission made her continue.

There is a change happening in terms of lack of understanding and awareness. It has become better over the last few years as pointed out by some founders (E1, E3, E4, E5, E12, E13). E4 says:

[…] we've seen it change over the last five years from when we first had the initial idea through to now. I think Femtech is really developed from what it was. People now especially VCs see it as a viable industry. Whereas before, I felt like it was very much dismissed. In the early stages, you would have people not understand anything we're talking about. But now I feel like people are more receptive to the conversation. A, they do see that there's a big market and a big need. B, that they can make some good returns within the space as well. So, it shouldn't be any different to any other space.

Thus, investors are increasingly recognizing the potential of the Femtech industry and showing interest. E3 confirms that it is changing month on month. Similarly, E5 explains that the development is related to *"this new wave of female empowerment"*, putting women in more economically powerful positions. Further, there is a higher willingness to learn from the side of VCs as mentioned by E4: *"[…] they're willing to learn, they're willing to at least see the business opportunity"*. *"But I do think that people do ask questions. And I do think that people want to understand, especially now"*, conveys E1 additionally. Furthermore, also from the personal observations, it has been inferred a positive development happening as Femtech meanwhile is a thesis within the VC community and many female founders share how they increasingly get approached by investors. Lastly, according to E12, there will be more Femtech funds which ultimately will increase investments into Femtech companies.

Summing up, in the Femtech industry, there are some underlying problems enhancing the difficulty and complexity of fundraising. Firstly, Femtech products and solutions are closely related to taboo topics and stigmas surrounding female health. This makes it uncomfortable for investors to talk about or might even be topics avoided by people. Secondly, the Femtech industry is oftentimes considered niche and thus not worthy or perceived as highly risky in terms of return on investment. Thirdly, the VC industry is highly male-dominated. Moreover, a key issue is that male investors – and sometimes also females – do not understand the problems and cannot relate to them. This fortifies the fundraising challenges for female entrepreneurs in the Femtech industry.

5.4.2. Strategies to Overcome Barriers

Despite recent positive developments, the challenges for female entrepreneurs are still persevering. From the interview analysis, three common strategies to reduce the challenges in fundraising of the female entrepreneurs in the Femtech industry have been inferred, which are subsequently illustrated. These

include the importance of educating investors (and society) to overcome the lack of awareness, understanding the VC game, and relying on networks.

Education

Several entrepreneurs agreed on how important it is to educate investors and society about women's health-related issues (E1, E2, E4, E7, E8, E9, E10, E12, personal observation).

E8 clearly points out that *"So I think the stigma itself is actually born out of a lack of education"*. She believes that many investors are interested, but they just do not understand the market: *"[…] if you want them to understand and if you want them to invest, you have to educate them. They need to understand what they're investing in"*. This lack of understanding and education creates a lot of shame, biases, and stigma. Therefore, she elaborates:

And in talking through it [female sexuality] in a very scientific manner, doing the research in order to be able to do that first and foremost. But walking into a room, being very strong about it, but also just being very kind and being very well educated on the subject to the best of your ability has been the only way that I get through to people. Having the courage and the strength, the education and the willingness and ability to educate people and the kindness and understanding to understand that they don't know. And that is OK. And that's what you're there for, is to educate them so that they can invest (E8).

Similarly, also E10 shares *"So I've had to do a lot of education along the way and a lot of exposing my own self, talking about my own perimenopause like putting myself out there"*. Furthermore, E2 explains that she has consulted herself a lot with VCs to educate them about that *"Femtech is more than menstruation and fertility"*. For E7's company, education about social freezing and fertility is even part of the business model and it is how they started in the first place. Also from the personal observations, a consensus emerged on the importance of educating investors, other stakeholders, and women themselves about women's health-related issues. Across different panels and discussions, the role of female entrepreneurs in educating society is stressed, which resonates with our interviewees (personal observation).

Contrastingly, E3 finds the educational part *"boring and tiring"*. She prefers only talking to investors who are interested because:

[…] if there's this huge educational part then it is probably not the right person. Because like what I learned is when they are not educated, they're often actually not interested. And so, it's a big time investment on my end to spend to actually having the person afterwards say, 'I'm not interested'. And I

think it's a mistake on their end, because if they are investors, they cannot be ignorant about such a huge topic. But they are (E3).

Understand the Game

Another crucial aspect according to the interviewees, is learning to *"understand the game"* (E1) to raise venture capital successfully. Some entrepreneurs mention that it is crucial to understand an investor's psyche (E1, E5, E10). For instance, E1 explains, *"You need to understand what people want to hear. People want to get affected by things. You have to understand the psychology behind what people are interested in hearing"*. Thus, learning and leveraging the language of investors is very relevant (E1, E5) as well as have a profound understanding of equity financing so that the founder herself knows what investors are talking about (E1). E1 adds, *"So you have to really understand as well that people care about money and obviously why venture capitalists are doing what they're doing"*. Related thereto is the importance to show how one's company is going to generate revenues in the Femtech industry as *"[...] it can't be just a nice thing"* (E1). This is what investors are interested in. E2 confirms that as founder one has to keep in mind to bring a return to investors. *"Get to the numbers"* (E5) such as market size and *"know how to guide these conversations"* (E2). E6 explains that they included monetization in their business model from the very beginning, as shown in this quote: *"We're building a commercially viable company, and we want to make this into a big corporation and therefore we need to test monetization early"*.

The story behind is important but *"[...] it's the way that you craft the story together"* to catch investors' attention (E5). Regarding the storytelling, E10 says, *"I have learned so much how to frame and craft the story based on the questions or the type of person I'm speaking with"*. According to E13, having the confidence to ask for money is necessary *"[...] because you need to be quite ballsy. You need to say that you have all these massive things that you're going to achieve and men tend to be better at that. Second time founders tend to be better at that"*. Particularly towards female founders, she refers to as *"They're very conservative in their financial projections. That's not what investors are used to. They're used to big numbers, big vision and big ambitions"*.

As mentioned above, there is a lack of research and access to information in the Femtech industry which constitutes a problem also in fundraising as investors are interested in key metrics such as "Total Available Market". Without the numbers, *"[...] it's harder for them to evaluate and assess"* (E6).

Therefore, it is important *"[…] to have these numbers in order to build a proper business case"* by doing own research and run pilots (E2).

Understanding the game and pitching is challenging, but E10 conveys:

And I think what I've learned is to be a lot more precise in the goals, in the milestones, in the way I really manage the business as a result. I wouldn't be this sharp had I not had really challenging early conversations with investors.

Role of Networks

Another strategy that the female entrepreneurs leverage in fundraising is their networks. Many founders claim that their extensive networks have helped them in raising money. For instance, one founder says that the knowledge and contacts of her co-founder, who has worked in VC before, has helped in closing a pre-seed investment round (E4). Similarly, E5 benefitted from her so-called introducer who helped her in raising funds. She explains *"[…] he had a black book of contacts. So, he introduced me to lots of different people"* and *"really opened that world to [her]"* (E5). Other respondents could rely on very good networks they have built themselves such as E11:

We're two incredibly well networked people to just be honest, right? I have friends at all of the major VCs or people that I know from work, I went to good schools, [my co-founder] went to good schools, so these kinds of networks are open to us.

She conveys *"I think fundraising is about networks"*. According to her *"[…] networks that don't basically help you get investment are generally a waste of time".* Yet, even with this good network, they had to pitch to dozens of investors until they successfully fundraised. Moreover, E7 reveals that their fundraising experience was a *"very network-based acquisitions"* since all the investors were known to her or her co-founders through university or previous workplaces. In fact, she is the only founder who describes her fundraising experience as a smooth process. Noteworthy, in her opinion the reason why women have more difficulties in fundraising is because they are more reluctant to network and share their ideas with people. She adds, *"I think men are just doing that more frequently, more confidently. They are just very sure about themselves. And I think this makes it easier for them to raise money"*. Also, E6 admits that they had a good network:

[a]nd so the people we met, most of them we had kind of curated that we knew were smart, that we got on recommendations, that we checked out their portfolios to see what investments they had made. So, we were very strategic about who we also met […].

This helped them to avoid talking to investors that do not understand the market and potential. Another more outspoken interviewee in the Femtech industry because of her Femtech media platform admits that it puts her in an advantageous position in getting meetings with almost every VC (E2). E1 shares that she initially reached out to many other female founders through LinkedIn and asked for recommendations about investors. She recommends to *"[not] be afraid to ask for help"*. Likewise, E10 contacted people via LinkedIn to ask for introductions to investors. She explains:

You have to be vested and maybe enjoy the relationship building aspect of it, because it is very much relationship building and really weaving your way and navigating the network to get to that person through a warm intro and email intro. That's very much how it works (E10).

5.4.3. Role of Being Part of the Femtech Industry

From the industry analysis it has been inferred that the Femtech industry is increasingly receiving attention and more investments are flowing into Femtech companies. Simultaneously, a number of challenges around fundraising in the Femtech industry have been identified. Therefore, it is explored what role being part of the Femtech industry played in the fundraising experience of the female entrepreneurs.

Many founders express that being part of the Femtech industry has positively influenced their fundraising experience. For instance, E4 has recognized a change over the last five years as the Femtech industry has gained a lot of traction and *"people are just seeing the benefits of this space"*. Similarly, E5 explains that a higher number of recent closed (larger) funding rounds in the Femtech industry *"[…] has sort of been quite a game changer for that investment community to see the space in a different way"*. She adds:

I do think this is a hot area in terms of investment. I think we will see a lot more women because there is a lot of money at the moment that people are desperate to get involved in these sorts of businesses, the right kind of businesses. I think it will explode (E5).

Another interviewee states: *"I think it's always an advantage to be in a hot space. There is a lot of interest at the moment in the space for sure"* (E2). However, she questions whether this hype that is currently going on, is here to stay. Similarly, E6 claims, *"I think Femtech is becoming more and more fascinating and more and more companies VCs want in on that journey"*. Also, E1 shares her experience: *"I think that 2020 was really the year for menopause and people are starting to really ask questions and*

starting to talk about it, which hasn't been done before in the same way. So that's great for sure". This decreases inhibitors and stigmas. E13 explains:

I think now it's never been a better time to investors to raise as a female founder and especially in Femtech. I think it's a very strong pitch to investors to come with now. Because it's a new opportunity. It's a blue ocean. There's more content online. You can look up Femtech, you can find more stuff.

As there have been some successes, *"investors start paying attention naturally"* (E13). In this regard, E11 shares that there was a *"real buzz about Femtech"* when they were raising: *"Another company had just raised a million pounds for a menopause company, which I think paved the way for us to be able to raise […]"*. Similarly, E2 shares that she is very happy when peer companies close deals because it makes it easier. *"I really feel that VCs kind of de-risk an investment if somebody else has already gone into a similar space"* (E2). According to E10, being part of the Femtech industry legitimizes Femtech founders. She explains:

There is real data and technology behind this. And that's where investment likes to go because technology equals scale. […] [T]echnology also equals innovation. Physical products don't equal innovation oftentimes in people's minds or in investors' minds. So, I think being part of the Femtech community and cloud or umbrella definitely helps us in that way (E10).

Lastly, E11 thinks that some VCs like *"being on the side of something taboo"*. She explains, *"We pitched a few VCs and they just loved the idea of being a bit contrarian"*.

On the other hand, some entrepreneurs critically reflect whether the buzz about the Femtech industry positively impacts them. For instance, E4 expresses that she feels like all Femtech companies are being put into one bucket which results in not differentiation between the individual needs of companies. Thus, she experienced certain investors "ticking the box" when they have one Femtech company in their portfolio and thus, are not looking for another one. Another aspect that some founders mention is that they are being scrutinized for the mistakes of other more established Femtech companies (E6, E1). E6 explains, *"We are measured against their faults"* and people ask, *"How are you going to avoid the mistakes that [company name] did?"*. E1 conveys that they have heard repeated times from investors *"OK, but that company failed. Does that mean there's no market for it?"*. So, there is a certain pressure to succeed in the Femtech industry. She continues:

So, I think that we have to make sure that the companies that are built right now are here to stay and just continue being role models in that sense that there is a market for it and people have to put money into it. That's really what it's all about. We're not going to get anywhere if we don't get any money (E1).

Similarly, E4 says, *"So, I feel like there is that pressure to succeed and prove the industry as being worthy"* since there has not been the one Femtech company that has gone the whole way and exited. Lastly, E11 thinks that the investors who ultimately invested in her company did not care that they are in the Femtech industry, but they were just considered a digital health company. She elaborates:

I think the phrase is really new and we're building a Healthtech product just as much as we're building a Femtech product, just as much as we're building a consumer product, just as much as we're building... I think none of these lines are very fixed. You're part of all of these different things […] (E11).

Overall, it is yet to be seen whether being part of the Femtech industry contributes positively or negatively to the success in raising funds. In the words of one of the founders: *"The conclusions are being drawn fast in either direction"* (E6).

6. Theoretical Discussion

The findings (key dimensions) of our data analysis presented in chapter 5 are subsequently summarized, interpreted, and discussed among themselves in order to answer our RQ2 namely: *"What is the experience of female entrepreneurs in the Femtech industry?"*. Moreover, the findings are connected to our analysis of the Femtech industry (chapter 4) and the previous literature about female entrepreneurship (chapter 2) and thereby outline the theoretical contribution to the literature.

6.1. Driven by Mission and Attracted by Blue Ocean

A key contribution of our study to female entrepreneurship literature is that our findings shed light on the motivation of female entrepreneurs in the Femtech industry, a so far unexplored field of study.

Our findings clearly show that the female entrepreneurs' decisions to start a venture in the Femtech industry are predominantly driven by two factors, namely their *mission* and the industry's *"blue ocean" opportunities*. The female entrepreneurs highlighted the gap of knowledge and research as well as the lack of awareness and literacy about women's health. Whether it was out of a personal need or out of a trigger from this huge gap, their decision to start a company in the Femtech industry is highly driven by their personal care for women's health and their mission to positively impact women's lives, ultimately empowering them through better and more accessible healthcare solutions. This resonates with academic literature, showing that female entrepreneurs tend to emphasize social value more than economic value in their prioritization of core business values compared to their male counterparts (Hechavarría et al., 2017). Further, it confirms that female entrepreneurs' opportunities frequently emerge from societal or community needs, influencing their motivation to start a company (Solesvik et al., 2019). Simultaneously, the participants pointed out the largely underserved market with a high need and demand for innovative products and solutions targeting women's health. Therefore, the female entrepreneurs recognize the attractive business opportunities in the Femtech industry.

Interestingly, our study further indicates that the overlap of these two motives convinced nearly all respondents to leave their previous jobs. As outlined in our findings, most participants had worked for renowned and larger companies, had a certain level of seniority and responsibility, or had previously already founded a company. Nevertheless, they decided to quit their (safe) jobs and start a venture in the Femtech industry due to their underlying mission. This is striking as academic literature often refers to

the so-called "glass ceiling" when women leave their corporate jobs and start their own businesses (Jennings et al., 2016; Tonoyan et al., 2020). However, in the context of Femtech our findings suggest that the interviewees did not start a venture because they could not advance in their previous career but rather the contrary. They were successful in their previous jobs, but they quit them nonetheless as they described them as no longer fulfilling. Thus, the female entrepreneurs *chose* the Femtech industry - driven by their mission and attracted by its business opportunity potential. Conclusively, it can be reasoned that the Femtech industry is a space that allows female entrepreneurs to achieve both social and economic values in their businesses.

6.2. Female Entrepreneurs' Authentic Footing in the Femtech Industry

During the data analysis, it became apparent that the female entrepreneurs perceive to have an *authentic footing* in the part of the tech industry called Femtech. In fact, earlier research suggests that women tend to choose feminine industries of lower growth and revenue potential in order to comply with societal expectations of desirable career paths for women (Carranza et al., 2018; Geiger, 2020). This results in fewer women entering tech industries. Interestingly, in the Femtech industry this appears not to be the case even though it is part of the tech industry. This can be explained as follows.

Firstly, as shown in the industry analysis, the Femtech industry is characterized by a high share of female entrepreneurs (see 4.1.3.). This contrasts with most female entrepreneurship literature, which stresses the severe underrepresentation of women in (tech) entrepreneurial activities (Shahriar, 2018; Thébaud, 2010; Wheadon & Duval-Couetil, 2019).

Secondly, the Femtech industry posits a space naturally associated with females because of its label "*Fem*"tech (Menking & Kaplan, 2020). Our findings suggest that associating the tech industry with femininity legitimizes women to enter a traditionally male-dominated (entrepreneurial) space. Opposite to prior women in tech literature (e.g., Ezzedeen & Zikic, 2012), none of our interviewed female entrepreneurs mentioned any concerns or fears in relation to the Femtech industry being an inhospitable space for women. This finding is in line with Menking and Kaplan (2020), who states that it is easier for female entrepreneurs to enter the Femtech industry because it is not already male-dominated. Conclusively, our findings suggest that the female-dominated Femtech space is not perceived as scary or inhospitable by the female founders.

Thirdly, our study points out a shared understanding among the interviewees that female entrepreneurs have an advantage in the Femtech industry. The rationale therefor is manifold, including their inherent understanding of women's health issues and the market as in many cases they are the end-consumer themselves. This allows them to develop improved tech solutions catered to the needs of women's health. Further, being a woman in this space might help in gaining consumers' trust and credibility. Lastly, this enables them to act as spokespersons for their products which seems to be expected by some stakeholders such as investors. Thus, we derive that women have a competitive advantage in the Femtech industry.

Fourthly, from our findings, it has emerged that the Femtech market is highly underserved and that our participants perceive competition as something positive due to their shared understanding that "a rising tide lifts all boats". Thus, the female founders recognize the benefits of collaboration. This resonates with women's competitive preferences from prior literature showing that they are more likely to avoid competition than men (Croson & Gneezy, 2009). Closely related to this is that our participants perceive the Femtech industry as a supportive space. Accordingly, the literature suggests that women tend to define success based on non-economic values such as building and sustaining ongoing relationships and prefer to work in environments that allow them to work with people and help others (Hechavarría et al., 2017; Kossek et al., 2017). These findings suggest that the Femtech industry aligns more with women's underlying preferences and therefore, is less discouraging for female entrepreneurs compared to other parts of the tech industry.

Considering all the above discussed aspects, the female founders perceive to have an *authentic footing in (tech) entrepreneurship* in the Femtech industry. Based on this, it can be reasoned that female entrepreneurs have a *higher self-efficacy* in the Femtech industry, which seems to contrast the in the literature common encountered barrier to female entrepreneurship i.e., women's lower entrepreneurial self-efficacy (Dempsey & Jennings, 2014; Wilson et al., 2007). As outlined above, the female entrepreneurs are confident and convinced about their business ideas and actively embark on their entrepreneurial career path. They strongly believe in the mission and business potential of their Femtech companies, potentially mitigating their fear of failure (Koellinger et al., 2013; Noguera et al., 2013) and explaining the higher share of female entrepreneurs in the Femtech industry. A similar confidence is found in terms of their self-efficacy to raise funding. Being aware of the statistics indicating that women only receive 2.3% of VC globally (Teare, 2020), the female entrepreneurs do not let discourage

themselves and take the high stakes. Thus, our findings suggest that the entrepreneurial self-efficacy is higher among the female entrepreneurs in the Femtech industry.

6.3. The Femtech Industry as Enabler for Female Entrepreneurs

The presented findings point towards several aspects of how the Femtech industry creates value for female entrepreneurs.

Firstly, from the data analysis, it can be inferred that the Femtech industry can contribute to breaking gender stereotypes for female entrepreneurs. As shown in sub-section 2.2.1., socially learned and culturally manifested gender stereotypes such as entrepreneurship being associated with masculine traits persist. In fact, they make entrepreneurial activities more challenging for women compared to men. However, due to female entrepreneurs' authentic footing in the Femtech industry, it allows to prove their entrepreneurial capabilities.

Secondly, the opportunity and necessity to innovate in women's health, the lower (entry) barriers for female entrepreneurs, and the female dominance make the Femtech industry an attractive entry point for women into tech entrepreneurship. Moreover, prior research has shown that women's higher proportional representation (to the total number of people e.g., employees, business owners) in firms or geographic areas can be beneficial for women (Kalnins & Williams, 2021). On a firm level, evidence suggests that benefits may manifest themselves in terms of more positive stereotypical shared beliefs and norms about women in the organization. Therefore, we add to this debate by suggesting that analogies may be inferred from the Femtech industry on an industry level due to its high share of female founders. Further, within a geographical area, evidence found that female owners' higher proportional representation improved the survival rates of their businesses relative to their male counterparts. As Kalnins and Williams (2021) argue that their research on geography could be extended to industry, we contribute to this field of research by providing an example for an industry with a high proportional representation of women among founders. These two examples illustrate the benefits from a high female representation among decision-makers, constituting an environment where women can thrive and successfully grow their ventures.

Thirdly, due to a high share of female founders in the Femtech industry, it can potentially produce more female role models that positively influence not only other female entrepreneurs within the Femtech

space but also beyond, thus, creating spillover effects to other (tech) industries. In fact, the female entrepreneurs highlight the importance of role models for themselves. This is in line with the previously introduced literature in sub-section 2.2.3. about role models, showing their positive impact on women, such as breaking stereotypes, improving women's self-perception about their entrepreneurial capabilities, or influencing women's beliefs and aspirations (BarNir et al., 2011; Rocha & Praag, 2020). Furthermore, research found that these effects are even greater when women share similarities with their role models or mentors, such as gender or background (e.g., Rocha & Praag, 2020).

Thus, our findings suggest that female entrepreneurs perceive the Femtech industry as an *enabler for female entrepreneurship* and therefore, potentially encouraging more female entrepreneurs within the Femtech industry and beyond. Overall, whether and how these value creations for female entrepreneurs in the Femtech industry and beyond will occur remains to be seen as the industry is still at an early stage. Nevertheless, our findings contribute to the existing literature about gender stereotypes, role models, and proportional representation by investigating them in the context of Femtech.

6.4. Fundraising as Main Barrier to Female Entrepreneurship in the Femtech Industry

The collected data indicates that a key barrier encountered by female entrepreneurs in the Femtech industry has been fundraising. As discussed in the literature (see 2.2.4.), many female entrepreneurs face this challenge globally (e.g., Brush et al., 2001; Gatewood et al., 2009). Yet, our findings contribute to this stream of literature by shedding light on the fundraising experience of female entrepreneurs in the context of Femtech. According to our interviewees, fundraising has been one of their most challenging experiences in their careers so far. In line with prior research (e.g., Brush et al., 2018; Brush & Greene, 2020; Greene et al., 2001), the participants highlighted several obstacles with regards to securing funding for their businesses. Firstly, some participants talked about facing structural barriers stemming from the male dominance of the VC industry, thus being an "old boys' network" (Brush et al., 2018).

Secondly, the female entrepreneurs revealed that the difficulties in obtaining VC investments are intertwined with the fact that male investors may not relate to female founders and/or their Femtech products and solutions. This confirms the underlying principle of homophily, playing a role in male investors' decisions as gender homophily is less likely to work in favor of female entrepreneurs (Brush et al., 2018; Brush & Greene, 2020). However, the experiences of some founders revealed challenging

situations specifically with female VCs, contrasting the research findings of homophily and indicating the complexity and different dimensions of acquiring venture funding. Thirdly, the female entrepreneurs refer to fundraising as being a masculine process, including the language and pitching, mirroring other presented academic research (Brush et al., 2018). Fourthly, participants revealed being asked more prevention-focused questions during their pitches. This is in line with Kanze et al. (2018), who found this cognitive bias associated with stereotypic judgments resulting in gendered questions from the VC side. Moreover, in accordance with social network theory, stating the importance of social ties for the success of fundraising (Greene et al., 2001), our data shows that the female entrepreneurs who successfully raised VC leveraged their networks.

Besides the in academic literature already researched fundraising challenges for women, this study has identified additional aspects that enhance the difficulty and complexity of fundraising in the Femtech industry. The female entrepreneur stressed the lack of awareness and stigmas surrounding women's health and their Femtech products and solutions. This results in investors not being comfortable in talking about Femtech topics as they are considered taboo. Moreover, the persistent lack of awareness for women's health issues contributes to investors being unfamiliar with Femtech products and questioning their market potential or even their need. Closely related is investors' evaluation of the Femtech industry as niche market and thus underestimating the market size tremendously. This phenomenon may be explained by the "doubled" gender bias studied by Balachandra (2020). As female entrepreneurs in the Femtech industry seek funds for their ventures in a female market, they may face greater hurdles in the consideration of receiving VC since VCs have no connection to it. Moreover, male investors may associate Femtech products and solutions as lacking strong growth potential, making them less interesting in the eyes of (male) VCs. Additionally, according to some respondents of this study men have an advantage when raising funds in the Femtech industry. This further confirms the findings of Balachandra (2020) who states that male VCs are more interested in female markets when there is a male in the management team. Similarly, this suggests the lower "lack of fit" effect identified by Kanze et al. (2020) when men raise funding in female-dominated industries. Lastly, our findings show that the female entrepreneurs rely largely on education to overcome the lack of awareness and taboo topics surrounding women's health. Thus, our study identified education as a strategy of female Femtech entrepreneurs to leverage in their daily work and fundraising experience.

6.5. Summary of Findings

To conclude our answer to RQ2 – "*What is the experience of female entrepreneurs in the Femtech industry?"* – we derive the following:

The four key dimensions i.e., the female entrepreneurs' motivation to enter, their relation to the Femtech industry, its value creation, and main perceived barrier, allow to shed light on and understand the experience of female entrepreneurs in the Femtech industry. The analysis and interpretation of the four dimensions resulted in identifying that female entrepreneurs are driven by mission and attracted by the business opportunities to enter the Femtech industry. Moreover, it has been inferred that they perceive to have an authentic footing in (tech) entrepreneurship in the Femtech industry and perceive the Femtech industry as an enabler for female entrepreneurship. Lastly, the main barrier has been identified, namely fundraising.

Based on our analysis, it can be reasoned that the Femtech industry creates value for female entrepreneurs and thus, it is predominantly perceived as an *opportunity for women entrepreneurship (in tech)*. Indeed, it emerged that for some female entrepreneurs labeling the Femtech industry as such has created a safe and legitimate space and is vital for their empowerment. Contrastingly, some female founders raise concerns regarding the value creation of the Femtech industry for female entrepreneurs. These founders refer to Femtech as distinguishing them from the remaining tech. It separates them from the norm, decreasing its value and equality for female entrepreneurs. On that note, it has been highlighted that conflating female entrepreneurs and Femtech is dangerous as it might signal that women can only do women's health and do not dare to start companies in areas they cannot easily relate to. Therefore, we emphasize keeping these concerns in mind when recognizing the Femtech industry as an opportunity for female entrepreneurs (in tech).

7. Concluding Remarks and Practical Implications

Based on our analysis of the Femtech industry (RQ1) and the experiences of female entrepreneurs within this space (RQ2), we derive that the different playing field of the Femtech industry is beneficial for (aspiring) female entrepreneurs taking into account the concerns that have been raised. Thus, it represents an opportunity for female entrepreneurship (in tech). However, one major barrier, namely fundraising, has been identified that blocks the development and growth of female entrepreneurs in the highly underfunded Femtech industry. This barrier reminds that despite the positive aspects derived from our analysis and indicated value creation for (aspiring) female entrepreneurs, the phenomenon Femtech does not stop within the boundaries of this industry. Rather it needs to be considered that the Femtech industry lies within and is surrounded by male-dominated industries that are crucial for the development of these Femtech ventures and female entrepreneurs such as the healthcare or financial industry. At the same time, the Femtech industry has gained significant attention and traction over the last years, particularly during 2020. This seems promising for the growth and success of the industry and the female founders within it as more people – especially investors – are showing interest in Femtech. However, this also increases the pressure to succeed for female entrepreneurs and to prove the industry as worthy since it is still in its early stages and the potential needs to be unfolded.

In the following, we present some practical implications that we derived from our analysis of the Femtech industry and the experiences of female entrepreneurs within this industry. These implications are intended to give suggestions to (aspiring) female entrepreneurs within the Femtech industry, network owners, capital providers, as well as governments and institutions to reduce the gender gap in entrepreneurship and health. We would like to highlight that the following implications may be equally relevant for male entrepreneurs in the Femtech industry. However, due to this study's research purpose, we focus on female entrepreneurs.

Firstly, our study has outlined that the Femtech industry is female-dominated in terms of entrepreneurs and end-consumers. However, it should not be forgotten that the Femtech industry is surrounded by and lies within male-dominated industries. Therefore, we highly recommend thinking inclusively and involve men in the Femtech industry to create a long-term (societal) change and increase awareness about women's health issues. Based on our findings, we underline the importance of including men stated by

the female entrepreneurs and advise female entrepreneurs to apply a gender-inclusive approach in growing their Femtech businesses.

Secondly, based on our analysis, the importance of networks has emerged. The female entrepreneurs relied heavily on their networks, particularly in fundraising. Therefore, our second implication is directed towards female entrepreneurs to join networks, to actively try to expand their networks and not shy away from using them to proceed in their endeavors. Furthermore, another implication is for network owners. As also illustrated in this study, women are overcoached and underfunded. Therefore, we advise network owners to ensure contacts to investors within their networks and/or organize networking events where investors are invited to facilitate raising funds for female entrepreneurs. Analogously, this applies to accelerators.

Thirdly, closely related to our second implication, is governmental and institutional support. We deem it crucial that governments and/or institutions foster female entrepreneurship and fill the lack of VC investments by increasing the number of grants directed to women working in women's health. By having a fair amount of starting capital, the female entrepreneurs can build their businesses and show some traction, facilitating the fundraising process when they try to raise VC in a later stage. Furthermore, due to the gap in research about women's health, we deem it necessary that governments provide more grants to Women's Health Research Centers or universities to advance R&D and close the gender data gap, narrowing the lack in women's health literacy. This will provide Femtech entrepreneurs the underlying data and knowledge to develop their products or services, ultimately creating positive externalities for women. It is pivotal to align resources such as investment, research, and knowledge to bring Femtech forwards. Therefore, we urge governments to encourage the formation and growth of female-led businesses (in the Femtech industry) as turning down a substantial part of the population in achieving growth creates a significant cost in wealth creation (Gatewood et al., 2009).

Fourthly, it is deemed significant for the growth of the Femtech industry and female entrepreneurs to collaborate, both among female founders and Femtech startups. As illustrated in our findings, the female entrepreneurs seem to thrive in the collaborative and supportive environment of the Femtech industry and this might encourage more female entrepreneurs to enter the industry. Simultaneously, we consider collaborations between Femtech startups and more established companies such as from the pharma industry as highly beneficial for the growth of the Femtech startups and ultimately, the success of female

entrepreneurs. Therefore, B2B partnerships (e.g., with hospitals or medtech incumbents) are highly advised for female entrepreneurs to gain a wider reach, promote their products and solutions, and further disrupt the industry.

Furthermore, based on our analysis, the educative role of female entrepreneurs in the Femtech industry has emerged as highly relevant and important. Therefore, as another implication, we encourage female entrepreneurs to acknowledge that there is limited awareness and literacy about women's health and to proactively educate customers and various stakeholders. For that purpose, it is crucial to involve other actors (such as schools, HCPs, governments) to engage in social debates related to gender and women's health. Ultimately, education will break stigmas which may help female entrepreneurs in their endeavors and accelerate the growth of the Femtech industry.

Closely related to the previous implication, we advise female entrepreneurs to expand their customer base. The majority of Femtech solutions so far are confined to wealthy, well-educated (in terms of health) women in mostly developed countries (Frost & Sullivan, 2020b). Considering the remaining female population as an expansion of the industry's customer base represents a huge growth opportunity. As shown in our industry analysis, there is a disparity between developed and developing countries in terms of market penetration as Femtech companies focus mostly on developed countries. Therefore, targeting developing countries and offering affordable health solutions presents a huge potential for (aspiring) female entrepreneurs. Similarly, targeting women in rural areas by ensuring the accessibility of Femtech products and services is another possibility to expand the customer base. On a related note, it is crucial to ensure data privacy and an ethical and transparent handling of sensitive data to maintain and gain new customers. Lastly, targeting underserved Femtech segments such as menopause serve as additional vast opportunities for female entrepreneurs.

As a final implication, we urge VCs to pay attention to unconscious biases that might underlie in their screening, evaluation, and investment decisions. In other words, we appeal to investors to be open for unfamiliar and untapped opportunities and embrace them. Moreover, we strongly encourage investors to consider investments into Femtech companies due to their promising potential and importance for societal change. Furthermore, we advise to reconsider the whole pitching process and perhaps redesign it in a more "women-friendly" way. As a matter of fact, leaving women out of the equation precludes VCs from additional attractive returns on their investments (European Commission, 2018). Moreover,

we urge capital providers to advocate more for diversity in the VC industry, specifically to include more women. This applies to the supply side (female investors) and demand side (make investments into women-led firms) of the VC industry as well as the creation of more designated funds and accelerators for women. Lastly, engaging in social debates to increase the awareness about the lack of women in VC can accelerate narrowing the lack of funding of female-led businesses.

8. Limitations

The present research is of descriptive and explorative nature and aims at providing an analysis of the Femtech industry and shedding light on the entrepreneurial experience of women in the uprising Femtech industry. However, there are certain limitations to this study.

Firstly, there is very limited availability of and access to Femtech data due to its early stage. Thus, our analysis is based on publicly available archival data such as online newspaper articles or websites. This data might be subject to biases as several sources stem from people within the Femtech industry. Nevertheless, we aimed at ensuring the quality of the data through extensive research and the use of many different sources. Moreover, we complemented our Femtech industry data with other parts of the healthcare industry such as Healthtech or digital health because of their greater availability of market data and to scrutinize our Femtech data with data from related industries.

A second limitation is the number of interviews that we conducted. Although we aimed at creating a sample as diverse as possible to ensure the variation of the collected data and we are in line with research findings suggesting data saturation with the analysis of the 12th interview (Guest et al., 2006), a larger sample and a longitudinal study could generate new insights and add additional perspectives. However, this is out of this paper's scope due to the limited time horizon.

Thirdly, we acknowledge that our study provides a snapshot account of the Femtech industry and the women's entrepreneurial experiences in this industry. Hence, our and our respondents sensemaking of female entrepreneurship in the Femtech industry might be different at another point of time.

Fourthly, due to this study's interpretivist research philosophy, we stress that the analysis and interpretation of the data is influenced by our own and our respondents' sensemaking, understandings, and interpretations. More specifically, our interview findings are of subjective nature and pertinent only to our sample. Thus, we urge caution with regards to generalizing any of them to other individuals or contexts. However, due to the novel character of the Femtech industry and our aim to gain new in-depth insights into female entrepreneurship in the Femtech industry, this research philosophy is deemed appropriate for this study.

The last limitation refers to our study's focus on only female entrepreneurs in the Femtech industry. As we identified the beneficial playing field for female entrepreneurs from the perspective of women, it

might be subject to biases as we did not analyze the “other” side. Experiences of male entrepreneurs within the Femtech industry could enhance the understanding of the “feminine” dynamics in the Femtech industry. However, this is out of this paper’s scope due to our research purpose. Similarly, our study’s focus is on female Femtech entrepreneurs from developed countries. It might be that our findings look different for female entrepreneurs in developing countries as they are grounded in a different socio-cultural and economical context. However, as most Femtech companies operate in developed countries, the selection of female entrepreneurs occurred naturally.

9. Future Research

Considering the preceding discussed findings and limitations, based on this study, we suggest several possibilities as avenues for future research.

Firstly, we encourage future scholars to conduct quantitative research of the exact share of female entrepreneurs in the Femtech industry. Closely related, we recommend researchers to conduct longitudinal studies of women's entrepreneurial activities in the Femtech industry to investigate whether the share of female entrepreneurs changes as the industry becomes more mature. Such efforts would serve to strengthen our understanding of how lasting the industry's female dominance in terms of entrepreneurs and women-led businesses is. Furthermore, such studies could investigate the manifestation of the value creation potential suggested by our study. For instance, if the Femtech industry remains a collaborative and supportive space as the number of companies i.e., competition increases or if the motivation of the female entrepreneurs changes over time.

Secondly, future scholars could conduct a study like ours on a larger scale to gain new insights and add perspectives to women's entrepreneurial experiences in the Femtech industry. Moreover, a large-scale survey could shed light on female Femtech entrepreneurs' motivation to further investigate our findings of them being mission-driven and attracted by the industry's business opportunities.

Thirdly, we encourage future scholars to further explore whether the Femtech industry is a more level playing field for female entrepreneurs compared to other parts of the tech industry. As suggested in our study, the association of the Femtech industry with femininity due to its name "*Fem*"tech, its focus on a female market and the female dominance, might encourage more female entrepreneurs. For instance, it would be interesting to investigate whether dedicated feminine tech areas promote female entrepreneurship in tech and beyond.

Lastly, we recommend other scholars to investigate the barriers to VC funding for female entrepreneurs within the Femtech industry. As the Femtech industry is female-dominated and serves a female market, it is an interesting industry to contribute to prior literature about, for instance, the so-called "doubled" gender bias (Balachandra, 2020). Such efforts would serve to strengthen our understanding of investors' biases.

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