CAPILUNA: Empowering Female Founders Through Intelligent Investor Matching and Discovery

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ABSTRACT

Female founders face systemic barriers that have created an investment gap, despite evidence that their companies are better investments and deliver higher returns than their male counterparts. A challenge contributing to this gap is identifying investors genuinely open to funding female-founded businesses. In response to this challenge, I developed Capiluna, a digital platform designed to empower female founders through improved investor identification and matching. Through thorough research and interviews with female founders, I identified investor discovery as one of the primary barriers in the funding landscape and applied the Design Thinking Process to develop a solution. Capiluna combines a database of over 2,500 investors with verified track records of funding female founders with a matching algorithm that evaluates founder-investor compatibility based on industry, location, funding stage, and check size. The platform empowers founders by providing knowledge about relevant investors, creating persistent empowerment that extends beyond system use. This research contributes to HCI empowerment in a business context by exploring how technology might address systemic funding barriers for underrepresented founders.

Keywords

Empowerment HCI, Female Entrepreneurship, Funding Gap, Design Thinking, Investor Identification.

1 INTRODUCTION

The entrepreneurial journey for women has historically been fraught with challenges not only by law but also socially [30, 39, 55]. These legal and social structures contributed to long-standing historical beliefs that women couldn't run businesses or drive growth when they were successfully doing both, though often unregistered or anonymous [4, 6, 43, 47]. Although women gained independent business rights in England in 1882 [38] and the United States in 1988 [19], misconceptions and ignorance continue to influence modern perceptions, contributing to funding biases [33], limited networking opportunities[35], and structural barriers preventing women and their businesses from reaching full potential [3, 31].

Despite these challenges, the contemporary entrepreneurial landscape has seen significant growth in female-founded businesses [18]. Research further indicate that women outperform their male counterparts by achieving better business outcomes. Women generated 10% more cumulative revenue over a five-year period and produced 78 cents for every dollar of funding compared to only 31 cents generated by male-founded startups [33]. Other research shows, that women-led companies achieve 35% higher returns-on-investment than companies led by men [5]. However, women face difficulties in securing financial support, scaling their businesses, and gaining the same recognition as their male counterparts [2]. In 2024, only 2%

of total venture capital (VC) in the United States of America was allocated exclusively to female-founded companies [45], with European figures even lower at 1.6% [44]. The investment gap persists when looking at funding amount, as investments in male-founded startups average $2.1 million compared to $935,000 for female-founded companies. This is a gap of more than $1 million per investment [33]. For women from diverse ethnic backgrounds, these challenges intensify further, with only 0.34% of VC reaching Black female founders [36].

The persistence of this investment gap, despite clear evidence of female-founder companies being both safer and better investments suggest that systemic biases of female-founded businesses still exist within the funding landscape [31, 33]. Women founders spend an average of 2.2 months longer fundraising than men, likely due to investors spending 27% more time discussing risks for female-founded companies and the due diligence processes taking 1.7x longer than for male founders [14]. Most investors also perceive female-founded businesses as high-risk even though no statistic evidence support this claim [1]. These longer fundraising cycles create delays that may impact business growth, while also contributing to ongoing gender disparities among founders.

Given these challenges, understanding investor preferences and strategically identifying investors are especially important for female founders. While this cannot directly solve the investment gap, targeting investors who are genuinely open to invest in female-founded companies can reduce time spent on finding the right investors and improve the chances of securing funding. Therefore, this research investigates how investor matching for female founders can be done more effectively using technology. The following research question will guide the work of this paper:

How can a digital tool empower female founders through improved investor-founder matching?

To address this research question, I have developed Capiluna, a platform that matches female founders with investors from a curated database of over 2,500 investors who have proven track records of funding female-founded companies. I acknowledge that no system can, on its own, solve the multifaceted challenges female founders continuously face. Therefore, by focusing on one aspect of the broader entrepreneurial landscape, investor identification and matching, this research aims to contribute to addressing part of the funding disparity.

2 RELATED WORK

This section examines the challenges and systemic barriers female founders experience to understand the disparities in the overall entrepreneurial landscape. I then introduce how empowerment is understood in the HCI community through Schneider et al.'s Framework [20], and lastly, I present research papers aiming to empower women in business.

2.1 Barriers to Female founders' success

Implicit biases in investment decision-making impact female founders negatively. Brooks et al. [3] discovered that male entrepreneurs were 60% more likely to receive funding for their pitches compared to female entrepreneurs, even when presenting identical business proposals. The study further found that 68.33% of investors chose to fund ventures pitched by a male voice, while only 31.67% decided to fund those pitched by a female voice. Their research also found that participants rated male-narrated pitches higher than female-narrated pitches in terms of presenting a persuasive, fact-based, and logical pitch, despite content being identical [3]. These biases extend beyond initial impressions into investor-founder interactions. Kanze et al. [10] found that venture capitalists, regardless of their own gender, systematically engage differently with founders depending on their gender. Male founders received 67% of promotion-oriented questions focused on potential gains and growth opportunities, while 66% of questions directed at women were prevention-focused, emphasizing risks and potential losses. This differential questioning comes with financial consequences as founders asked promotion-focused questions received twice as much funding as those asked prevention-focused questions. Furthermore, each additional prevention-focused question resulted in an average funding decrease of $3.8 million [10]. According to Inc.'s Women Entrepreneurship Report, 62% of women seeking funding experienced some form of gender bias during the funding process, with investors and bankers identified as the worst offenders [34].

Beyond bias in investor decision-making and interactions, female founders lack access to strong professional networks which impacts business growth and limits opportunities to secure investments [37, 49]. The literature states the importance of networking as it gives access to key resources such as mentors, investors and other like-minded people [35, 37]. However, women's networks often tend to be less diverse and of lower quality, providing fewer connections to potential sponsors and limited access to entrepreneurial expertise, which have direct consequences on business outcomes [35]. Men have access to more powerful networks like the 'old boys' club', which creates additional structural advantages for male entrepreneurs [56]. Mickey [11], found that men strategically use socializing and informal events to build relationships that provide access to

key resources and investors. Women on the other hand must rely on more formal and often less influential settings, because they lack access to these informal networking events [11].

In the entrepreneurial landscape, it is not only female founders who are underrepresented but also female investors, which negatively impacts female founders. Women represent only 15% of VC decision-makers and have limited control over assets, which constrains their ability to support female-founded startups throughout their growth journey [7]. While female VC partners are twice as likely to invest in female-owned businesses at early stages, the low representation of women in decision-making positions limits access to later-stage funding as startups scale [7, 24]. Additionally, Snellman and Solal [32] discovered that female founders who received funding from female venture capitalists, rather than male venture capitalists, were twice as likely to struggle with raising additional capital. The reasoning is that investments from women are often perceived as preferential treatment rather than performance-based investment [32]. This creates a dilemma for female founders as female investors are more likely to fund them initially [7], but being backed by a female investor may stigmatize them in future fundraising rounds [32].

With this in mind, I introduce a field of study within the third wave of HCI called Empowerment, which uses technology to empower people in various contexts and for different purposes [20].

2.2 Empowerment in HCI

Empowerment has become an important concept in HCI research, although its interpretation varies considerably across different research. Schneider et al. [20] developed a framework to characterize empowerment in HCI through four categories: *Concept of Power*, distinguishing between *power-to* as ability and *power-over* as relational dynamics. *Psychological Component*, referring to three types of empowerments: *feeling*, emotional empowerment like confidence and self-esteem, *knowing*, cognitive empowerment through skills or understanding, and *doing*, behavioral empowerment following an action. *Persistence of Empowerment*, where system empowers only while using, *transient*, or lasting beyond use, *persistent*. And lastly, *Design Mindset,* distinguishing between *expert*, which is researcher-driven, or *participatory*, when design from empowerees's perspective [20].

Their analysis revealed eight distinct lines of empowerment research in HCI, where several of the research papers are presented within Skills and Education. This notion of empowerment results from acquiring knowledge or skills expected to benefit users beyond system use [20]. Almeida et al. [52] investigated how women gain self-knowledge about their bodies through Labella, an augmented system that supports intimate bodily knowledge by combining underwear and a mobile phone for embodied self-discovery. Thereby, Labella empowers women by making intimate body checks more accessible and using humor and 'awkward learning' to break cultural taboos [52]. Another study within this line of empowerment, created Atelier, a platform designed to empower crowd workers through skill development by transforming expert crowdsourcing tasks into paid learning opportunities, which they called "micro-internships". On this platform, workers (interns) connect with crowd experts (mentors) to complete tasks they would normally not qualify for due to lack of experience. Thereby, interns earn money while learning new skills under expert guidance, solving the barrier that workers cannot afford unpaid learning time [48]. Labella and Atelier are two different digital tools that both give power to users through knowledge that extends beyond system use. Labella provides knowledge about the body, while Atelier enables users to develop their skillset without compromising income [48, 52].

Another line of empowerment mentioned in *Empowerment in HCI - A Survey and Framework* [20] is Technology for Development, where power imbalances are being addressed by designing technologies that create opportunities for disadvantaged populations. Yerousis et al. [16] established computer clubs in Al Amari, a Palestinian refugee camp to support learning and build social connections between the marginalized people living in the camp and university student volunteers. The purpose was to create opportunities for integration and help bridge the social and economic divide to empower the residence of Al Amari [16]. Another contribution to this line of empowerment can be found in Shroff and Kam research article [15]. They investigated how to empower low-income women in the developing world by exploring how technology can be designed to help women escape poverty independently. The study was motivated by helping the disempowered, low-income women, to improve their lives and limit the chances of being trap in a poverty circle [15]. By recognizing power imbalances between groups, both studies aim to create opportunities for the disadvantaged through a holistic psychological approach where the disempowered can develop practical skills, improve confidence, and take actions, with the latter being most prominent [15, 16].

With the establishment of how empowerment is used in HCI, I now examine how women have been empowered in this field, besides the contributions that have already been presented [15, 52].

2.3 Empowering women in HCI

Empowering of women in HCI is a known field of research. Some focus on empowering women through technology to give them knowledge related to their body [52], their available community and support resources [51], or their

learning opportunities and market access [41]. Additional research has explored women's safety in public spaces[40] and personalized technologies for work-life balance [13]. Among these diverse studies, a growing field of study focuses on how technology can support women's professional and economic advancement. As this closely aligns with the research area of this research, I will present three papers that demonstrate different ways HCI studies have empowered women in business [23, 42, 54].

Als and Mikkelsen [42] developed The Empowering Cups, which is a critical design artifact deployed in a Danish workplace to provoke conversations about unequal pay between genders. The cups empowered women by turning everyday workplace objects (a cup), into visible reminders of pay disparities and sparking conversations around an otherwise taboo topic. They found that these cups did spark conversation, but the women often withdrew from deeper conversation when confronted with the actual message of inequality [42].

With the expansion of artificial intelligence (AI), more recent research explores how artificial intelligence can empower women entrepreneurs by addressing the unique challenges they face when operating within the entrepreneurial landscape. For example, Candello et al. [23] developed a WhatsApp-based conversational AI system to empower women entrepreneurs in low-income Brazilian communities seeking microcredit loans. The conversational system assessed business viability through a 'health business index' that considered informal practices like community-based credit systems. It empowered women by offering an accessible platform with personalized guidance and tools to present their businesses more credibly to financial institutions [23]. Another research focusing on women entrepreneurs were conducted by Reichert et al. [54]. They developed a game using interactive visual novels and large language models (LLMs) to empower female entrepreneurs by building resilience against gender-based discrimination in the startup process. The game allows players to role-play challenging entrepreneurial scenarios where women often are exposed to gender biases. This serious game empowers female founders beyond playing the game by raising awareness of discriminatory patterns they can recognize in real-life scenarios which helps them to feel more resilient and confident when facing similar situations in their actual entrepreneurial journeys [54].

This research paper situates itself at the intersection of these three empowerment approaches. Motivated by the investment inequality gap carefully documented in this paper, I propose a technology-driven approach that addresses the challenges female founders face when finding relevant investors to empower them in the fundraising process. To find the best technology-driven approach to address this issue, I applied the *Design Thinking Process* [27], which will be presented below.

3 METHOD

To address the research question of how a digital tool can empower female founders through improved investor-founder matching, I applied the *Design Thinking Process* [27] as my methodological approach. This process is a nonlinear, iterative approach that follows five interconnected stages*: Empathize, Define, Ideate, Prototype*, and *Test* [27]. Figure 1 below illustrates the *Design Thinking Process,* along with the activities undertaken in each of its five phases.

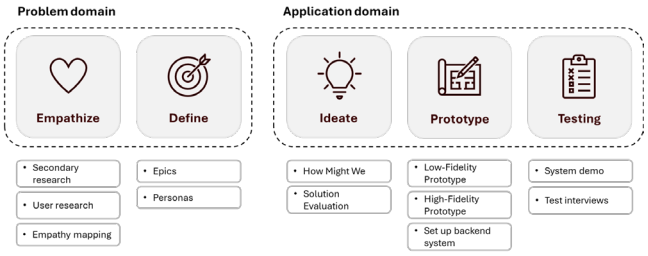

Figure 1: The Design Thinking process applied in this study, showing the activities undertaken in each of the five phases

I chose this methodology because I wanted to develop and test a technological solution to address the challenges female founders face, instead of solely conducting a descriptive analysis of the challenges. Therefore, the *Design Thinking Process* was appropriate for this research because prototyping and user evaluation are integral parts of the process[27]. This helped developing Capiluna as a digital tool and assess its empowerment potential with female founders using Schneider et al.'s Empowerment Framework [20].

The research process consisted of several phases aligned with the *Design Thinking* stages. In the *Empathize* phase, I conducted interviews and field research with four female founders to understand their experiences and challenges (Section 4). The *Define* and *Ideate* phases involved synthesizing insights and generating potential solutions, which ultimately led to the selection of an investor-matching platform as the most viable solution (Section 5). In the *Prototype* phase, I developed Capiluna through iterative design. This led to the implementation of a web platform with a database of over 2,500 female-friendly investors to match female founders with (Section 6). Finally, in the *Test* phase, I evaluated Capiluna through three interviews with female founders (Section 7).

Opportunity identification (OI)	Framework Category								
	CONCEPT OF POWER		PSYCHOLOGICAL COMPONENT			PERSISTENCE OF EMPOWERRMENT		DESIGN MINDSET	
	power-to	power-over	feeling	knowing	doing	transient	persistent	participat.	expert.
OI 1: Investor identification and visibility	■			■	□		■		■
OI 2: Networking for female entrepreneurs	■	□		□	■		■		■
OI 3: Access to capital and funding		■			■		■		■

Figure 2: Opportunities analyzed with the HCI Empowerment Framework. Each row presents an opportunity; each column presents one of the four framework categories. A black square (■) indicates the primary form of empowerment; a white square (□) indicates a secondary empowerment component also present.

4 FEMALE FOUNDER PERSPECTIVES

Beyond exploring challenges female founders face through the secondary research presented above, I spoke with four female founders to: (1) understand whether they experience the same challenges identified in existing literature, and (2) gather first-hand narratives of the most pressing challenges they face and how these have impacted their entrepreneurial journeys. I developed a semi-structured interview guide (Appendix A), and conducted two interviews, where one of the interviews was recorded and transcribed (Appendix B), while the data of the second was collected through detailed real-time notetaking (Appendix D). Additionally, I attended a presentation at UC Berkeley followed by an informal lunch talk, where I took notes about her entrepreneurial experiences (Appendix C). Finally, I engaged in a full day of field research with another founder, during which I observed her daily activities, asked questions throughout the day, and participated as an observer in a pitching event where five female founders presented to four investors (Appendix E). These insights were summarized immediately after data collection in an overview documenting interview format, business & role, funding type, and key themes (Appendix F) Although each founder was at different stages in their journey, one had raised millions in funding, two had been fundraising for an extended period, and one was just getting started, three key challenges emerged across all interviews: (1) challenges identifying relevant investors, (2) limited networking opportunities and (3) difficulties securing funding (Appendix F).

To better capture the nuances of these key themes, I created an *Empathy Map* [28] to analyze the needs and motivations behind these three key challenges (Appendix G). Based on the discovery of what the female founders *Said, Did, Thought,* and *Felt*, I identified three opportunities where female founders could be empowered: (1) optimizing the process of finding relevant investors, (2) creating better networking opportunities, or (3) improving their ability to secure funding. Using Schneider et al.'s Empowerment Framework [20], I analyzed each opportunity to understand its empowerment potential (Figure 2). The opportunities identified vary in their potential for empowerment through system development, especially in *Concept of Power* and *Psychological Component.* No digital tool can directly provide funding, and therefore empowerment in such way cannot be met through system development (OI3). Creating a networking platform for female founders does not directly provide access to the exclusive networks they need to succeed, making it difficult to achieve the intended empowerment through digital intervention alone (OI2). Therefore, empowering female founders by giving them easy access to relevant investors offers the greatest potential and can be achieved through a digital intervention. One interviewee explained the importance of "*creating a list of female-friendly funding funders, places where there hasn't been reports of misconduct or that they actually do fund females*" (Appendix B). By providing this information, female founders would be empowered through knowledge of relevant investors, giving them the *power to* identify and pursue appropriate funding opportunities. Moving forward, this paper focuses on designing and developing a digital solution for OI1: Investor Identification and Visibility.

5 USER NEEDS & SOLUTION DEFINITION

To define who the users are and maintain a user-centered design approach, I created two *Personas* [26]. While each persona represents a female founder at a different stage, both are actively trying to research investors who will support female founders but face stage-specific barriers that prevent efficient investor discovery and matching (Appendix H). These representative personas guided design decisions focused on end users' investor need. Additionally, I created three *Epics* to capture the end-users' needs [21]. The epics reveal that the solution must provide efficient investor identification through transparent, searchable information about investors, their preferences, and historical female founder investments (Appendix I).

With user needs clearly defined, I used *How Might We* (HMW) [29] to explore potential solutions that could address the core challenge: giving female founders access and

knowledge about relevant investors. Using this iterative ideation technique, I developed eight HMW questions, which led to twenty-six different solutions (Appendix J). To select the final solution, I evaluated each potential solution through desirability, feasibility, and viability criteria on a scale from 1 to 10. From this evaluation three solutions*, 1.1 Investor database, 1.5 Investor x Founder matchmaker* and *3.2 Investor x Female Founder compatibility* had the highest score (Appendix K). Instead of developing just one of these ideas, I consolidate the three ideas into a single platform that combines an investor database with matching algorithms that consider general founder-investor compatibility. This integrated approach, named Capiluna, delivers greater value to empower female founders than any single solution would have while remaining technically feasible within the project scope.

6 PROTOTYPING CAPILUNA

I developed Capiluna through the iterative design process, moving from low-fidelity to high-fidelity prototypes as part of the *Prototyping* phase in *Design Thinking Process* [27]. The following section outlines this process:

6.1 Low-Fidelity Prototype of Capiluna

I started prototyping by creating a low-fidelity prototype in PowerPoint to visualize core user interfaces and navigation flows. Low-fidelity prototypes are early-stage representations that prioritize simplicity and flexibility [22]. The prototype, see Figure 3, illustrates the user journey from homepage to sign-up, onboarding, and the founder dashboard. Visual design elements like colors and detailed styling were intentionally excluded to maintain focus on functionality and user flow. This prototype served as the foundation for developing the high-fidelity version of Capiluna, which includes additional pages, refined UI design, and enhanced UX features to improve the final product.

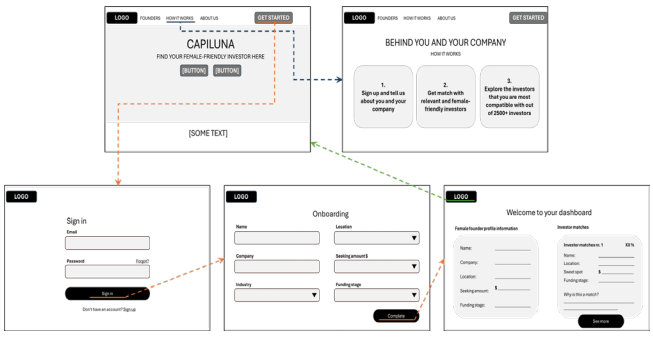

Figure 3: Low-Fidelity Prototype of Capiluna

6.2 High-fidelity prototype of Capiluna

Before developing the high-fidelity prototype [22], I reflected on what core features to include in the *Minimum Viable Product* (MVP). The MVP focuses on building an interactive, data-driven platform that provides female founders access to verified female-friendly investors through five features: (1) an interactive website, (2) a founder onboarding process collecting data on founders, their business and funding needs, (3) a founder dashboard displaying investor matches with compatibility explanations, (4) a pre-populated investor database of over 2,500 investors with verified track records of funding female founders, and (5) a matching algorithm that analyzes founder data and recommends compatible investors based on certain investment criteria. Capiluna is built on these five core features, designed to help female founders find female-friendly investor.

6.2.1 Developing Capiluna Version 1.0

To build the MVP of Capiluna, I used Cursor, an AI-augmented Integrated Development Environment (IDE) [8]. The platform was built through an iterative development process, starting with the homepage and core pages. Then I developed the founder onboarding process to collect necessary data for matching, and finally the founder dashboard where matched investors are displayed. To create the investor database, I scraped the internet for relevant information about investors with proven track records of funding female founders and organized this data in a structured relational database using Supabase [50]. After extensive data cleaning, the database contains 2688 verified investors across 32 industries and 344 geographic locations in all fundraising stages. The matching algorithm was developed to analyze founder-investor compatibility based on four weighted criteria: industry (35%), geographic (30%), funding stage (20%), and check size (15%). The algorithm evaluates each potential match on a 0-100 scale and recommends the most compatible investors for each female founder. Figure 4 illustrates Capiluna's workflow: founders input their data through the frontend, the backend processes this information via Supabase and our matching algorithm, and results are displayed in the frontend dashboard.

6.2.2 Capiluna Version 1.0

Capiluna aims to empowers female founders by giving them a tool to identify relevant investors with proven track records of supporting female founded businesses. Currently, female founders navigate the fundraising landscape with limited visibility into which investors are genuinely open to funding female-founded businesses. Without access to networks that provide this knowledge [11, 35, 56] or easy access to data that identify female-friendly investors, founders often spend significant time approaching investors who may be biased

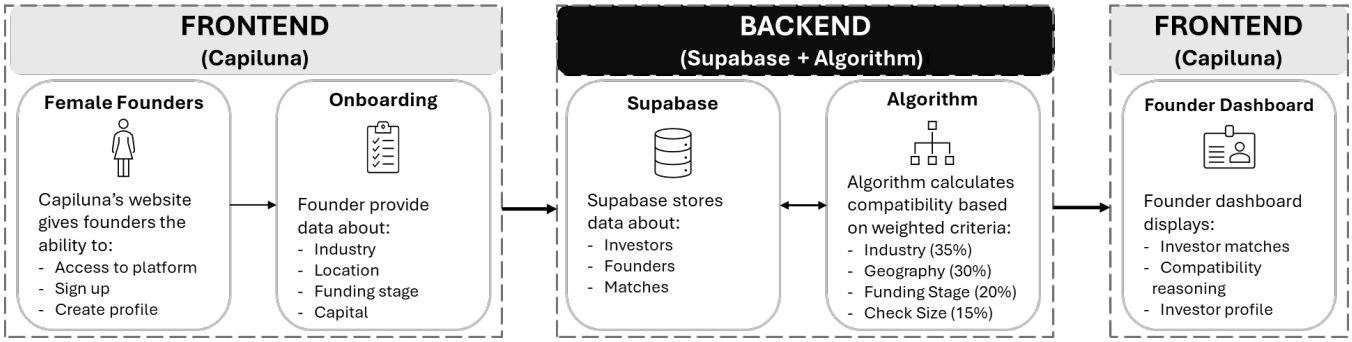

Figure 4: Workflow of Capiluna - illustrating the frontend and backend components of Capiluna from founder input through backend processing to the final dashboard display

against funding women [3, 10, 34]. This lack of transparency means founders cannot easily distinguish between investors who have supported female founders and those who have not, which leads to wasted time and repeated rejections.

Therefore, Capiluna addresses empowerment primarily through the psychological component, *knowing*, by providing insights about relevant investors and their compatibility with each founder's specific needs. Secondarily, it gives them the opportunity to contact the investors. The concept of *power-to* is achieved by giving founders the opportunity to identify and reach out to their most suitable investors. This creates persistent empowerment as founders gain lasting knowledge about relevant investors, they can connect with beyond system use (Figure 2). The final version of Capiluna can be accessed via the link below the picture of Capiluna's homepage (Figure 5).

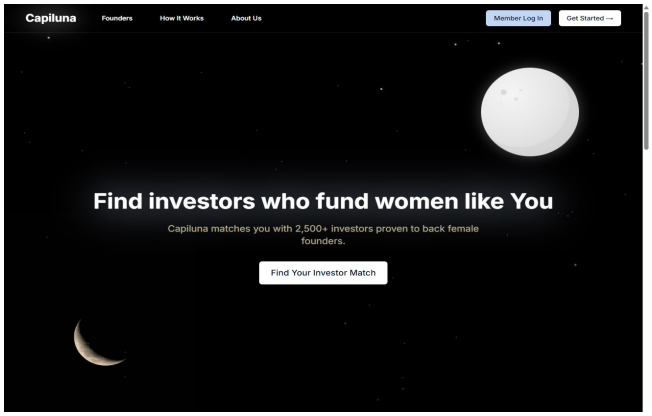

Figure 5: Capiluna homepage. An interactive demo of the platform is available at: Capiluna Demo

7 EVALUATION AND FINDINGS

To evaluate Capiluna's potential to empower female founders through improved investor-founder matching, I conducted three test interviews with female founders as part of the *Test* phase of the *Design Thinking Process* [27]. The purpose of these interviews was to understand if Capiluna could add value to founders' fundraising processes, and to assess if the intended notion of empowerment was achieved. Each test interview began with a demonstration of Capiluna's functionality, followed by open-ended questions about its usefulness, potential impact on their fundraising strategy, and limitations (Appendix L). The interviews lasted between 30-60 minutes and were transcribed for analysis. Based on the analysis, I identified three key findings: (1) Capiluna demonstrates *power-to* and *knowing* empowerment, (2) The value of female-friendly investors, and (3) the lack of investor connections and data accuracy concerns.

7.1 Capiluna demonstrates *power-to* and *knowing* empowerment

The evaluation of Capiluna suggests that it can achieve its intended empowerment through *knowing* and *power-to*, as defined by Schneider et al.'s Framework [20]. The platform appears to empower female founders cognitively by providing knowledge about relevant investors and their compatibility, thereby giving them the ability to make informed decisions about which investors to prioritize and approach.

All three participants indicated that the tool would be helpful to use in the fundraising process though with varying emphasis on its primary value. P1 and P2 explicitly mentioned Capiluna's time-saving benefits when identifying potential investors. P2 was actively preparing for her next fundraising round and explicitly said that Capiluna would save *"less time spent on the research"* because *"it's really time consuming to aggregate and triangulate all those pieces"* (Appendix N). Similarly, P1 confirmed the tool would save her time, saying: "*Well, it will save me time … it will show me that actually there are investors available who you don't know, but they're willing to make business rather than to go and approach the wrong audience and wasting your time"* (Appendix M). P3 saw the tool's potential value

but also emphasized that the database must be accurate to save her time (Appendix O). This time-saving aspect demonstrates *knowing* empowerment by giving founder access to relevant investors minimizing the time spent on searching.

Beyond saving time on identifying investors, the platform gives founders the ability to prioritize the most relevant investors to approach. P1 explained that having access to multiple compatible investors was valuable because *"you have the potential to speak to all of them ... and see which one is best for you. This is better than go pitch one investor and he tells you no and you get disheartened"* (Appendix M). P2 explained how she would use the platform for prioritization when creating her target list of investors to approach (Appendix N). This demonstrates *power-to* empowerment as founders gain the insights to strategically select and prioritize investors based on compatibility information.

The empowerment achieved through Capiluna is *persistent* as the knowledge founders gain about investors and their preferences extend beyond platform interaction. As P2 explained, she would add Capiluna's matches to her broader target list: *"These are the female backing investors that I want to add to my list."* (Appendix N). This knowledge remains actionable as founders can approach these investors and use the insights they gained from Capiluna. P1 also talked about the persistent value, saying: *"I would read the profiles, and I'll go with my gut, whichever I feel appropriate to go with them and then see how it goes"* (Appendix M). Both examples demonstrate that founders integrate Capiluna's information into their ongoing fundraising strategies, meaning that value exists beyond system use.

7.2 The value of female-friendly investors

One key feature of Capiluna was to exclusively include investors with proven track records of funding female founders. The test interviews showed that this holds value for founders. However, its importance varies depending on the industry context, priorities of investors, and the specific benefits founders seek from investor relationships.

P1 and P2 both mentioned the importance of female-friendly investors as a prioritization factor when identifying which investors to approach. P2 explained that she would: "*prioritize investors who have a track record of investing into women as a female founder, because that to me is a signal that they're either aware of their bias or they're managing their bias"* (Appendix N). She clarified that she wouldn't use this as the only filtering criterion, but the information would impact her prioritization. Similarly, P1 explained that knowing all the investors had a proven track record of investing in female founders would make her believe, that these investors are less biased (Appendix M). Both founders saw this information as an indicator of less bias and stigmatizing, but also a way to decide which investors to approach first.

P3 offered an alternative perspective on how this database would add value. Working in a very male-dominated industry, tech construction, she saw less direct value in having a female-friendly investor database for compatibility matching. However, she saw another benefit of the system, which was networking opportunities. She explained that: *"Those kinds of databases are good cause normally women are more ... willing to make warm introductions"* (Appendix O). This finding indicates that female-friendly investors might serve as valuable network bridges, because they are more likely to facilitate connections to other investors. Despite P3's own industry constraints, she acknowledged that for female founders in other industries, *"that's gonna help a lot"* (Appendix O).

These findings suggest that the value of having the female-friendly investor database varies based on industry and founder priorities. While P1 and P2 indicated that this would empower them by helping them prioritize investors to approach, P3 believes it is useful to know investors about who can make warm introductions to other investors.

7.3 Investor connections and data accuracy concerns

Capiluna provides female founders with information about relevant investors. However, the platform does not facilitate connections with investors, which means that founders know which investors to approach but cannot connect with them through the system. The gap between knowing which investors to approach and connecting with them was mentioned as a barrier during the test interviews, alongside concerns about data accuracy.

The biggest limitation identified through the test interviews was that Capiluna do not facilitate any warm introductions. P3 explicitly stated that knowing about investors alone is insufficient: *"For VCs is like who is going to make the warm introduction? Because if it's linking cold outreach, that's going to be tough. VCs got like so many people contacting them"* (Appendix O). She explained that successful investor connections typically require warm introductions, as cold outreach has low success rates. P2 also commented on this challenge, explaining that she doesn't *"reach out directly to the investor"* but instead reaches out *"to their portfolio companies and try to work with them"* to establish connections (Appendix N). This finding shows that Capiluna moves founders from not knowing which investors might fund them to understanding which investors are compatible and female friendly. However, without connection facilitation, founders must still rely on external networks or cold outreach to act on the knowledge Capiluna provides.

Another concern that the participants mentioned was data accuracy, which may affect the platforms' empowerment potential. P3, who had previously used similar platforms, explained: *"I tried some of them and then I just don't use them anymore because I found it like it's not accurate information. It's kind of like waste of my time"* (Appendix O). This indicates that inaccurate data doesn't simply limit empowerment, it also makes the user abandon such tools. She further explains that *"where you got those data from and then how accurate those data are"* is what founders really care about because investment information has time constraints (Appendix O). P2 similarly mentioned that knowing when an investor last wrote a check and whether they recently closed a fund determines if they have capital available, making them either relevant or irrelevant (Appendix N). P1 raised concern about protecting investor's identity and preventing scammers from accessing the platform. However, she didn't express concerns about not being able to reach investors. Nevertheless, she explained that through the platform she could reach multiple relevant investors she wouldn't have otherwise known about, avoiding wasted time on irrelevant investors while having several options to approach (Appendix M).

These concerns highlight gaps between investor identification and connecting with investors. While the participants valued Capiluna's information for prioritizing female-friendly investors and potentially saving time, they also indicated that investor connection facilitation and guaranteed data currency would be necessary for the platform to fully support them in their fundraising process.

8 DISCUSSION

The following section discusses the implications of Capiluna's empowerment approach in addressing the funding gap for female founders through Schneider et al.'s Empowerment Framework [20]. I then identify limitations of both the system and this research, and lastly, discuss directions for future research.

8.1 Implications for empowerment potential

8.1.1 The Gap Between Knowledge and Capital Access

Capiluna was designed to empower female founders by providing information about compatible female-friendly investors. The evaluation showed that Capiluna achieves its intended *knowing* and *power-to* empowerment dimensions within Schneider et al.'s Framework [20], see Figure 6. Even though the founders valued this information, the findings from the test interviews revealed that female founders do not solely need knowledge about investors; they need access to capital itself. This gap between Capiluna's empowerment approach and founders' actual needs demonstrates limitations in how technology can address systemic funding inequities.

The test interviews showed that *knowing* which investors to approach and having the *power-to* prioritize them represents valuable empowerment, but it does not address founders' primary barrier, which is securing funding. As Interviewee 3 explicitly stated: *"For female entrepreneurs, if there were people ready to believe in them and give them money, that would be the first step"* (Appendix D). P1 said: *"I have so many opportunities coming to me and what's stopping me is the money"* (Appendix M). She further explained that investors who initially showed interest either ghosted her, or they didn't keep their word (Appendix M). This suggests that female founders face two challenges when fundraising: (1) identifying potentially supportive investors, which Capiluna addresses, and (2) securing capital from those investors, which Capiluna cannot address. The gap between these challenges represents a limitation in what investor-matching technology alone can achieve.

8.1.2 The Absence of Doing Empowerment

One limitation identified in the test interviews was the absence of *doing* empowerment. Capiluna provides information but cannot facilitate actual connections or secure investor commitment (Figure 6). Both P2 and P3 said that knowing which investors to approach is insufficient without being able to establish meaningful connections. As P3 mentioned, it will be tough to cold outreach and not get a warm introduction because investors have many people who are trying to connect with them (Appendix O). This connection barrier does make the platform less powerful as successful investor relationships typically require either direct or warm introductions through trusted networks [35]. Capiluna provides clarity about which investors may be more relevant to female founders but cannot bridge the gap between identification and connection. This gap between *knowing* and *doing* represents incomplete empowerment, visualized in Figure 6, where founders gain knowledge but must still rely on external networks or cold outreach

This limitation becomes more apparent when seen in the light of the systemic nature of the funding gap. As documented in the literature and confirmed in interviews, female founders face implicit biases [3, 10], are perceived as riskier investments despite evidence to the contrary [5, 33], and lack access to informal networks that facilitate investor connections [9, 20, 22, 32]. P1 experienced that investors *"don't take me seriously. They think I'm a newbie... Because I'm a female, like they don't take me seriously"* (Appendix M). Similarly, P2 explained that many women don't successfully raise capital until their male co-founder is present during pitches (Appendix N). These barriers show that investor discovery represents only one part of a much larger structural challenge. The funding gap persists not

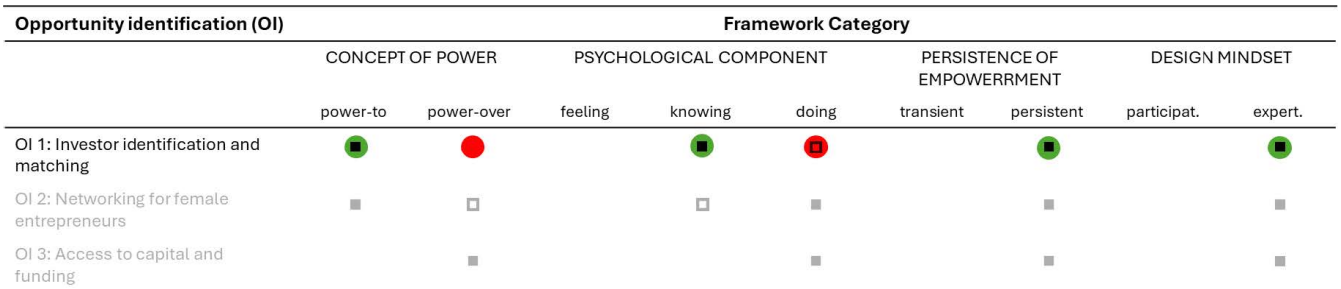

Figure 6: Capiluna's investor identification and matching approach analyzed with Schneider et al.'s HCI Empowerment Framework. Green circles indicate achieved empowerment dimensions; red circles indicate dimensions not achieved by the platform

primarily because female founders cannot identify potentially supportive investors, but because systemic barriers make it harder for them to turn investor interest into real funding.

8.1.3 Power-Over Empowerment: Redistributing Capital

Given these barriers explained above, empowering female founders through the concept of power, *power-over*, would more likely address the funding gap than *power-to*. *Power-over* refers to changing who controls access to resources and how power is distributed between groups[20]. As Interviewee 1 stated, *"those that have the money and the power are the ones who are men"* (Appendix B). As demonstrated in Figure 6, Capiluna's approach (OI1) does not address *power-over* empowerment, which would be necessary to challenge existing power structures and redistribute capital access. In order to directly address the funding gap, female founders would need to secure capital from the existing pool where the majority currently flows to male counterparts. However, Capiluna only enables founders the power to identify and prioritize investors who align with their needs, but it does not redistribute capital or remove the structural barriers that limit female founders' access to it. While funds and initiatives that financially support female founders exist, these work because they control actual capital flows [53, 17, 25, 12]. I argue, that developing a system that directly provides capital to female founders or restructures power relationships within the funding ecosystem is beyond the scope of a single digital platform. However, I acknowledge that Capiluna operates within existing power dynamics, and thus could be part of the distinct line, Technology for Development, as identified in Schneider et al.'s Empowerment Framework [20]. Instead, as it does not directly challenge the power dynamics, this research paper fits under the Education and Skills distinct line. The lack of *power-over* empowerment limits its potential to address the funding gap's root causes and fully empower female founders.

These findings reveal both the value and limitations of investor-matching technology for addressing gender disparities in funding. Capiluna reduces time spent on investor research and helps founders make more strategic decisions about whom to approach. These forms of empowerment, *knowing* and *power-to*, were valued by the participants. However, Capiluna cannot connect female founders to investors, *doing*, or challenge the power dynamics that contribute to gender disparities in entrepreneurial funding, *power-over* (Figure 6). This suggests that while tools like Capiluna can provide support and empowerment within the current system, addressing the funding gap fundamentally requires redistribution of capital and challenge the power dynamics existing in the funding landscape. While these findings suggest empowerment through what female founders anticipate, it is important to recognize that empowerment is complex and contextual [20]. This evaluation demonstrates that founders perceive Capiluna as providing *knowing* and *power-to* empowerment based on their assessment of the platform's potential value. However, whether this perceived empowerment translates into actual outcome can only be proved through longitudinal research. Therefore, while this study establishes Capiluna's empowerment potential within Schneider et al.'s Framework [20], future work should track real-world impact over time to fully understand how these forms of empowerment manifest in practice.

8.2 Limitations

Despite the empowerment limitations described above, three constraints related to the data collected for the database are worth mentioning: (1) reliance on historical data, (2) data accuracy concerns, and (3) limited matching potential.

First, the database relies on historical data, which does not guarantee current investor availability or activity. As P2 mentioned, knowing *"when is the last time they wrote a check"* and *"if they recently closed a fund"* determines whether investors actually have capital to deploy (Appendix N). However, the current database lacks this temporal information, meaning founders cannot verify if matched investors are actively investing. Furthermore, focusing exclusively on investors with proven track records of funding female founders may exclude potentially supportive investors who simply haven't had the opportunity to invest in

female founders yet. Second, the information in the database needs to be accurate and up to date. As P3 said: *"I tried some of them and then I just don't use them anymore because I found it like it's not accurate information."* (Appendix O). This leads to wasting founders' time searching for investors rather than empowering them through more efficient investor discovery. The problem with static databases is that they quickly become outdated, which may lead to disempowerment instead of empowerment. Thirdly, the data collected determines what is possible for matching criteria. Right now, most investors invest in AI, but within that industry there are multiple subcategories, which this system doesn't account for because of missing data.

Finally, this research only collected evaluation data from three founders, which limits the generalizability of these findings. Therefore, a larger and more diverse sample of female founders would strengthen validity in the identified limitations and empowerment potentials of Capiluna.

8.3 Future work

Future research should address the limitations of the system by improving the data and seeking more inclusiveness. First, data precision and scope could be improved through automated verification systems that update investor information. One way to achieve this would be through API integrations with platforms such as Crunchbase and PitchBook. This would improve data precision and scope by providing information on recent funding activity, fund closures, and current investment status, which would give clarity on which investors are actively investing capital versus those who have already invested their funds. Furthermore, the database's matching capabilities could be improved by adding industry subcategories. This would be especially useful for broad sectors like AI, enabling more precise founder–investor compatibility.

Additionally, it would be relevant to conduct longitudinal research on Capiluna's impact on empowerment for female founders. Empowerment is complex, and while this research demonstrates that Capiluna provides anticipated empowerment through *knowing* and *power-to* dimensions, actual empowerment outcomes should be measured over time.

Finally, future work should adopt an intersectional perspective when studying female founders. This research does not account for how ethnicity, race, and other identity factors compound funding challenges for female founders [36]. Therefore, incorporating this perspective would improve the platform ability to empower diverse female founders. Additionally, expanding research geographically to include more European markets would be valuable, as the funding gap there is even more pronounced at 1.6% [44].

9 CONCLUSIONS

This research investigated how technology can empower female founders in their fundraising journey, specifically through improved investor identification and matching. Despite clear evidence that female-founded companies are safer and better investments, women are left with far less secured capital than male counterparts. This persistent funding gap suggests systemic barriers within the fundraising landscape making it difficult for female founders to identify genuine female-friendly investors. Therefore, I developed the following research question:

How can a digital tool empower female founders through improved investor-founder matching?

In response to this, I designed Capiluna, which sought to address one specific aspect of the overall fundraising landscape: identifying relevant investors and matching them with female founders. To develop this tool, I used the *Design Thinking Process*[27] as a methodological framework and Schneider et al.'s Empowerment in HCI Framework[20] to analyze empowerment potential. The outcome was a platform matching female founders with over 2,500 verified female-friendly investors through a compatibility algorithm.

Through the evaluation with female founders, it was revealed that Capiluna achieves its intended *knowing* and *power-to* empowerment by providing founders with information about compatible investors and the ability to prioritize whom to approach. This represents *persistent* empowerment as knowledge extends beyond system use. However, the findings also exposed limitations in the notion of empowerment, as Capiluna cannot facilitate actual investor connections, *doing* empowerment, or redistribute capital access, *power-over* empowerment. Ultimately, what female founders need is capital to grow and scale their businesses. This gap between knowing which investors to approach and securing funding shows that while tools like Capiluna provide valuable support within existing systems, addressing the funding gap fundamentally requires challenging power structures and redistributing capital. Addressing this is beyond what investor-matching technology alone can achieve.

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