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# Scaling the great wall: how women entrepreneurs in China overcome cultural barriers through digital affordances

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**ABSTRACT**

Women in patriarchal societies face cultural barriers hindering them in pursuing entrepreneurship. For example, women are hindered by gender roles, male dominated networks and expectations that they take of the family. Recently, scholars have argued that digital technologies may provide women with avenues to bypass these barriers. Yet, there is little knowledge about how female entrepreneurs engage with digital tools, and how this may help them bypass gendered, cultural barriers. Using 18 interviews with female entrepreneurs in Beijing and Shanghai, we identify four affordances (virtual networking, online learning, opportunity creation and scaling-up) that women use to overcome the cultural barriers to entrepreneurship. We find that through engaging these affordances, the women feel empowered and able to challenge traditional structures. Our paper contributes to recent work in digital and women entrepreneurship as we unpack how women actively create affordances, such as female friendly communities, and how they skilfully use new digital technologies to try to disrupt traditional industries.

## Introduction

Across the globe, women are starting businesses at a rapid pace, making women entrepreneurs one of the fastest growing groups of entrepreneurs (Brush and Cooper 2012). Yet, this growth betrays underlying problems that women entrepreneurs face. In many countries' women are hindered in pursuing entrepreneurship due to institutional and sociocultural factors (Estrin and Mickiewicz 2011; Noguera, Alvarez, and Urbano 2013). For example, while there has been a significant increase in entrepreneurship in China, as they have transitioned towards a more capitalist economy, women are often prohibited from pursuing entrepreneurial opportunities (He, Lu, and Qian 2019; Huang, Liu, and Li 2020). Simply, Chinese women are limited by lack of support and belief from society, which does not believe they have a role in business and in entrepreneurship (Blalock and Lyu 2023). A fact that limits their ability to accrue entrepreneurial skill and which lower their self-efficacy (Blalock, Fan, and Lyu 2023; Minniti and Naudé 2010; Wang, Li, and Long 2019). Even while recent studies indicate improvement in the conditions for Chinese women when it comes to entrepreneurship, they also show Chinese women still face expectations to fulfil traditional gender roles (Blalock and Lyu 2023; Dewitt et al. 2022; Franzke et al. 2022). Chinese women traditionally are underrepresented in the labour market and instead have been reduced to taking care of household activities (Cooke and Xiao 2021; Huang, Liu, and Li 2020; Leung 2003; Wang, Li, and Long 2019), and this historically minority

position in the labour market is still enforced (Dewitt et al. 2022; Franzke et al. 2022). Furthermore, women have been hindered by the fact that entrepreneurship in China works with a large degree of informality and dependence on social connections, making business networks closed and off limit to women (Ahlstrom and Ding 2014; Batjargal 2007; Welter and Smallbone 2006). These forms of constraints are typical in developing countries (De Vita, Mari, and Poggesi 2014; Rosca, Agarwal, and Brem 2020). Yet, China is a particular interesting case to study women entrepreneurship, because Chinese women have been shown to embrace entrepreneurship. For example, studies show that Chinese Women are just as motivated by entrepreneurial opportunities as men. However, the percentage of Chinese women starting a business has been declining rapidly in recent years (Huang, Liu, and Li 2020, 356). This paradox shows that although Chinese women may want to become entrepreneurs, they face cultural barriers, such as male dominated networks, that preclude them from doing so (see also McAdam, Crowley, and Harrison 2019). When female entrepreneurs are seen as less legitimate actors, they will have reduced access to necessary resources to engage in entrepreneurial activities (Marlow and McAdam 2015), this is often the case in patriarchal societies where masculinity and entrepreneurship are synonymous.

Despite this paradox, women entrepreneurs in China (and in similar countries as well) are offered new opportunities by digital technology, which may help them change the negative trend. Technologies such as digital platforms, crowdfunding and social media can provide women with tools to enter entrepreneurship despite cultural barriers (Kelly and McAdam 2022a, 2022b; McAdam, Crowley, and Harrison 2019, 2020; Ughetto et al. 2020). McAdam et al. (2020), for example, show how women entrepreneurs in Saudi Arabia use digital tools to emancipate themselves from the oppression they face as women, allowing them to run successful businesses. This stream of research is, however, very nascent and understanding of digital women entrepreneurship is limited (Ughetto et al. 2020). In particular, there is a limited understanding of how women entrepreneurs realize the affordances of digital technologies. Digital affordances are particularly important to understand because they can provide critical insights into how digital tools offer 'an architecture of participation' for women entrepreneurs (Nambisan 2017, 1036). Digital affordances are action possibilities offered by digital technology (Nambisan 2017, 1045), meaning that to gain the benefit of the technology, entrepreneurs need to seize these possibilities. Entrepreneurs may differ in their ability to use these possibilities, and thus also differ in how successful they are. For example, some entrepreneurs may be better at utilizing the possibilities offered by crowdfunding than others. Studies have found that entrepreneurs differ in how they actualize affordances of digital technology, for example recent research have shown that entrepreneurs differ in how they use online communities, with some using them for emotional support while others use them to find opportunities (Meurer et al. 2022; Schou, Bucher, and Waldkirch 2022). Yet, a problem in this literature is that digital affordances are understood in general terms. For example, Autio et al. (2018, 78) conceptualize them as tools that entrepreneurs use to create, deliver and capture value. Yet, women entrepreneurs in patriarchal societies may have more particular goals than that, such as finding ways around male dominated networks.

However, until very recently scholars have not investigated how women entrepreneurs may overcome barriers that invisibilize them as entrepreneurs (Audretsch, Belitski, and Brush 2022). And while scholars have begun to understand how women may overcome cultural barriers through digital entrepreneurship, there is still very little theory and knowledge here (Huang, Liu, and Li 2020; McAdam, Crowley, and Harrison 2019). In this regard, there is a debate on whether digital technologies can actually help women. Dy et al. (2017), for example, argue that inequalities are simply reproduced in the online sphere, thus nulling positive effects of at least some digital technologies. To make sense of such divergent findings, scholars suggest employing a digital affordance lens, which incorporates both human and material agency to understand what technologies allow for in certain circumstances and why (Belitski, Korosteleva, and Piscitello 2023; Faraj and Azad 2012; Meurer et al. 2022). Therefore, we ask: *How can women entrepreneurs use digital affordances to overcome cultural barriers to entrepreneurship?*

To answer this question, we conducted a qualitative study and interviewed 18 Chinese women entrepreneurs. We identify four affordances: virtual networking, online learning, opportunity creation and scaling-up. These affordances come to be as the women seek to bypass gendered networks and balance family expectations with starting a business. By creating these affordances, the women feel empowered and able to challenge some of the traditional barriers they face.

Our study makes two contributions. First, we add knowledge about different digital affordances available to entrepreneurs, thus extending the nascent work in the digital entrepreneurship research stream (Aslesen, Martin, and Sardo 2019; Autio et al. 2018; Meurer et al. 2022; Nambisan 2017). In particular, we highlight that women seek to use digital tools to disrupt traditional industries. Second, we add knowledge, specifically, to how women entrepreneurs use digital tools, thus extending work on female digital entrepreneurship (Kelly and McAdam 2022a, 2022b; McAdam, Crowley, and Harrison 2019, 2020; Ughetto et al. 2020; Vershinina, Phillips, and McAdam 2022). In particular, we highlight, that women entrepreneurs seek to shape their digital spaces to avoid inequalities in being reproduced (c.f. Dy, Marlow, and Martin 2017).

## Theoretical background

### *Women entrepreneurship, cultural barriers and the promise of digital technologies*

In recent years, there has been a rise of female entrepreneurship around the world. We have seen a growth of women entrepreneurs in Asia and Latin America (Brush and Cooper 2012). This growth has, naturally, sparked a growing research programme on women entrepreneurs (Brush et al. 2022; Henry et al. 2021; Henry, Foss, and Ahl 2016) seeking to understand how women entrepreneurs may differ from men as entrepreneurs, how they contribute to society and the unique barriers that women face when compared to men (Brush et al. 2022; Henry et al. 2021). Briefly outlined, this research programme has followed two overall tracks: one focusing on the individual and one focusing on the context (Henry, Foss, and Ahl 2016). Studies focusing on contexts investigate on how these contexts are gendered to disfavour women. Zhou (2011), for example, study how gendered cultural beliefs come to be enforced through government interference, leading to larger divergence in venture performance between men and women. While these gendered contexts may be prevalent in many societies, they are especially prevalent in patriarchal societies, which is illustrated by Zhao and Yang (2021) with their Chinese context. In patriarchal societies, such as China, women entrepreneurs are limited because their activity is suppressed by the state (He, Lu, and Qian 2019; Zhao and Yang 2021), and because women internalize cultural beliefs about their role (Minniti and Naudé 2010). Thus, while women in China are granted better opportunities to become entrepreneurs, they are still held back by cultural barriers such as gender stereotypes, which hinders entrepreneurial endeavours (Blalock and Lyu 2023).

Studies focusing on the individual investigate how women entrepreneurs can navigate gendered contexts and obtain some advantages. McAdam et al. (2019), for example, investigate how women entrepreneurs can build gender capital, a specific set of skills related to gender, in entrepreneurial ecosystems. However, it is important to note that these two streams are connected. How women, as individuals, achieve and demonstrate agency is influenced by the barriers that they have to circumvent to achieve this agency (Henry et al. 2021). For example, in some countries women face clear institutional barriers, such legally enforced gender separation as in the case of Saudi Arabia (McAdam, Crowley, and Harrison 2020), while in other countries, such as Asian countries, the barriers are less tangible, i.e. they are not legally enforced and they are more based on cultural norms, such as Confucianism (Franzke et al. 2022). In this regard, there is a still a lack of understanding of how diverse contexts influence women entrepreneurs and how they respond (Henry et al. 2021).

In recent years, both genres of the women entrepreneurship literature have focused on how women entrepreneurs react to the increasing digitalization of entrepreneurship (Ughetto et al. 2020). This nascent stream has, in particular, focused on how digital tools enable women to pursue

entrepreneurship (e.g. Martin and Wright 2005; McAdam et al. 2019; McAdam, Crowley, and Harrison 2020). Online communities can, for example, support female entrepreneurship by providing safe spaces (McAdam, Crowley, and Harrison 2020). Yet, there is an unresolved debate in this nascent stream. While some studies find that women benefit greatly from digital technologies, and more so than men (Pergelova et al. 2019), other studies find only a limit bonus from digital tools (Dy, Marlow, and Martin 2017; Oggero et al. 2020). In other words, the effect of digital tools on female entrepreneurship is contingent.

This contingency is well known in information systems research, a field of research that has increasingly moved away from understanding technology as a determinist factor in social life. Instead, this field understands a technology's impact as constructed through sociomaterial exchanges between technological features and human action (Faraj and Azad 2012; Leonardi et al. 2012; Leonardi and Barley 2010). When doing so, the literature often draws on the concept of affordances, which can be understood as action possibilities and opportunities that emerge as actors engage with digital technologies (Faraj and Azad 2012, 238). For example, Meurer et al. (2022) show how entrepreneurs created a series of affordances to help them access support, which they could not access in the physical world due to COVID-19. These affordances were not just nested in the technology but was created as the entrepreneurs sought to solve problems created specifically by COVID-19.

In sum, recently scholars researching women entrepreneurship has posed that digital technologies may allow women to overcome barriers to entrepreneurship, even in contexts where they are very disadvantaged, such as patriarchal societies. Yet, currently, this research stream is underdeveloped and does not provide a consistent picture of how and why women may use digital tools to overcome cultural barriers (McAdam, Crowley, and Harrison 2020; Ughetto et al. 2020). A reason for this knowledge gap may be that this stream has not yet theorized contingent use and outcomes of digital tools, which is a growing tendency in the stream of digital entrepreneurship.

## Digital entrepreneurship

Digitalization has been touted as a great enabler for entrepreneurship (Von Briel et al. 2018). As a result, there is a rapidly growing stream of research on how digitalization affects entrepreneurs (Aslesen, Martin, and Sardo 2019; Autio et al. 2018; Meurer et al. 2022; Nambisan 2017; Obschonka and Audretsch 2020). As an umbrella term, digitalization includes all the digital tools that might boost entrepreneurship. These tools can range from 3D printing (Von Briel et al. 2018), to crowdfunding platforms (Mollick 2014) and online communities (Schou, Bucher, and Waldkirch 2022). Yet, what entrepreneurs get out of the tools may vary. Nambisan (2017, 1046), explains it as follows: *"An affordance . . . is defined as an action potential offered by the digital technology . . . Thus, the focus is not on what features digital tools and infrastructures possess, but how actors' goals and capabilities can be related to the inherent potential offered by those features."* Put differently, a digital tools' benefits for an entrepreneur may depend on how entrepreneurs perceive the tool, do they see it as limited for a particular purpose or for broad use, and how entrepreneurs use the tool. For example, Meurer et al. (2022) show that entrepreneurs can access different digital affordances in online communities as they seek support during the COVID-19 Pandemic. Similarly, Manning and Bejarano (2017) show that entrepreneurs have varying degrees of success with crowdfunding depending on the storytelling they use on the crowdfunding platforms.

However, despite these advances in understanding digital entrepreneurship, there are still a couple of important gaps. *First*, despite recent calls for entrepreneurship scholars to employ the affordance perspective (Autio et al. 2018; Belitski, Korosteleva, and Piscitello 2023; Meurer et al. 2022; Nambisan 2017), research here is still limited. While we are gaining knowledge of digital affordances, such as how online communities can both provide emotional and informational support dependent on how entrepreneurs participate in them (Schou et al., 2022), we still know little about how entrepreneurs engage with digital affordances and make the possibilities

residing in them 'come to life'. *Second*, we know little about differences that actors may have in their ability to actualize affordances. For example, some studies point to that women are less able to obtain benefits from digital technologies (Oggero et al. 2020). Moreover, there may also be differences between women entrepreneurs due to age or educational differences. *Third*, we know little about whether digital affordances can be powerful enough for women entrepreneurs to overcome cultural barriers, such as sociocultural belief which hinder them in participating in business networks (Zhao & Yang, 2020). In other words, while digitalization has been put forward as a 'leveler' for women entrepreneurs (McAdam, Crowley, and Harrison 2020), this is not well researched.

Taken together, we seek to address related gaps in the literatures on female and digital entrepreneurship by studying how women entrepreneurs can overcome cultural barriers through actualizing digital affordances.

## Method

### *Research context*

In order to answer our research question, we employ in-depth qualitative methods, which are suitable when researching topics where processes are currently poorly understood (Eisenhardt 1989), such as in the case with how women entrepreneurs actualize digital affordances.

We chose to focus on China because it's a fast-growing economy, it has a nascent high-tech industry, yet women are still discriminated against, both in general and with respect to entrepreneurship. This is evidenced by the fact that women's participation in the labour force has declined from 86% in 1990 to 83% in 2021, thus going against what we would expect. Moreover, women in China face greater obstacles to become entrepreneurs (Huang, Liu, and Li 2020), in particular in the form of cultural and social norms that push them towards taking care of the household and family instead (Blalock and Lyu 2023; Franzke et al. 2022). We also see this evidenced in our data, one informant noted;

> When I started (my company) I wanted to do something. Obviously my parents said no because they think it is a little bit risky for a girl to run a company because I´m not from a typical business family, but from an academic background family. And then they said no. But you know, as all lovable Chinese parents the decided to support me in the end. (Interview 16).

> There are still not many women that are in the tech space . . . And there are still not many girls in the engineering classes. So, it hasn´t changed. The pay gap hasn´t changed . . . Why it hasn´t changed also can be related to culture. I am Asian. I´m born in Malaysia but my ancestors are from China and I grew up in a very conservative society. Boys grow up to be doctors, girls grow up to be nurses. (Interview 12)

Another described the cultural barriers to entrepreneurship as follows:

> Another point is the psychological problems of Chinese men. In fact, he will not accept the situation where their wife are stronger. I have many good sisters around me. When they earned more than their husband one day, their husband would find all kinds of reasons to pick on her, resulting in divorce. They (husbands) told the outside [friends and family] it was differences in their values, or little attention paid to the family, children or the elderly. But the true and hidden reason is that men cannot stand when women stronger than him. Most Chinese men are like this. (Interview 1)

It is well-established that women face barriers to becoming entrepreneurs in patriarchal countries (Cooke and Xiao 2021; McAdam, Crowley, and Harrison 2019). Usually, these barriers are historic, e.g. in China they are based on centuries of Confucian heritage (Blalock and Lyu 2023; Franzke et al. 2022). Such barriers take the form of taken-for-granted, cultural norms that bias people against certain actions, e.g. in a patriarchal society like China it is taken for

**Table 1.** Cultural barriers for women entrepreneurs in China.

| Barrier | Description | References |
|---|---|---|
| Lack of networks (Guanxi) | Business in China is dominated by one's personal relationships. These relationships are usually cultivated in traditional male settings, such as restaurants, bars and clubs. Guanxi is analogous to the Western term 'Old Boys Network'. | He et al., (2019) |
| Gender roles and male-dominated culture | In China there is a gender hierarchy and strong gender role biases. Women are supposed to take a family-oriented role. | Cooke and Xiao (2021) |
| Media coverage | Women entrepreneurship is not covered in the media or it is distorted, thus leaving women without role models | Cooke and Xiao (2021) |
| Lacking access to training and education | Partly due to gender bias, there are no education programs for women entrepreneurs, leaving them to pursue necessity entrepreneurship. | Cooke and Xiao (2021); He et al., (2019) |

granted that women take care of the household (Blalock and Lyu 2023). In Table 1, we provide an overview of the cultural barriers that women face in China.

## Data collection

To answer our research question, we rely on in-depth interviews, which is a dominant strategy in research on women entrepreneurship (c.f. Kelly and McAdam 2022a, 2022b). We choose our participants using a combination of snowball and purposive sampling (Lincoln and Guba 1985). To determine our sample size, we considered the saturation parameters found in prior work on women entrepreneurs in digital settings (e.Kelly and McAdam 2022a, 2022b; McAdam, Crowley, and Harrison 2020). These studies have samples of nine and six informants, respectively, which is in line with their interpretive qualitative stance (McAdam, Crowley, and Harrison 2020). Two of the authors have worked with entrepreneurship and innovation in Beijing and Shanghai and had connections with various women's organizations, female entrepreneurial networks, and associations, whose managers or secretaries were contacted. The authors circulated a research request to the managers and secretaries of the various entrepreneurship forums, including a brief description of the project, purpose of interview and inclusion criteria to participate in the study. Thus, the snowball element of the study was that we had to rely on access through our network. The purposive element was that we focused on women who had founded or co-founded a venture that was using digital tools, strategies, or business models. Moreover, to ensure representativeness we ensured to interview entrepreneurs across different fields. This resulted in our sample of 18 women entrepreneurs, which we present in Table 2.

The data was collected in Beijing and Shanghai from February 2018 to August 2019. 16 semi-structured interviews were conducted in English and two interviews in Chinese, with the help of a Chinese assistant. Questions aimed to discover both motivations for and experiences of digital enterprising, societal acceptance of entrepreneurship, digitalization and gender. The interviews lasted from 40 minutes to 1 hour and 30 minutes, depending on the availability of the entrepreneurs.

## Data analysis

All interviews were audio recorded before transcription, and then transferred to the qualitative software programme NVivo 12, where the data was analysed using a thematic analytical approach driven by theory (Braun and Clarke 2006). To code the data, we relied on a 'Gioia style' coding following three steps (Gioia, Corley, and Hamilton 2013). First, we engaged in open coding, labelling interview statements relating to how the entrepreneurs in our sample used digital tools and how they sought to overcome problems caused by cultural barriers. This resulted in large number of descriptive codes (Gioia, Corley, and Hamilton 2013). Second, we then engaged in axial coding,

**Table 2.** Overview of interviews.

| Informant | Age | Educational Level | Educational Background | Motivational background for becoming an entrepreneur |
|---|---|---|---|---|
| #1 | 31–40 | Bachelor | Arts | 'I believe entrepreneurship starts with a vision and passion. We have our own passion and vision'. |
| #2 | 41–50 | Bachelor | Other; English | 'I sold my kindergartens and started looking after my daughter full-time, at home. … when I decided to restart my business, I desired to do something related to education'. |
| #3 | 51–60 | Master | Social Science | 'My current business is driven by my daughter, because I want to do more meaningful things for her generation, in terms of like education innovation and more eco-friendly to the nature and responsible for the community'. |
| #4 | 21–30 | Bachelor | Arts/engineering | 'I am starting a start up because I want to do something more, I start with something small small, then larger, I can achieve my final goal. I want to do something in science'. |
| #5 | 31–40 | PhD/Postgraduate | Engineering | 'So, I talked with my supervisor, he wanted me to think very clear, because he thought I was a little bit crazy to start my own business after graduation because no other student is doing this. So, I told him that I think I know the risk, and I would rather give up the hukou instead of making it, or having something stopping me in going forward'. |
| #6 | 21–30 | Master | Arts/engineering | 'I used to be a designer and ehm … the big motivation I think is … how do you say, you work for nobody else'. |
| #7 | 21–30 | Bachelor | Social Science | 'Because if I like travelling, I cant always ask for days off to go travel… So I found out this was a problem because this kind of thing cannot continue for years. So I had to figure out something, so I quit my job last year. Yeah, so I started my own business'. |
| #8 | 21–30 | Bachelor | Social Science | "My life to become an entrepreneur is basically like, the. legally blond story…At that moment, I was good for now, because I wanted to have my own thing. I had an idea, and I was like 'yeah, why not' |
| #9 | 41–50 | Bachelor | Arts | 'I wanted to grow basically. So yeah. So, but to grow you have to quit, because inside of the company you have to deliver something that the company wants'. |
| #10 | 31–40 | PhD/Postgraduate | Other | 'I knew I wanted to start something, so where do you start? Right? So, I thought it would be much easier to, or the correct way to start is to fulfil a need, not create a need from the consumers or from whoever. And the easiest way for me to start is to start by myself … .' |
| #11 | 41–50 | Bachelor | IT/Computer Science | 'I never thought about becoming an entrepreneur. When I got my bachelor, I joined a start-up company that was in the US, Europe and Singapore. I just do my work and what I have to do, and I lived in Europe, living in a special house in Prague with other entrepreneurs. These people really inspired me. How they lived their life and their ideas made me think that "probably I can do something on my own", and then I went back, and was inspired by my stay in Europe'. |
| #12 | 41–50 | Master | Engineering | 'And one day while I was in the U.S, travelling, and I happened to be in a tech convention, this was an all-women tech convention! So, I was so very very surprised that there are so many women that are scientists, programmers, engineers, and I even met a rocket scientist there! So, I was totally inspired. If there are so many there, how come we in China don't have something like that?' |
| #13 | 21–30 | Bachelor | Arts | "So, I had a coffee with another professor who was teaching at RCA, Royal College of Art in London. He is a very good friend of both Ling and me. I asked him 'What do you think if I want to study user-experience design?'. Well, he told me, 'Oh [name], you are not the type of design. I don´t think you are good at designing but perhaps you can start a company?' |
| #14 | 41–50 | Bachelor | Social Science | 'I know how to get clients, how to get candidates, how to close a deal. And I closed several deals, very big deals in that company. I thought "I don´t have to work for you!". From the company I know all the processes, so I started my own company' |
| #15 | 41–50 | Bachelor | IT/Computer Science | 'I think that my first 15 years of my career I was born for the stage. But now I want to change or move to the next stage. I want to dig out more of my potential, but not only be bored and using my time and energy. This is my choice to do this new business'. |

*(Continued)*

**Table 2.** (Continued).

| Informant | Age | Educational Level | Educational Background | Motivational background for becoming an entrepreneur |
|---|---|---|---|---|
| #16 | 31–40 | PhD/Postgraduate | Social Science | …if all I want to do is to make changes, even small changes to the world, and then make a social impact, if there is a technology that probably has the possibility to solve inequality and to solve challenges like people go to bed with an empty stomach. That's something I want to learn, that's something I want to create for the world. I think that is the most important reason and that was the open eye moment for me to decide if I should step into the technology field and to start my own company and build blockchain for the people and the company". |
| #17 | 31–40 | Master | Social Science | 'You really need to put your heart and your soul in it. And sometimes I think, "why do I do this?'. But, it's my passion, right?! And the other type of person who is more corporate, who works for a big company, is very good. For example, my partner who is also my husband he worked at Intel, Apple, KPMG who was the CEO, so he is very corporate. I think like for me; it has always been my passion to really build something on my own'. |
| #18 | 31–40 | Bachelor | Social Science | "I'm forced to be an entrepreneur! I don´t have a choice. I used to work in a big company. My first job was in a private company.» |

comparing statements and seeking to collapse open codes into larger themes, such as relating codes that concerned the same digital tool. Third, we then distilled these second order themes into aggregate dimensions, i.e. digital affordances (c.f. Meurer et al. 2022). This last part of the coding was the most theoretical (c.f. Gioia, Corley, and Hamilton 2013), meaning that we compared and contrasted our second order codes to theory and tried to concoct theoretical explanations. To ensure validity our findings, the two authors who collected the data did most of the initial coding, while the author who did not collect the data acted as an 'outsider' checking codes and bringing suggestions (Bartunek and Louis 1996).

We present our data structure in Figure 1.

## Findings

We find that women overcome the cultural barriers to entrepreneurship by engaging four different affordances: *virtual networking, online learning, opportunity creation* and *scaling-up*. These four affordances do not just represent features possessed by the digital tools, but also concern how the women's goals and capabilities interact with these features (Nambisan 2017). For example, we find that women entrepreneurs may create their own networking platform. By creating these affordances, the women entrepreneurs feel empowered and more able to challenge the traditional, gendered structures they face.

### *Virtual networking affordance*

The interviews highlighted the cultural barriers to entrepreneurship, in particular how women face gender bias and lack of network. For example, one of our informants noted the bias she faced:

> Because we have gender discrimination in China. Chinese traditional beliefs about women are that they should return to family after marriage and work in passing. The main task of the female is to take care of the family traditionally. (Interview 1).

Furthermore, in correspondence with the literature, we found that the women noted how expectations from parents and society held them in traditional patterns, holding them back from engaging
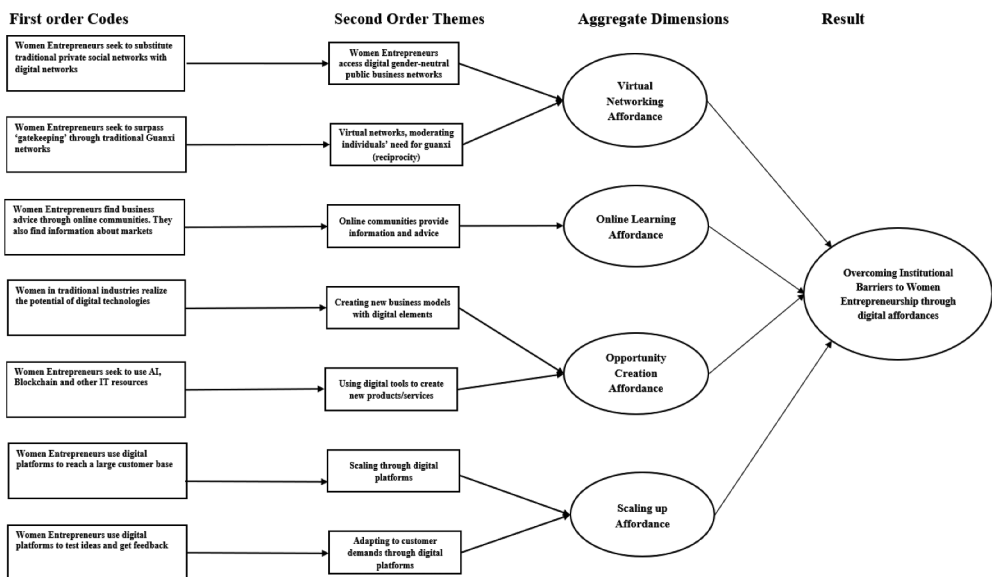


Figure 1. How do women overcome cultural barriers through digital affordances.

in male dominated networks. For example, one informant noted how her own mother wanted her to stay home:

> My mother believes that it is already hard enough for me to give birth to these two children and I should rest at home. So, they are strongly against [my new career]. My mother did not call me for about two months because of this. (Interview 1)

Gender role expectations lead to smaller professional networks (Mitra and Basit 2021), and sometimes also precluding women from engaging in traditional business network, usually referred to as 'guanxi' in China (Cooke and Xiao 2021). Cultivation and nurturing of business relations (guanxi) often take place in restaurants and bars, and often include drinking of strong spirits, gifts or favours (Lee Cooke and Xiao 2014; Zhang 2011). Men often gatekeep these events and keep women out. Hence, to be successful women must look for other arenas to network.

We found that the women in our sample used social media and online communities to substitute for traditional guanxi:

> … the internet makes things easier. People are more result oriented. People can focus on what they offer and doing things better is enough. Less hassle and guanxi related. Because all people want to know what you can offer, they don't care about other things that are not important than what they are looking for. (Interview 7)

We noted that this sentiment was shared among our interviewees, as they felt that digital networks could supplement traditional ones:

> … it is an addition to the traditional way of networking where you worked with someone you were friends with someone you went to school with someone right? You're a relative of someone. (Interview 10)

Interestingly, we noted that the women not only used open platforms, but created their own female-oriented platforms, which acted as 'safe-spaces' for them where they could share tip and tricks, and also discuss the bias and hardship that they faced:

> And we created also a platform for women. And this platform, it´s kind of like creating a safe space or comfortable zone for women to share topics to talk about what´s happening, what are the issues, how we are to overcome them, and life balance. (Interview 12)

In sum, we find that the women in our sample create a virtual networking affordance. We define this affordance as when *women use social media and online communities strategically to overcome network and gender role barriers*. In this affordance, the goal is to bypass the traditional male dominated networks and women use their capabilities to create their own platform. It is noteworthy, that women not just use regular online communities, but seek to create their own that is only for women. This is noteworthy because prior work has argued that social media and online communities on the internet may simply reproduce gender and class structures in society (Dy, Marlow, and Martin 2017). Yet, our findings indicate that women take active steps to avoid this.

### *Online learning affordance*

Another barrier that we found in our data, was that many of these entrepreneurs had 'knowledge gaps' and needed additional knowledge on good business models or the potential offered in digital features. This was somewhat surprising given that the women in our sample were highly educated, yet still they often noted a lack of clear training and knowledge with regards to entrepreneurship. They also noted a lack of formal training opportunities. Instead, the women turned to their online communities and blogs to find knowledge and solutions:

> But for China's internet, this burgeoning internet community and technology community, all I did was ok I need a system to sell this thing right, I don't know anything about mini programs. I don't even know like what's the difference between a mini program and the traditional way that you can find a shop on WeChat. (Interview 10)

Internet blogs and fora were helpful in their learning efforts, many started from scratch and needed guidance on a broad range of issues. Advice on where to search and what programmes or platforms

could be relevant, were shared in a varied set of fora and digital networks. For some of these entrepreneurs, it was quite basic things they needed to learn. For example, one of the informants noted the lack of basic knowledge in running a company:

> The first question is how do I manage the firm, right? Well, I learn through reading and training classes both online and offline, including online entrepreneurship courses and offline training camps, for instance, the Entrepreneurship Zone and Tencent's Antarctic Circle. Besides there are also women's entrepreneurial groups. (Interview 1)

We found that the women used different tools. They would use blogs to find basic information, as illustrated above. Then they would use online communities to test business ideas and gauge market responses. Finally, one informant in our sample had created an organization, which offered online and offline training directed at female entrepreneurs. She described how her service helped connect women:

> If you need to find female bosses, I´m the right person to ask because we have cooperation with many big corporations like Deloitte and Amazon. Because their presidents are female. So, we have relationship with companies where the boss is female. If you belong, then we help each other. We share stories, feeling, the way to do things, and we also share resources. (Interview 14)

In sum, we identify an online learning affordance, which we define as *when women actively pursue knowledge in the digital sphere*. We find that blogs and online communities are important because women usually lack access to entrepreneurship training. As a result, the knowledge found in these communities may be more fundamental than in prior work on learning in online communities (c.f. Schou, Bucher, and Waldkirch 2022).

### *Opportunity creation affordance*

A particularly interesting element in our findings pertains to the businesses that the women created. Examples were social-networking sites for women, services for postpartum mothers, a community kindergarten, an eco-oriented education service for children and a fashion blog. The women entrepreneurs in our sample noted that digital tools had it possible for them start such businesses, e.g. they could use social media such as WeChat to create awareness of their start-up. As such, our findings indicate that digital tools allow women to start businesses for women and often directed towards women, or fields that are gendered, e.g. childcare.

Furthermore, as the women in our sample lacked access to traditional networks and business channels, they had to be more creative in findings ways to launch their business and market their product/service. To do so, they used digital technologies and platforms to find new opportunities and launch them. The general ease of starting a business online was particularly important for many of the women because they had to combine their business efforts with family obligations. Moreover, we also found that women were likely to be early adopters of digital technologies and use them to disrupt traditional industries. One of the interviewees provided digital tools for use in more traditional industries as her business concept:

> My company mainly provides some smart digital solutions for the traditional business. So, I help those businesses understand what they need for digital solutions, how to improve their efficiency and how to help them to generate more value by the way of having a digital solution' .... so we provide them with consulting services from checking what they need, and then to design of the product, and then to the UI [user interface] design, and also the development and maintenance. (Interview 5)

As the quote illustrates, some of the women would create new business opportunities by transposing digital technologies into traditional industries. This particularly applied to women with strong digital skills and advanced training, for example the informant in question here had a PhD in Engineering. We also found other examples of this, where informants would use advanced tools, such as Blockchain or artificial intelligence to create new business opportunities. One informant

noted the potential of Blockchain and noted how she had found an opportunity in education using it:

> So, I think that for every new technology, the adoption is always the difficult part because you have to do a lot of education. You need educate individual consumers, you need to educate business´s, you even need to educate regulators for some new technology such as blockchain. I thought okay, for better for worse, we have to do the education part, then we make it a physical space . . . . That's a very organic way to start a business dialog as well. A lot of our foreign clients are actually attracted from that network. (Interview 16)

In another example, one of our entrepreneurs had found an opportunity using AI to create an influencer platform:

> . . . what we basically do is that we are an AI empowered influencer platform. We have an influencer search engine, we are profiling every persons data down to a science based on their social data . . .(Interview 17).

The company above used Artificial Intelligence to gather information on people, based on their use of social media. This information could then be used by firms to find the best influencers or opinion leader in their segment.

Overall, we find that women used digital technologies to create new opportunities. Here, exemplified by using new digital technologies such as Blockchain or AI. We refer to this as an *opportunity creation affordance*. A particular feature of this affordance was that women often sought to transpose digital technologies into traditional industries. Our findings indicate that women were driven to do so as they lacked traditional business channels. As such, women had to be more creative than men, and had more to gain from disrupting industries.

### Scaling up Affordance

Lacking networks and traditional business channels were also a problem with respect to how the women entrepreneurs could create awareness of their product/service and company, thus limiting scaling. To counter this, we found that informants used the social networking app WeChat. This app is ubiquitous in China and was therefore useful in creating awareness. For example, one informant noted that she had not known how to sell her product until she had found out that WeChat was not just for chatting and networking, but also had functions were entrepreneurs could create shops:

> Wechat is a natural social platform. It is beneficial for small projects to spread and test a business mode in shortest time. I started from WeChat at the beginning. There was no community at that time. Later, when we went to do our community, we used WeChat's social attributes, communication power and cohesion. The speed of its spread is staggering. (Interview 1)

Another informant also described how the ease of starting e-commerce shops allowed her to pursue opportunity based entrepreneurship:

> And for online, for the digital, yes, it will make of course make it easier for the woman to start a business, because it is easier to communicate online, and it is easier to have an e-commerce shop right . . . (Interview 5)

We also noted that the women learned how to utilize affordances nested in different social media, as one described:

> Also, secondly, it is very important, because you have to know each platform has different kind of characters. It's like, WeChat, people prefer to read something deep. Yeah, because they want something professional, people don't wanna waste time on WeChat. But on Weibo, it's different. People prefer to read some pictures, less letters, because it is quite fast, people refresh their Weibo every second, so if there are too many letters, they cannot read it. So, you have to post more pictures, less letters. (Interview 7)

Overall, we found that informants described how using the internet allowed them with an easy channel to sell their products, allowing them to bypass traditional networks. Moreover, by using the digital sphere, women could also avoid making their gender a problem and instead focus on their company's brand: '*So, at that time, we used the Internet to guide us and to build up a good brand in the marketplace'. (Interview 3)*. Simply, by not having to meet customers physically, the women could focus

more on presenting their company rather than themselves. We define this act of bypassing traditional business channels, and instead relying on digital channels that are less gendered, as a *scaling up affordance*. This affordance comes to be as women skilfully uses the tools that digital technology has to offer. We find it noteworthy that the women in our sample are pursuing opportunity-based entrepreneurship through these digital channels rather than pure necessity-based entrepreneurship, which is the norm for Chinese women entrepreneurs (He, Lu, and Qian 2019).

## Digital empowerment: how women overcome cultural barriers through digital affordances

While women entrepreneurs in China face clear barriers, we find that they skilfully engage with digital technologies to create a number of affordances that help them overcome the barriers. For example, they use their own platform for women to overcome the usual discrimination they face. We summarize, how the digital affordances allow women to overcome the barriers in Table 3.

These affordances do not wash away gender bias and barriers, and some women are still precluded from successful entrepreneurship. For example, our interviews also showed that the women lacked access to financing, something that they could not circumvent just be using digital tools. However, our data shows that the women feel empowered and more able overcome the cultural barriers and pursue entrepreneurship when they can use digital affordances. For example, one informant noted:

'. . . it's like, sometimes you will face more problems because of your gender, there is always some difficult things to do, and people will tell you it's so hard, you cannot accomplish it. But I am a person who is so optimistic, I'm like "I don't see it at all". I don't see that at all. Like, there is nothing hard for me, I want to try. So, what is the cost of failure? I am not afraid of failure'. (Interview 4)

Another one of the entrepreneurs in our sample argued that digitalization changed the whole business landscape and allowed women to play a role:

One thing, biggest reason is the Internet. It made a lot of things possible. Because before, a lot of industries had to be run by male, like the factories, you know those heavy industries. There were still women to work, but it is hard for them to work with those hard males you know. But right now, you have a lot of service industry, which is quite suitable for women. (Interview 9)

Finally, some of the entrepreneurs in our sample even noted how their ability to run digital oriented businesses set them apart and made them stand-out to their family and friends:

Table 3. Overcoming cultural barriers through digital affordances.

| Barrier | Primary affordances created and used | Description |
|---|---|---|
| Lack of networks (Guanxi) | Virtual networking Scaling-up | Specific digital women's network help women circumvent male dominated networks. Digital channels help women bypass traditional channels. |
| Gender roles and male-dominated culture | Online learning Opportunity creation | Women are able to find role models online. Women seek to change traditional industries using digital technologies rather than playing by the traditional rules. |
| Media coverage | Scaling-up | Instead of relying on traditional media, women entrepreneurs use informal, digital networks, in particular e-shops on WeChat |
| Lacking access to training and education | Online learning | Women entrepreneurs use online communities to learn the basics of running a business. |

> To challenge ourselves and to challenge the traditional concepts, and also to keep the good things and to make something new. I don't know why. So, my mom loves to make fun of me. She says 'we don't know how we gave birth to you, you know, you are totally different than the whole family. (Interview 3)

We refer to this feeling of being able to challenge traditional concepts and overcoming problems caused by gender through digital technology as *digital empowerment*. In this regard, our findings echo prior work, such as McAdam et al., (2020) work on the emancipatory power of digital entrepreneurship. Yet, our findings and theorization also extend work on digital and women entrepreneurship. In the next section we outline these contributions.

## Discussion

We have elaborated how female entrepreneurs participate and make use of the potential that lies in digital tools and infrastructure, thus helping them overcome cultural barriers of gendered expectations and exclusion. Our findings extend work on digital entrepreneurship by unpacking a series of affordances that the women create, and to women entrepreneurship by providing more insight into how women use digital technologies and how they release the emancipatory potential of digital technologies (McAdam, Crowley, and Harrison 2020).

### *Contributions to digital entrepreneurship*

With the rise of digital technologies, entrepreneurship scholars have argued for starting a research programme on digital entrepreneurship (Nambisan 2017; Schou, Bucher, and Waldkirch 2022; Von Briel et al. 2018). A part of this programme is understanding the affordances that entrepreneurs create when engaging with digital technologies (Autio et al. 2018; Meurer et al. 2022; Nambisan 2017). So far, scholars have identified digital affordances as an umbrella term covering how firms use digital technologies to rethink how they create, deliver and capture value (Autio et al. 2018, 78), and more in particular how entrepreneurs access informational and emotional support (Meurer et al. 2022). To this work, we identify four affordances (virtual networking, online learning, opportunity creation and scaling-up). Virtual networking, online learning and scaling-up overlap to some degree with affordances identified in past work (McAdam, Crowley, and Harrison 2020; Meurer et al. 2022; Schou, Bucher, and Waldkirch 2022). However, the opportunity creation affordance is new and is interesting because it shows how entrepreneurs suffering from lower and marginal positions may be particularly motivated in using digital technologies to disrupt traditional industries.

Moreover, we show how entrepreneurs may use digital affordances for particular goals, here overcoming gendered cultural barriers, rather than broad goals such as delivering value (c.f. Autio et al. 2018). Consequently, these digital affordances might not occur to men because they can operate in the traditional settings. Rather than engaging with digital technologies, men may more focus on traditional way of pursuing business, such as 'wining and dining' business relations to create guanxi. Indeed, several of the businesses that the women started were directed towards women, which would not have been possible without the digital tools.

The implications of this are that future work on digital affordances should consider how affordances relate to specific settings and actors. As digital affordances result from actors' goals and capabilities when using digital technologies (Nambisan 2017), it is important to consider these. For example, in our case the women entrepreneurs had particular goals courtesy of living in a patriarchal society. But entrepreneurs isolated in rural settings may also have very different goals than entrepreneurs located in hubs. Hence, what they want from digital technologies and how they use them may vary. *Overall*, our findings suggest that digital technologies may be used in a gendered way. They may be used by women to solve specific problems, such as lacking networks, and to launch businesses that women might not been have able to launch without the

digital tools. In particular, we noted that the women entrepreneurs could use the digital tools to connect to female customers.

### Contributions to women entrepreneurship

Our paper relates to existing work on how female entrepreneurs use digital tools to overcome gendered barriers (Dy, Marlow, and Martin 2017; McAdam, Crowley, and Harrison 2019; 2020; Oggero et al. 2020). We add the following insights to this literature. *First*, we add more detailed insights into how women use digital tools to create opportunities and market their product/service and company (McAdam, Crowley, and Harrison 2020). In particular, we find that women are motivated to transpose digital technologies into traditional industries, and that women use the digital sphere to market their company, which may allow them to bypass gendered expectations rife in the physical realm. *Second*, prior work has tended to treat digital technologies, such as online communities, as stable spaces that exist irrespective of actors' goals and capabilities. For example, McAdam et al., (2020) perceive that the internet exists as a 'safe space'. We pose that women themselves play a large role in shaping these spaces. More to the point, we find that women create their own platforms and networks. *Third*, as we unpack how women actively shape digital spaces, we contribute to the debate around whether digital technologies are a 'great leveler' for women (Kelly and McAdam 2022a; McAdam, Crowley, and Harrison 2020), or whether inequalities are reproduced in the digital sphere (Dy, Marlow, and Martin 2017). Our findings point to a middle-ground between these two positions. While the internet may be filled with the same gendered expectations and discrimination as the physical realm, women can create their own communities and platforms and avoid this discrimination. Therefore, we argue that portraying the internet as either a positive, neutral or negative platform for women misses the point. For example, actors can create their own online communities and even their own space within larger communities (Schou, Bucher, and Waldkirch 2022). Hence, we pose that future research should focus more on how women entrepreneurs are actively engaging with digital technologies.

*Overall*, we note that our study is more positive towards what digital technologies may offer to women. Whereas other studies have argued inequalities are reproduced (Dy, Marlow, and Martin 2017) or that women struggle in transitioning into becoming digital entrepreneurs (Kelly and McAdam 2022b), we find that the women most perceive the opportunities in digital tools and that they do not report issues in transitioning to them or using them. Why there are these discrepancies is an interesting question. It could be a question of context, e.g. we study highly-educated women entrepreneurs across industries in China, whereas Kelly and McAdam (2022b), for example, study women entrepreneurs in the health and fitness industry in the West. Given these differences in context, it may be that the Chinese Women entrepreneurs feel that the digital realm is more equal because they face stronger cultural barriers than women in Western countries, i.e. they face stronger demands to take care of their husband, their family and their in-laws. But an alternative explanation is that it depends on how women use the tools and why they use them. Thus, we encourage future research into how women use digital tools and how this affects them (c.f. Kelly and McAdam 2022b).

### Limitations

Our study is limited by a relatively small sample of female entrepreneurs from Beijing and Shanghai. This naturally limits generalizability of our study, especially as women in Beijing and Shanghai may be less repressed by cultural barriers compared to women in cities that are less international and have lower degrees of overall entrepreneurship. Our sample is also limited because we only have well-educated women, which may skew our results. Hence, we caution against too generous generalization of our results. Much more research is needed to understand how women use digital tools to overcome cultural barriers. We, in particular, argue that longitudinal qualitative and large quantitative studies are needed to deepen our knowledge.

## Conclusion

China's unique cultural and institutional arrangements have affected women entrepreneurship even before the liberalization under Deng Xiaopeng (Hernandez, Nunn, and Warnecke 2012). Yet, now silent female grassroot movement are in progress, which might be able to make cultural changes from below, in the long run. Indeed, studies have shown this happening in countries such as Saudi Arabia (McAdam, Crowley, and Harrison 2019). Digital technologies may play an emancipatory role, but this is not a given and these technologies are not 'wonder drugs'. Whether women entrepreneurs in China overcome gendered cultural barriers is still uncertain and they likely require more training and education. In particular it seems important to educate prospective women entrepreneurs to use digital tools. This may provide them with an advantage over men, who are caught in traditional schemes and networks. We hope our study serves as an inspiration for this.

## Disclosure statement

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