



**POWER
PLACES**

Dell Women Entrepreneurs (WE) Cities Index

Women Entrepreneurs and Technology

June 2022

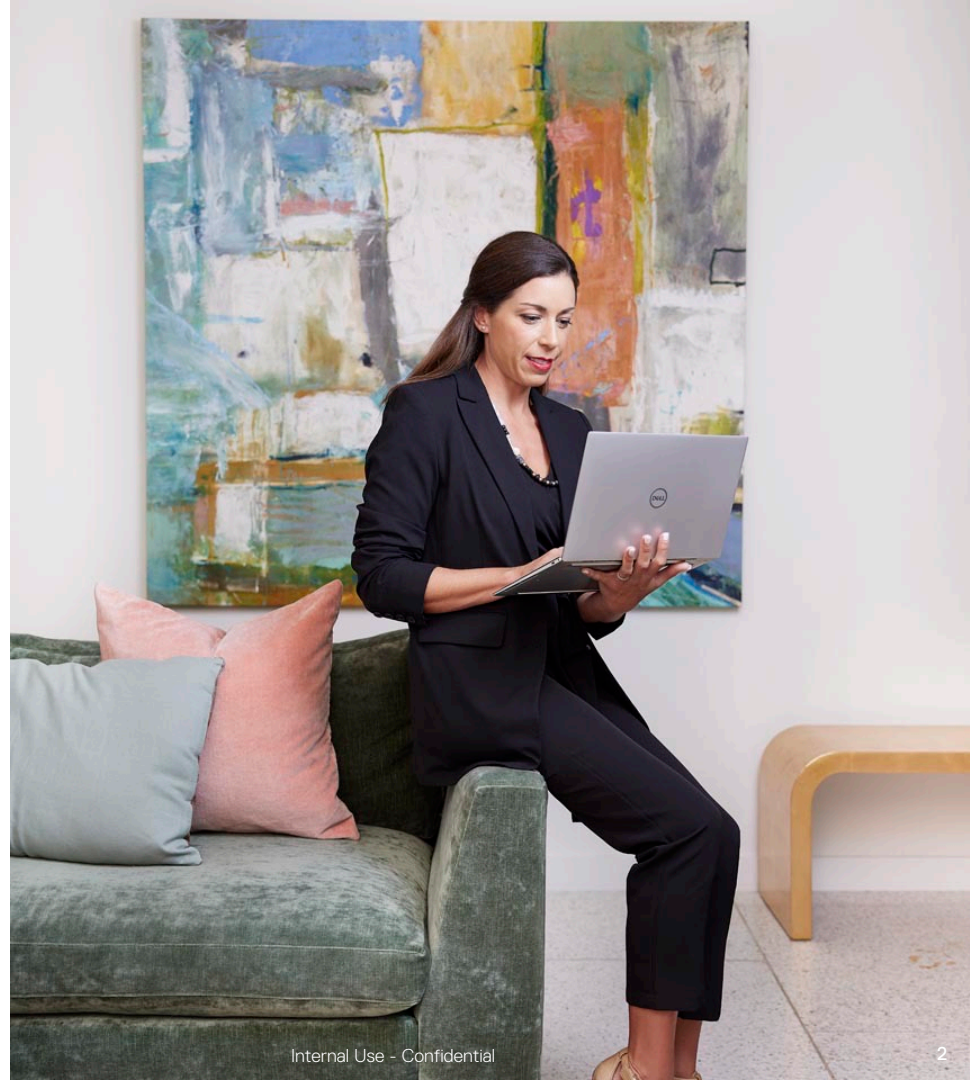
S&P Global
Market Intelligence



DELL Technologies

Contents

- Introduction
- Methodology
- What technology is used and how
- How technology and markets intersect
- How technology and culture intersect
- How technology and talent intersect
- How technology and capital intersect
- Leading practices for technology evaluation, adoption and use
- Appendix
 - References
 - Focus group quotes
 - Community member quotes





Introduction

- The Dell WE Cities index, measures and ranks cities around the world based on their ability to attract and support high-potential women entrepreneurs (those that want to start and scale their business).
- The Index is built on 5 pillars: Markets, Talent, Capital, Culture and Technology
- This report takes a deep dive into the Technology pillar to provide insight into how technology impacts women entrepreneurs' ability to start and scale a business.
- One entrepreneur we interviewed summed it up best:

“You cannot scale without technology. Technology can save time, human error, it collects vast amounts of information, it can simplify processes, it helps with engagement, it helps reach people in different geographies and create far more impact + generate more revenue.”
(CEO, 1-10 empls, Management Consulting, Australia)

- The report utilizes the framework of the index to show how technology connects with all other aspects of the business environment (markets, capital, talent and culture).
- Through this framework we test and answer several hypotheses about women entrepreneurs and technology.
- This report details the findings and answers the question:

How can women entrepreneurs get on the path where technology is an enabler and avoid the paths of it becoming a barrier to their success?

Methodology



Research: Focus and Goals

Sample frame

- Qualitative desk research – literature review
- 3 days (90 mins of activity); asynchronous discussion board platform for participants to log-in daily to answer prompts and respond/interact with others
- Interviews with women entrepreneurs to learn about their lived experienced and further contextualize findings from the desk research
- Interviews with Dell SMEs to understand the technology needs of businesses and women-owned businesses in particular

Research methodology

FOR THE FOCUS GROUP

- Target respondents: n=10 founders and decision makers of women-owned businesses. All participants are involved in their organization's technology purchases and digital projects
- 5 countries: Australia, Canada, Republic of Ireland, the UK, and the US
- 7 industries: Computer software/games, consumer products, financial services, information technologies, internet/online media, management consulting, and retail

FOR INDIVIDUAL INTERVIEWS

- Target community members, n=4 Brazil, France, India

FOR ALL PARTICIPANTS

- Company size: 1-1,000 employees (predominantly 1-50 employees)

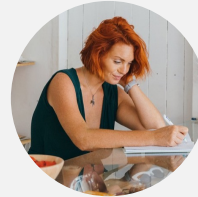
Research objectives

- Gain insight into what technologies women are using to start/scale their businesses; what they see as critical for their businesses; and, how technology is meeting certain needs of their businesses (or not)
- Gain insight into what are some of the constraints women have faced when trying to adopt technology and what have been some things that have helped them
- Gain insight into what motivates women to adopt technology for their business and whether this is linked to the aspirations of the business or more personal aspirations

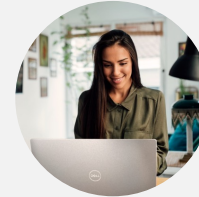
Methodology

We constructed the interview protocol to explore three key areas of concern for women using technology to start and scale their businesses.

- We conducted interviews and an asynchronous focus group during June 2022.
- Using qualitative analysis software, we coded the transcripts using the taxonomy of the Dell WE Cities Index (markets, talent, capital, culture and technology and its sub-pillars).
- We analyzed the coded text for patterns and themes.
- We combined this analysis with the findings from the literature review (desk research).



Tools and Processes

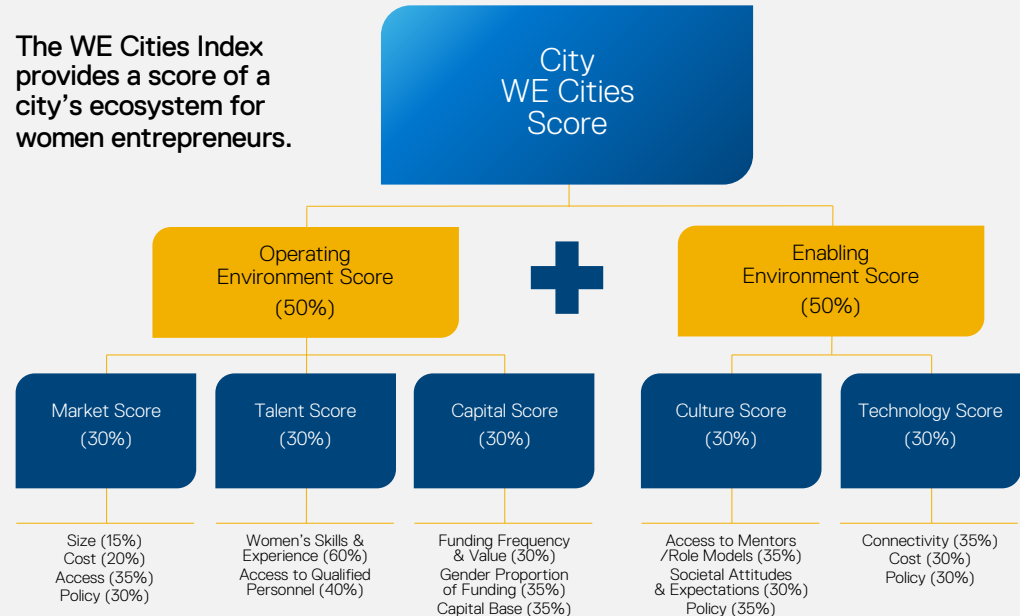


Barriers and Enablers



Motivations and Aspirations

The WE Cities Index provides a score of a city's ecosystem for women entrepreneurs.



*The numbers in parentheses are weights used in aggregating the scores.

Demographics

The total number of interviewees was 14 people across three regions, 8 industries and small and medium size businesses.

Characteristics	Number
Women founders	12
Work for woman-led business	1
Business with female managing board	1

Number of employees	Number
1-10	8
11-50	2
51-100	1
>100	3

Region	Number
Americas	7
APAC	4
EMEA	3

Industry	Number
Biotech	1
Financial services	2
Healthcare	1
Media and entertainment	1
Mining	1
Professional services	3
Retail and consumer products	2
Technology	3

Disclosure



Our focus is on women entrepreneurs who are aiming to scale their business. While in some places we make comparisons with male entrepreneurs, for the most part our research is silent on the comparison. That is, when we make statements “women entrepreneurs are” It does not mean that it exclusively pertains to women entrepreneurs. Male entrepreneurs could also likely apply the research findings.



Throughout the report when we refer to women entrepreneurs, we are referring to our sample of women entrepreneurs (some of whom work for women entrepreneurs). While our sample of women entrepreneurs represents a wide range of industries and regions, the findings of this report are not meant to be conclusive statements about the full population of women entrepreneurs.

Women entrepreneurs from a tech perspective

- Tools** What technology is used and how?
- Connection** Women entrepreneurs view technology as essential for their growth
- Cost** Women entrepreneurs tend to be laser focused on efficiency
- Policy** Women entrepreneurs see digital technologies as giving greater access and accessibility

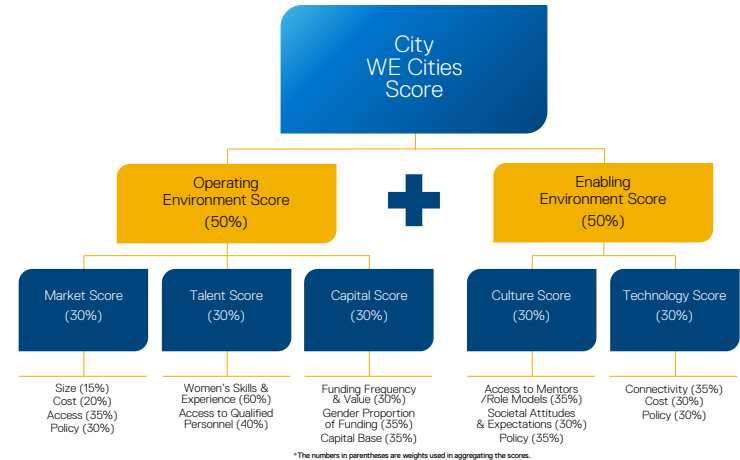


The Technology Impact

Correlations of the Technology pillar and sub-pillars to other WE Cities Index scores, 2019

		Other WE Cities Pillars				WE Cities Index
		Markets	Talent	Capital	Culture	
Technology Pillar		0.603	0.627	<u>0.450</u>	0.805	0.797
Technology Sub-pillars	Connected	0.469	0.701	0.260	0.726	0.682
	Cost	-0.042	-0.403	0.241	-0.256	-0.180
	Policy	0.524	0.406	0.475	0.649	0.661

The WE Cities Index provides a score of a city's ecosystem for women entrepreneurs.



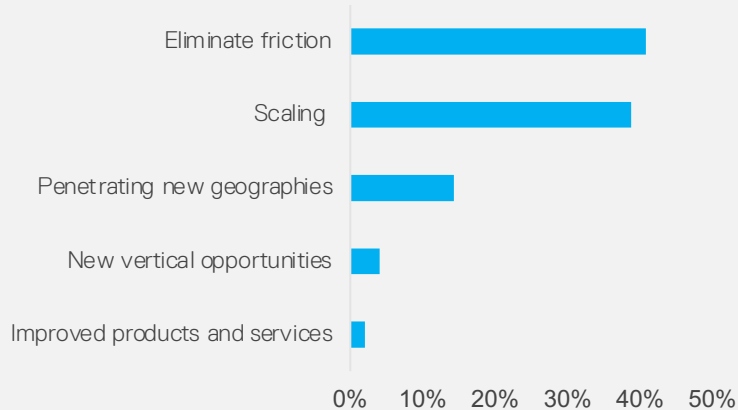
- Technology scores in the 2019 WE Cities Index are correlated with all other ecosystem scores
- It is most highly correlated with culture (0.805)
- Of the sub-pillars within the technology score, connected is most highly correlated with culture (0.726) followed by talent (0.701).

Two Takes on Technology

The double-edged sword of technology can be a make or break for women entrepreneurs.

Technology is an **enabler**
if it eliminates friction and contributes to scaling

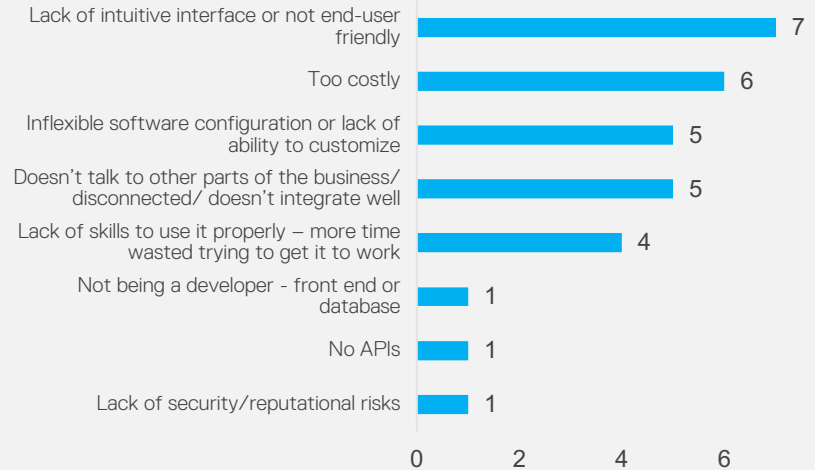
Enablers: Primary benefits of technology for respondents



Note: Percent of focus group respondents choosing the row as the primary technology benefit.

Technology can pose **barriers**
if it increases costs or disrupts revenue

Barriers and frustrations



Note: Number of focus group respondents choosing the row as one of their top 3 frustrations

It All Ties to Technology



“Yes -- can't grow without changing how we go to work... adding automation to all processes for better control, insight, efficiency. And, when we add new staff, it will help provide the structure for easy training.” (Founder/CEO, 1-10 empls, Computer Software/Games, USA)

“Absolutely. You cannot scale without technology. Technology can save time, human error, it collects vast amounts of information, it can simplify processes, it helps with engagement, it helps reach people in different geographies and create far more impact + generate more revenue.” (CEO, 1-10 empls, Management Consulting, Australia)

“Technology is key to scaling our business. As a retailer... it helps us understand consumer behaviour, technology improves CX online and in-store... enabling multi-currency and multi-language. New customer acquisitions...” (COO, 501-1,000 empls, Retail, Australia)

“It is at the foundation. As a tech company it is impossible to decouple tech from scale.” (Founder, 11-50 empls, Financial Services, Canada)



“Yes! Mainly through ads, bots, SEO, virtual support like a virtual executive assistant, B2B, B2C sites that market my product for me.” (Founder/CEO, 1-10 empls, Information Technologies, USA)

“Yes - its core enabler. it revenue generation. its IP. it enables scalability.” (Founder/CEO, 1-10 empls, Information Technologies, UK)

“Yes definitely. We work primarily online and as we move across regions to scale, this will continue on a global level.” (Founder, 1-10 empls, Consumer Products, Ireland)

“We are a technology platform so it's 100% part of scaling for the company.” (CEO, 1-10 empls, Information Technologies, USA)

“Everything we see, touch, and feel is... powered by tech... Companies that are early adopters of tech are ahead of the race... We utilize the right tools for our operations that can boost profitability, automate and streamline business processes, save time, manage remote commodities, motivate employees, gain a more in-depth insight into our business, and its growing needs... Keep you ahead of our competition and many other reasons.” (CEO, 11-50 empls, Internet/Online Media, USA)

A Rift in Reactions: Women Entrepreneurs Speak Up

*When you think
about technology
for your business,
what feelings
does it evoke?*

potential
overwhelmed
apprehension

excitement

frustration

anxiety



Technology Enablement for Women Founders

connect with employees

Interviewees expressed many ways technology gives them the ability to:

- ✓ be more productive
- ✓ generate more sales
- ✓ have more flexibility
- ✓ have more control
- ✓ have more analysis
- ✓ have more connection

produce reports

ship from stores

communicate

make it work

easily share data

integrate

generate more revenue



Scaling Tools for Women Entrepreneurs

Adopted technologies help women entrepreneurs stay connected to their business and expand into new geographic markets:

- ✓ HR tools
- ✓ Communication tools
- ✓ Productivity tools
- ✓ Cloud storage tools
- ✓ Sales tools
- ✓ Accounting tools
- ✓ Digital payment tools
- ✓ Social media & marketing tools

GoogleSuite

DataStudio

AWS

TaxAct

Zoom

MicrosoftSuite

Canva

Hubspot

Salesforce

Wix



Technology Access and Accessibility

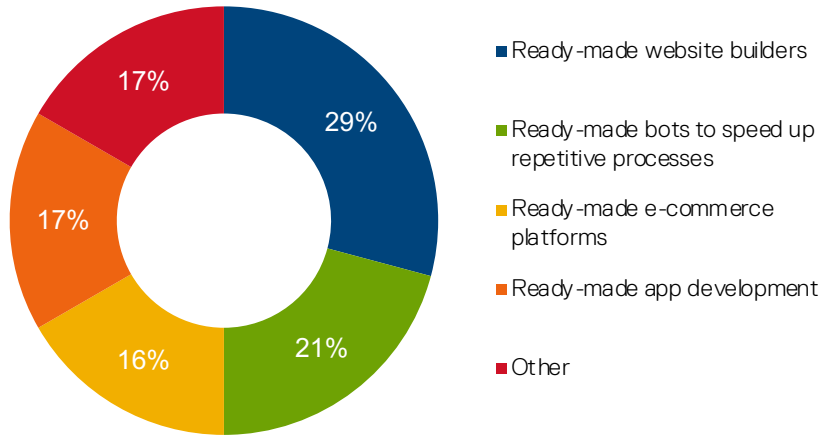


“I work with creative people who aren't always tech savvy and with customers who want our service. I want the platforms to be **easily accessible** and useful to them. They should NEVER have to understand how the tech works. I also want to be able to respond quickly to feedback, so a technology that is easy for me to amend (me, the non-tech). I shouldn't need a developer for 80% of what needs to be done.”

- Founder/CEO, 1-10 empls, Computer Software/Games, USA

Tools for the Digital Age

Tools to increase digital usage



Many of the technologies cited by women entrepreneurs are **digital tools** – indicating they are leveraging and moving quickly from the information age to the digital age.

This is giving them **greater access** and **accessibility**.

Women entrepreneurs running smaller companies tended to cite using more basic technologies. As companies grew larger and more structured, women entrepreneurs cited the need for multiple tools to facilitate functional competency.

- Other includes digital agency support, new customer acquisition via Google and social ads, lead capturing platform, mobile payment platforms remote signing for customer agreements, document sharing, SEO and analytics, and workflow notifications

Geographic Capabilities in the Digital Age

- Many women entrepreneurs choose their location for lifestyle/family reasons.
- But to the extent that someone is able to relocate, consideration is given to the entrepreneurial ecosystem i.e., funding opportunities, talent, networks, etc.
- The rise of remote work and mobile technologies allow for **geographically dispersed teams** and **flexibility** in locating the business.



“Yes and No. I did move to a new city due to the lack of diversity in the Tech/VC ecosystem.” (CEO, 11-50 empls, Internet/Online Media, USA)

“I love where I live and my family is here I wouldn't move for my business and to save money! It's about priorities.” (CEO, 1-10 empls, Professional Services, Australia)

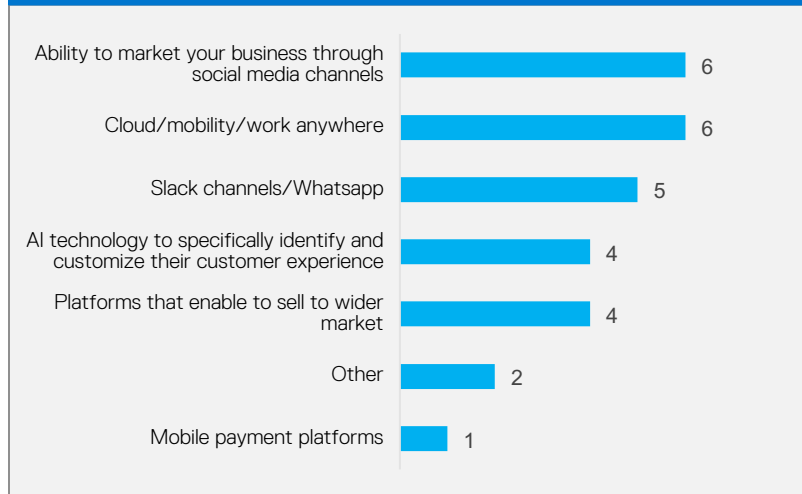
“Personal choice. I serve as a caregiver for my Mom and uncle. My family is my highest value and priority. Also, my cofounder is based in DC and makes for great collaboration and participation in the tech, entrepreneur, and investor ecosystem here.” (CEO, 1-10 empls, IT, USA)

“We moved here for family. Just so happened it's an entrepreneurial hotspot.” (Founder and CEO, 1-10 empls, Computer software/games, USA)



The Realities of Reliable Internet

Most impactful technologies all require internet connections:



Note: Number of focus group respondents choosing the row as one of the top impact technologies for their business.

100% of participants mentioned that they were already using cloud computing technology, giving them ubiquitous, on-demand access to a shared pool of resources, accessible from anywhere through the internet.

Opinions from our interviewees were quite polarized on cellular/mobile technology access/coverage/speed.

- For the majority, cellular/Wi-Fi coverage and speeds are not an issue. Probed on 4G versus 5G, most said 4G was adequate.
- However, for some it is a hindrance. This can be due to regional/country infrastructure problems, city infrastructure problems or even on-prem Wi-Fi coverage.
 - In one example, US city laws were found to be limiting the expansion of the fiber infrastructure across the broader metropolitan area.
 - In one Australian city, inadequate Wi-Fi connectivity impeded the ability to innovate and posed challenges as employees moved to WFH
 - In another example, connectivity is closely monitored to ensure uninterrupted access to their website and servers

Seamless Technology: A Non-negotiable

- ✓ Respondents overwhelmingly agreed that technology is fundamental to **scaling**. The improved communications, streamlined processes, data insights, and quality control that technology brings enables businesses to grow without being hampered.
- ✓ Technology **eliminates friction** by reducing touch points within internal processes and the customer experience. Our respondents cited improvements such as automating data pulling and analytics, remote communication and collaboration, sales closing, and customer service.
- ✓ Video communications technology gives entrepreneurs a global reach, including selling across **new geographic regions** and managing customer relations without an on-the-ground presence.
- ✓ Technology creates **new vertical opportunities** by enabling entrepreneurs to reach new industries and take ownership of different phases in the development of their product or service.
- ✓ **Improved products and services** can emerge from the data insights and enhanced customer experience that technology fosters.

Frustrations that were not selected includes slow/no internet connection, too much time required to set it up missing or limited software functionality, reluctance of users to adopt, downtime due to planned maintenance or unplanned outage

When it doesn't, it becomes a hindrance

- Women entrepreneurs expressed that a hindrance to technology adoption is concern about workflow disruption
- For new and growing businesses, there is no margin for costly disruptions to productivity



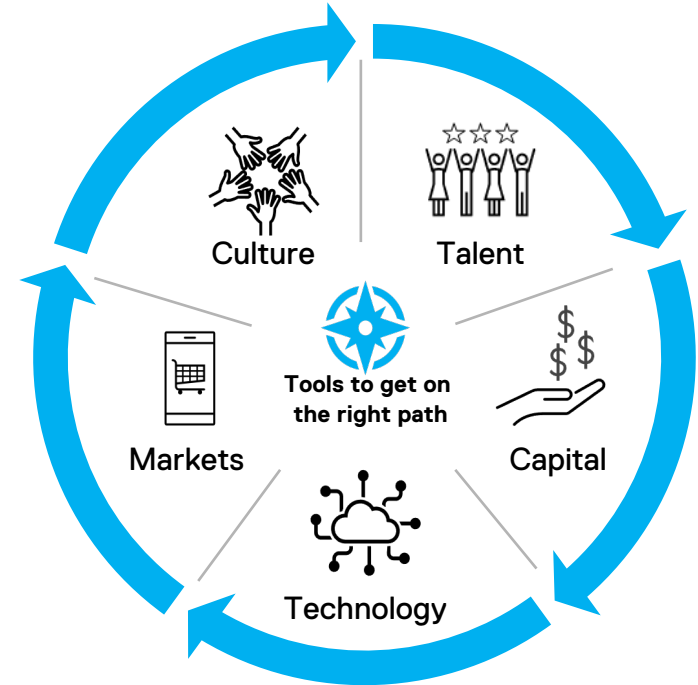
“We experiment a lot and try lots of tech, so have a high turnover. We definitely tried lots of productivity and remote work tools... [Abandoned technology] didn't provide the uptick in productivity for the investment needed to maintain.”

- Founder, 11-50 empls, Financial Services, Canada

The Right Path to Tech Enablement

Women entrepreneurs get on the enabling path by effectively navigating their ecosystem to learn about and adopt technology and then use technology to access more of their ecosystem.

- **Culture:** Using trusted networks to learn about technology
- **Talent:** Continuously researching and learning about technology and using the skills of others to advise them on technology
- **Capital:** Strategically financing technology with vendors, while trying to make as many costs as variable as possible (licenses, subscriptions, etc.)
- **Markets:** Leveraging technology to access new markets, better serve customers, and staying focused on maximizing efficiency (especially around saving time – the scarcest resource for women entrepreneurs)



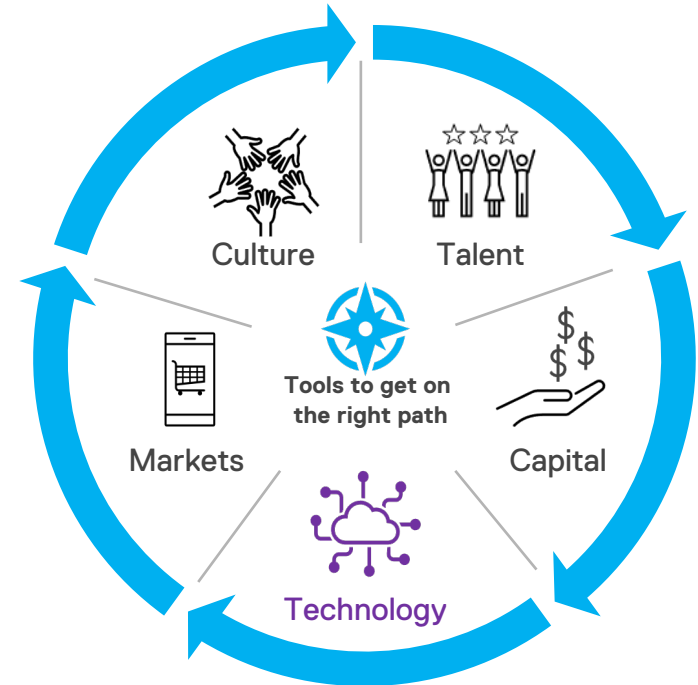
Technology Adoptions = Market Opportunities

One of the trends in the digital age is rapid simplification. This is helping women entrepreneurs more quickly reach new markets.

»»» Rapid simplification

Enables greater access to technology tools by reducing skill/talent barriers and reducing cost barriers

- According to the International Finance Corporation, 2021 study, “Women and E-commerce in Southeast Asia”:
- While men and women reported that Lazada helped them grow their business, more men joined to start a new business, whereas more women joined to grow an existing one or to find a better way to sell online. Women were more likely to report “flexibility,” “reaching personal goals,” and “meeting basic needs,” as the top benefits of selling online.
- Since social platforms require less familiarity with tools such as business software, this ease of use may have greater appeal to novice digital entrepreneurs who are just entering the market, hence social commerce may act as a gateway to the formal e-commerce platforms.



Intersection of technology and markets

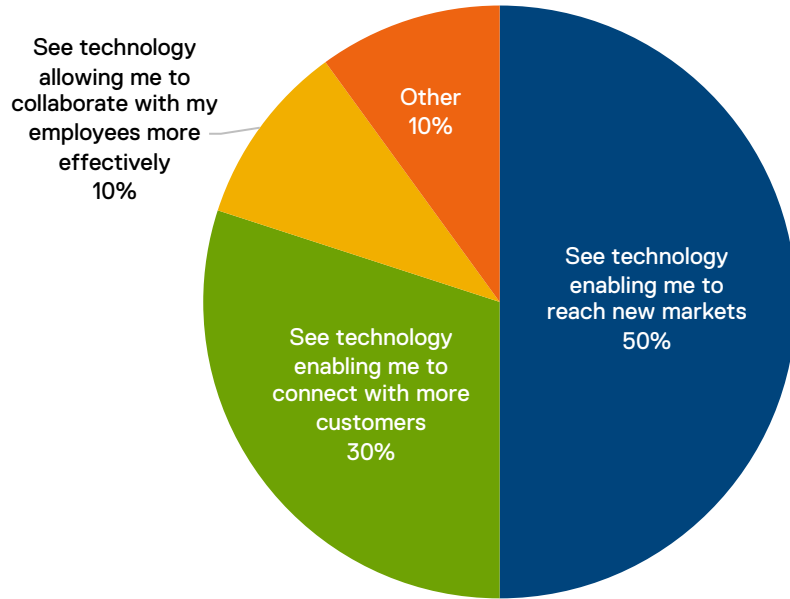
Hypotheses:

- Women entrepreneurs tend to be motivated to adopt technology when it helps them better connect with customers.
- Women entrepreneurs' views about using technology to access markets and grow their business has grown/changed since the pandemic.



Technology Adoption Means Market Access

Considerations when adopting technology



Access to new markets:

- Capitalizing on technology's ability to access new markets is one of the most exciting aspects of technology for women entrepreneurs sampled
- Online technology and marketing tools are enabling women to expand their customer markets into new industries and verticals
- Allows women entrepreneurs to meet with clients and use their services without having on-the-ground presence, opening opportunities in new geographies.

Based on IHS Markit analysis of Executive Discussion Board. Other includes the democratization of technology and the rise of non-techie users.

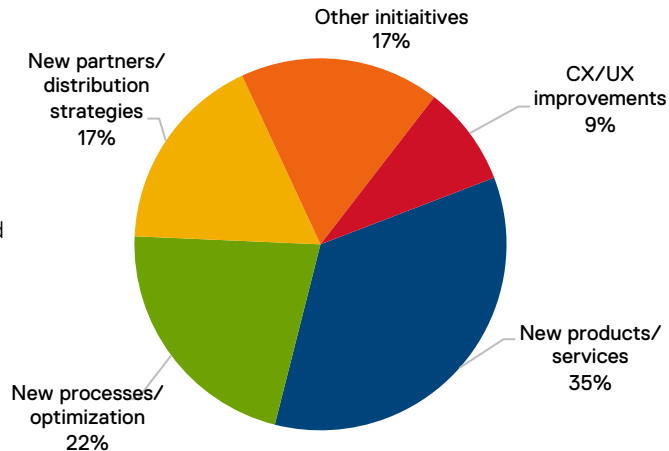
Access isn't only about reaching new markets

It's also about better serving customers and enhancing value-added with AI and other technology.

Improved or enhanced products: Women entrepreneurs are looking to better serve existing and new clients using a wide array of cutting-edge technologies, such as AI to better understand customer needs, NFTs and metaverse to provide unique and personalized user experiences, and blockchain for enhanced user-end security.

Automated processes for finding business leads using AI technologies like RocketReach, which sifts through potential business leads and saves entrepreneurs time and money in business development.

Over half (60%) of the cases cited in response to "implementing new innovations" were cases where technology developed new products or services, improved the customer experience or improved distribution to market.



Use-case example

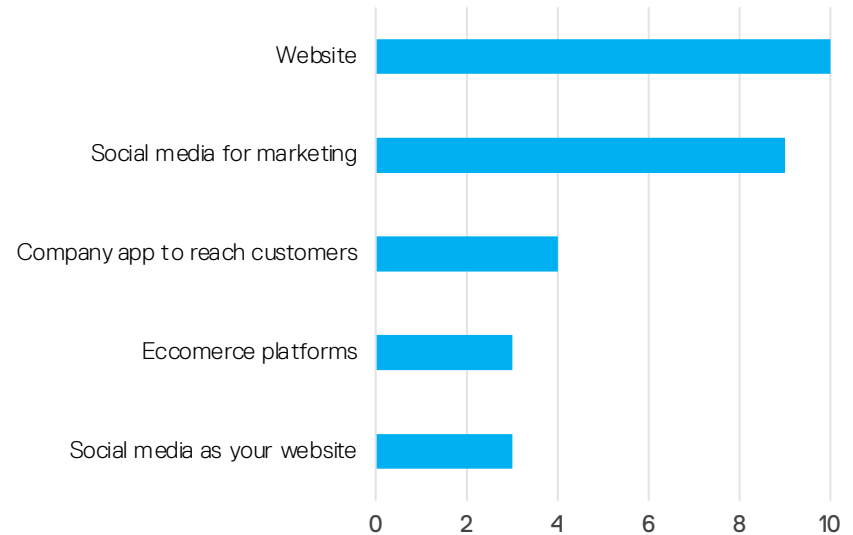
For one woman entrepreneur in the medical supplies industry, the business once required in-person manual measurements of hospital rooms for the product to be customized. The business now utilizes a digital scanning technology that makes this process more efficient. The entrepreneur is now looking into developing an app that can allow clients to use this digital scanner themselves without the business ever needing to send anyone in person.

Women entrepreneurs understand that an online presence is vital to reaching customers and to expanding their markets

A study by UNCTAD noted that “Females seemed to be more active than their male counterparts in using ICT tools including social media networking to market products and services (Facebook, Twitter, LinkedIn and other technology-enabled business networking instruments)”

– A Survey of Women Entrepreneurs
(UNCTAD 2013)

Website and social media for marketing were the most frequently chosen online presence

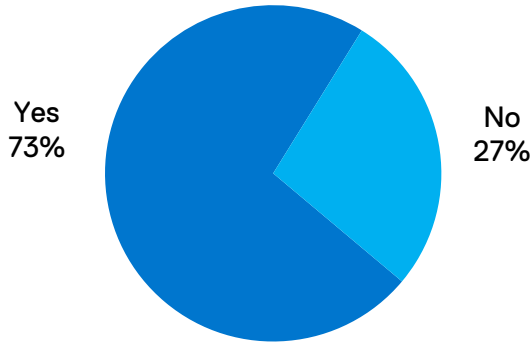


Note: Score represents the number of focus group participants that picked each online presence.

Based on IHS Markit analysis of Executive Discussion Board.

How COVID-19 changed the market for women entrepreneurs

The global pandemic accelerated the adoption of digital technologies. Many women entrepreneurs we spoke with did implement new technologies that were focused on reaching their markets efficiently.



About three-quarters of respondents implemented new technologies during the pandemic.



“Contactless payment, Paypal for business...I have enabled the most secure verifications for all of my business technologies which makes me feel more secure. I have embraced e-commerce which has helped me grow my business - different sites and platforms market me and help connect me to opportunities.”

(Founder/CEO, 1-10 empls, Information Technologies, USA)

“I never had used video technologies before the pandemic. Now, every day I am on Zoom, Teams or Google Meet talking with existing and prospective clients. I have also used more cloud-based services, DocuSign and Google Docs to share documents with clients.”

(Founder, 1-10 empls, Management Consulting, USA)

“We experiment a lot and try lots of tech, so have high turnover. We definitely tried lots of productivity and remote work tools.”

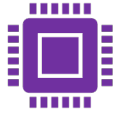
(Founder, 11-50 empls, Financial Services, Canada)

“I am in retail so the importance of getting products to our customers during the pandemic was crucial. We launched our product on new marketplaces which meant working with companies that offered middleware solutions that enabled integration between our systems and the various marketplaces...As our workforce moved to WFH we need to fortify our network from a cyber security perspective which incorporated new technologies and processes.”

(Founder/CEO, 500-1000 empl, Retail, Australia)

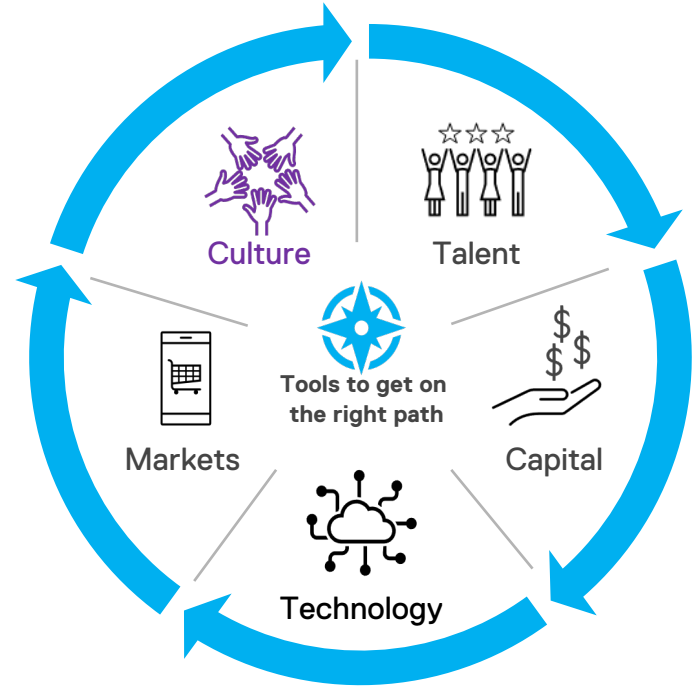
When it comes to technology, market opportunities often flow through the **culture** lens and vice versa

Technology trends are enabling women entrepreneurs to grow their market share while giving them greater flexibility to manage life and business.



Digitization

Enables greater access to markets, more flexibility to balance work and life expectations and greater connection with employees



Intersection of technology and culture

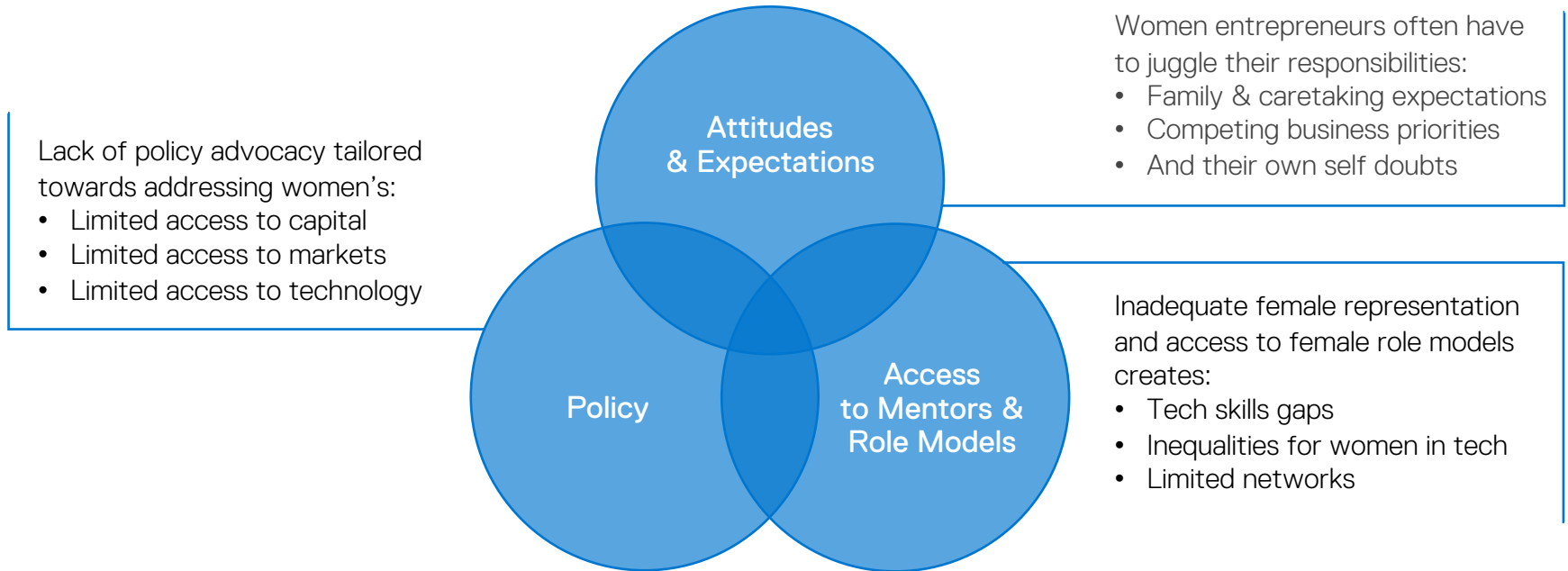
Hypotheses:

- Cultural attitudes and expectations impacts technology use and adoption both positively and negatively for women entrepreneurs.



Culture plays a subtle yet significant role in how women entrepreneurs engage with technology

Behind challenges related to capital, markets, and talent lie cultural drivers shaping the environment



Attitudes and expectations regarding women entrepreneurs and technology may be changing but traditional biases still cast a long shadow.



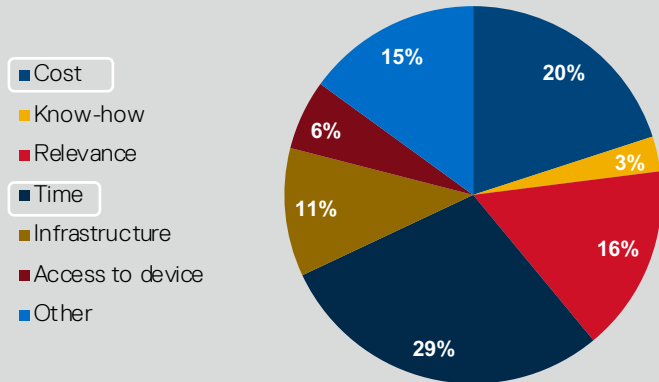
“Women are **disincentivized** to learn the inner working of technology and therefore are **less comfortable** with how to approach it, although with younger people this is changing. The biggest barrier to adopting new technology for me is in the **lack of knowledge** about how the new technology works, and how best it could be put it to use in the business in a way that would make sense. How do you develop a whole system? It would have **saved a lot of time** if I knew what I should be asking for, what are the right questions to get the result I want, and how the tech fits clearly into the processes of the business.”

(Founder and CEO, 50-100 empls, Healthcare, Brazil)

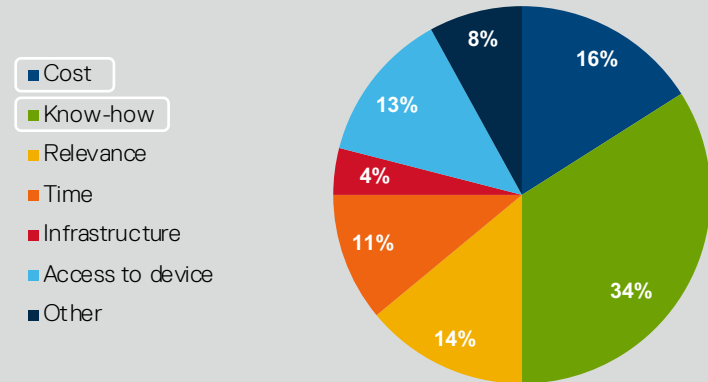
Time and know-how are the most significant barriers for women seeking to access the internet

followed by cost which is largely driven by **attitudes and expectations** about women and technology, and demands on women's time

Barriers to using the Internet more often
(female users)



Barriers to Internet use among
female non users



<https://webfoundation.org/research/womens-rights-online-2015/>

Role models and mentors are key to overcoming Imposter Syndrome and making key technology decisions

Women entrepreneurs often felt it is easier to talk to other women about technology when they are in the exploring/identifying the need phase of technology adoption.



“I'm a non tech person so for me to understand things of course is difficult at times, but thankfully now that I've gathered the right team I am sure they do it. And I'm sure a lot of startup founders, especially women, deal with this is that the imposter in your head continues to tell you that you know you have to act like you know it all. And I try to act like I know it all because I didn't want to give away that identity.”(Founder, Media and Entertainment, India)

“One of my best friends, she's somebody who comes from the same background as me but now runs a venture which is highly tech intensive. She learned coding and she now runs a venture which is basically conversational AI for businesses and enterprises, so when I see her, it really inspires me because she's a founder of such a business and I feel there should be more such women because one that will inspire a lot of other women leaders who are up there in their journey or who are trying to traverse a journey which is towards leadership, to not be scared of tech” (Founder, Media and Entertainment, India)

Networks play a key role in learning about and adopting technologies and can help overcome time and knowledge deficits. Helping create more networks is a key piece of the ecosystem.

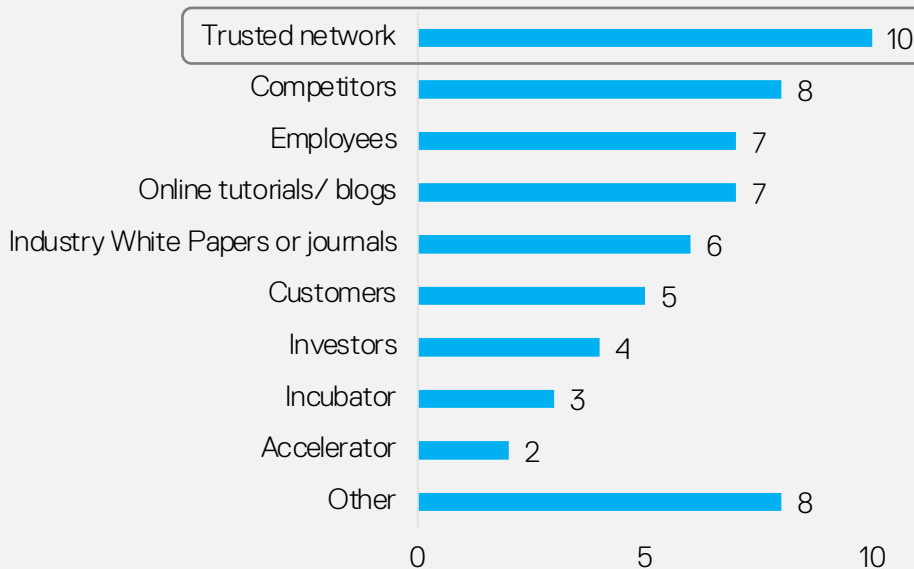
- Several different types of start-up environments or business networks that help entrepreneurs:
 - Incubators specialized in helping entrepreneurs early on
 - Accelerators aimed at helping entrepreneurs scale-up their companies
- Other types of environments include co-working spaces, innovation centers, and science parks
- These different types of start-up environments all have an ambition to stimulate business development and help start-ups grow through training, counseling, workshops, and by giving them access to funding and networks.



“Women have less access to role models and smaller networks, which makes them less likely to innovate.”

- Female Entrepreneurship in the Nordics (Innovation, 2020)

Trusted networks is the most frequent source of technology information



Based on IHS Markit analysis of Executive Discussion Board

Vendors can play an important role in building technology-based **networks** for women entrepreneurs



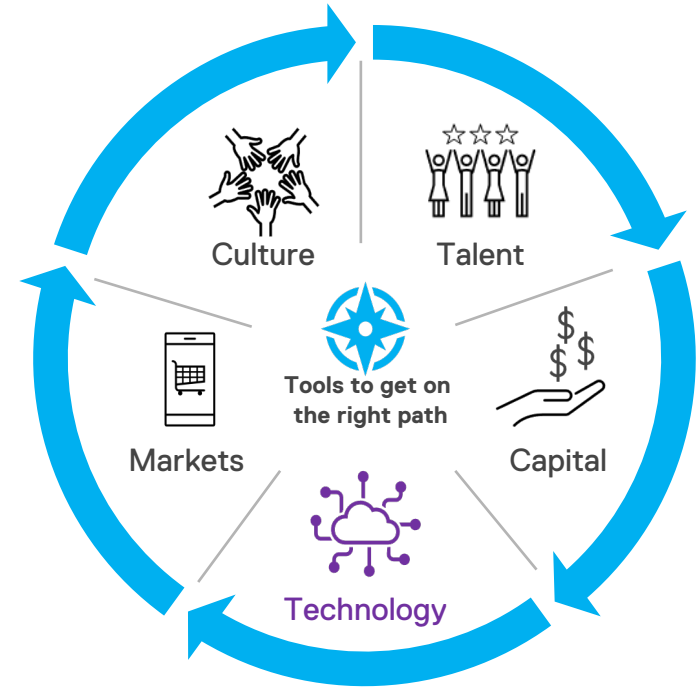
“DWEN has been a great resource, I feel supported and empowered by the network. They were the one of the first to really act in the space supporting women entrepreneurs. I use Dell products because I know they are reliable and I will be supported to make decisions.”
(Founder and CEO, 50-100 empls, Healthcare, Brazil)

“They [vendor] consult with us, they’re great friends, so I’m not hesitant to pick up the phone and ask them for a suggestion if I need it. They have great schemes for small businesses, so there have been times that have gone to them and said, hey, listen, you know I, I really need about 50 machines but I don’t really think I can afford it right now.” (Founder and CEO, 50-100 empls, Professional services, India)



When it comes to technology, culture norms can limit or extend the talent pool and vice versa

- Networks play a vital role in making technology decisions, acquiring talent, and in creating an inclusive and enabling culture for women entrepreneurs to thrive.
- Trusted networks can provide advice, share lived experiences, and act as a source of mentorship when making technology decisions.
- They act as a source of talent required to take on new technology projects for successful implementation.
- They also provide a safe space for women entrepreneurs to support one another by asking questions that may make them feel vulnerable, related to technology or other aspects of the business.



Intersection of technology and talent

Hypotheses:

- Women entrepreneurs prefer to make technology decisions in collaboration with trusted employees or advisors
- Women entrepreneurs tend to view technology skills as vital but often don't have tech backgrounds and don't know what they don't know
- Women entrepreneurs tend to adopt technology that helps them connect with employees and helps make them more productive at their jobs



TRANSITION TO 100% RENEWABLE ENERGY

Target 2040



Source: IEA, 2019

Entrepreneurs are more often focused on accessing talent when it comes to technology than their ability to build their own skills

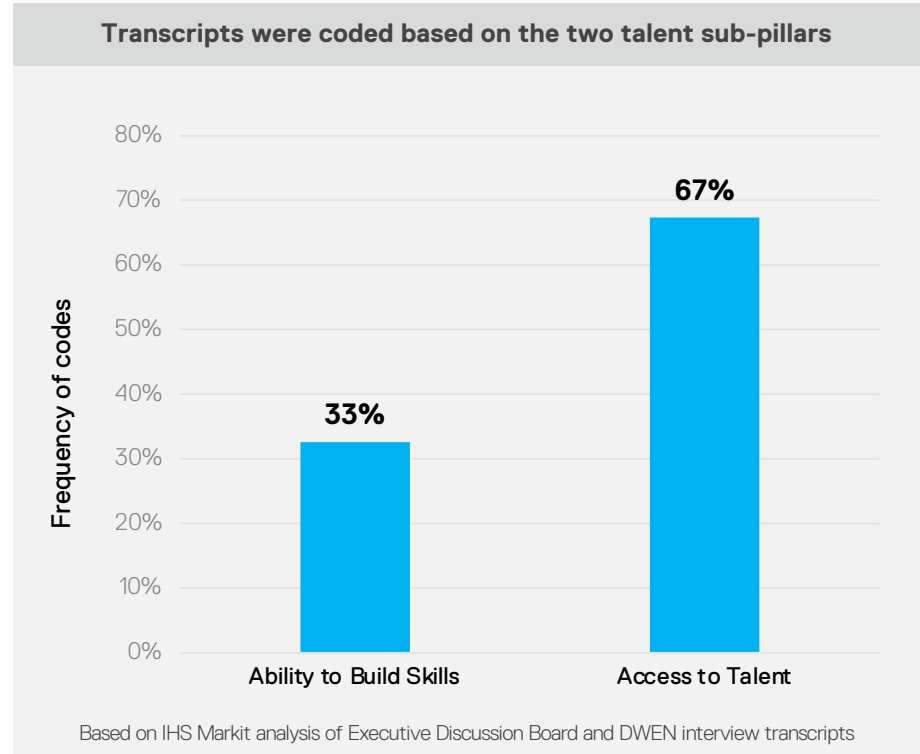
SUB-PILLARS AND SUB-THEMES

Ability to build skills

- Inherent skills and experience
- Importance of gaining knowledge to make decisions
- Accessing educational resources
- Attending conferences and webinars

Access to talent

- Importance of hiring and using the skills of employees
- Importance of a network (mentors, investors, start-up specific programs)
- Utilizing experts like consultants and contractors
- Using a trusted vendor



Overall, women entrepreneurs had more positive feelings about accessing talent and had more negative feelings about building their own skills again showing the importance of talent in the ecosystem.



What tools have helped you in your business?

“I wouldn’t call these tools, however probably the most impactful has been digital agency support which had enabled broader reach and new customers.”

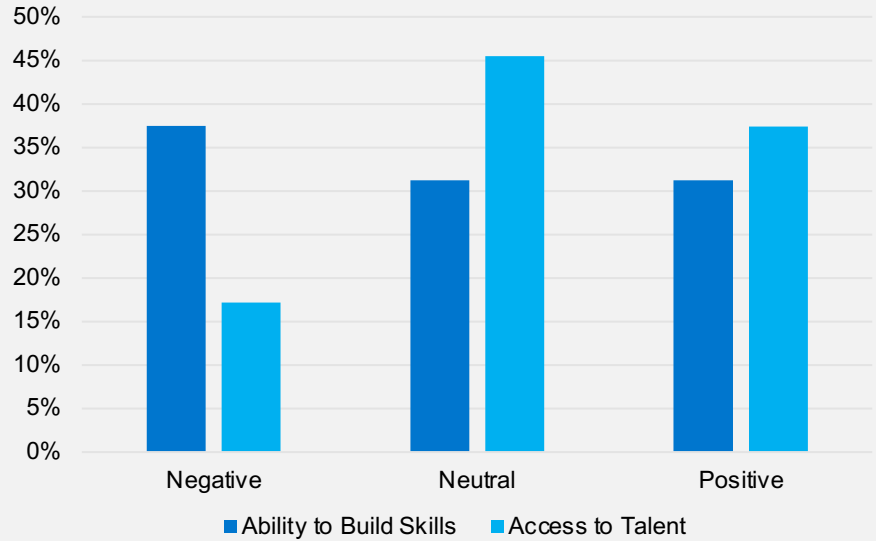
- Founder, Retail, Australia

What about technology causes feelings of excitement and frustration?

“I like learning new technologies – its exciting – but am time poor running two business so it can be frustrating to learn and implement new technologies”

- Founder, Management Consulting, Australia

Sentiment on entrepreneurs’ ability to build skills and access to talent



Based on IHS Markit analysis of Executive Discussion Board and DWEN interview transcripts

Having the knowledge to identify the technology need, knowing the right technology to meet that need and the skill to implement it often poses barriers if the talent part of the ecosystem is not well equipped.

Challenge	Very Low	Low	Medium	High	Very High
Identifying potential technologies	1	0	3	5	1
Evaluating the usefulness/ROI for your business	0	0	3	5	2
Finding capital to invest in the technology	0	1	2	5	2
Finding skilled talent to implement the technology	1	0	2	4	3
Integrating the technology with other systems	0	1	3	4	2
Servicing and upgrading the technology	0	1	3	4	2

- Identifying potential technologies and evaluating the usefulness to your business are key challenges that women entrepreneurs face
- Finding the skilled talent to implement the technology is also an important challenge, underscoring the connection between talent and making technology decisions



“Our team needs to move like ‘water’”
 - Founder, 11-15 empls, Internet/
 Online Media, USA

Training is usually required, especially with rapidly changing technology. It can be difficult to find the time and money to develop their talent pool.

In most cases, there are no formal, on-going training processes — there is either not the time or the processes in place.

- Even where there is some form of training, this tends to be ad hoc and triggered by a vendor offering this (large ERP vendor); or initial end-user training when new solutions are implemented



“Unfortunately no :(I just try to leverage LinkedIn and Google searches and my network to stay up to speed.” (Founder/CEO, 1-10 empls, Information Technologies, USA)

“No, not much yet as we are a very small team but we are aware we will need training processes in the future.” (Founder, 1-10 empls, Consumer Products, Ireland)

“Nothing formal. We're so focused, scrappy and taking care of customers that we have to be strategic on how and when to invest time. Someone on the team does keep a library on Evernote that folks can go to learn what industry, competitors and our muses are saying.” (CEO, 1-10 empls, Information Technologies, USA)

“No we don't but in my quest to identify technology for my firm, it is part of my short-range plan.” (Founder, 1-10 empls, Management Consulting, USA)

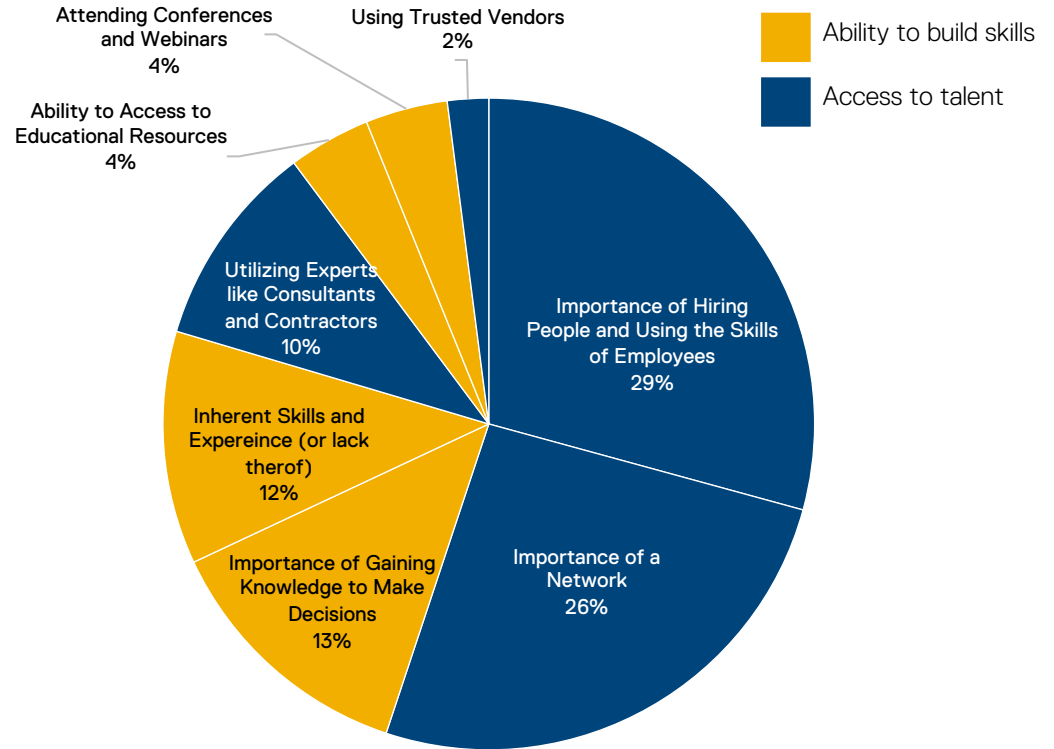
“We do not have a formal training policy or process, however employees are encouraged to attend and participate in training to upskill. If a Vendor is providing training then ‘Yes’, we participate. As an example our ERP provider often hosts training on new features and IT team and relevant other employees will attend.” (COO, 501-1,000 empls, Retail, Australia)

The skills and competencies of those around them are key for helping women entrepreneurs overcome talent barriers when it comes to technology



“We lean on our investors, trusted network, and market competitor comps to determine adopting, and testing new technology”
Founder, 11-15 empls, Internet/
Online Media, USA

- The importance of hiring and using the skills of their employees to make and enact technology decisions made up 29% of the codes across all transcripts
- The importance of a network, experts, and trusted vendors were mentioned 38% of the time across all transcripts
- The importance of networks connects the talent and culture pillar, highlighting how the prevalence of a relevant network connects with entrepreneurs' ability to access talent to make and enact technology decisions



Based on IHS Markit analysis of Executive Discussion Board and DWEN interview transcripts

In order to develop their own knowledge, women entrepreneurs educate themselves and stay current on technology in a variety of ways

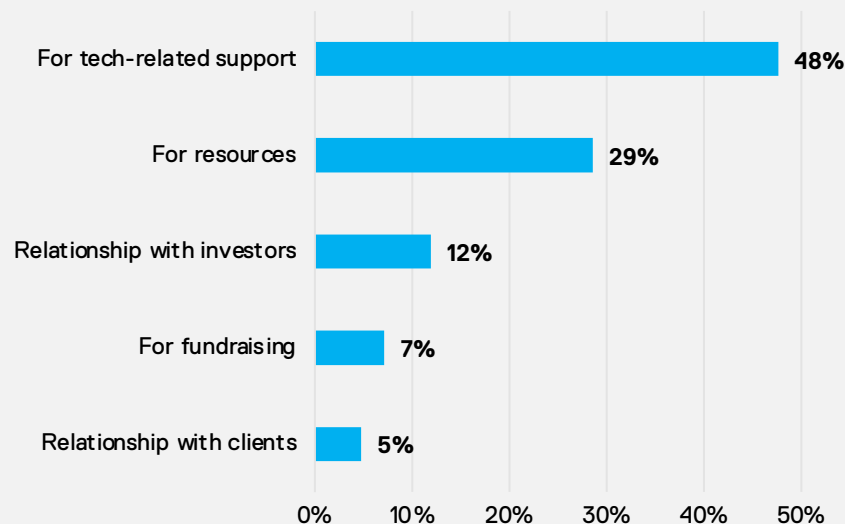
In most cases respondents heard about technologies/vendors through multiple sources, the most common being word of mouth – although in various forms:

- Peers, existing supplier introductions, investors, contractors, etc.
- Some already knew the marketplace and key players or did their own research.
- Others tracked the IT press or attended industry conferences
- One respondent mentioned direct contact initiated by a potential supplier

A study by UNCTAD found that Women were more likely than men to seek business training and educational opportunities.

- A Survey on Women's Entrepreneurship and Innovation (UNCTAD, 2013)

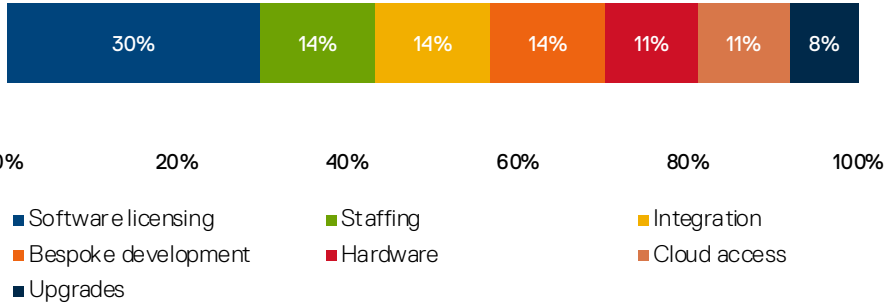
Entrepreneurs rely on their extensive networks for a wide range of functions that impact their business



Based on IHS Markit analysis of Executive Discussion Board and DWEN interview transcripts

When it comes to adopting and implementing technology, talent plays a role in capital and vice versa

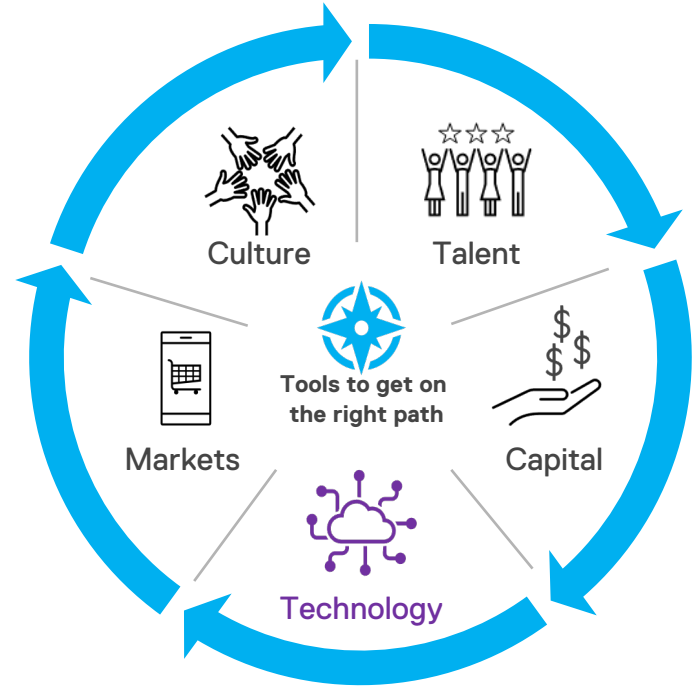
The second highest cost people cite is staffing when it comes to technology adoption



Adopting new technology requires the ability to evaluate its impact on the bottom line, which, in turn, requires understanding of the functionality as well as how well it will integrate into existing processes (entrepreneurs' knowledge).

Then, finding the capital and making sure you have the skilled talent to implement are other high bars to overcome.

In the next section, we will dive deeper into the costs and what tools entrepreneurs can use to overcome them.



Intersection of technology and capital

Hypotheses:

- How technology is funded influences the type of technology and the technology strategy.



Women entrepreneurs use two main strategies for funding technology costs

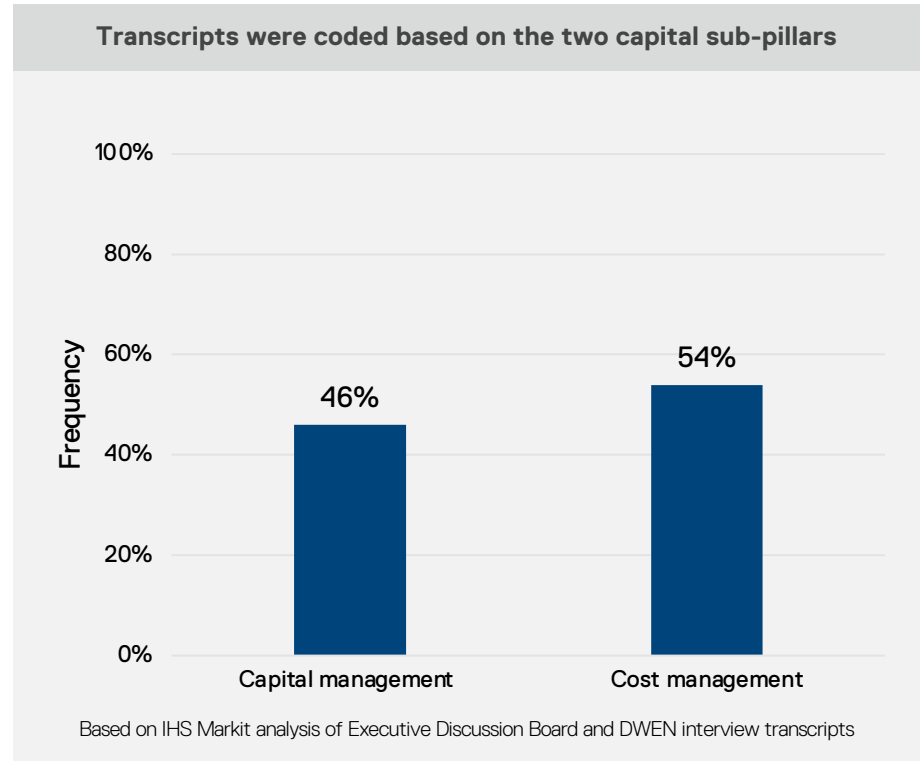
Note not all of these are leading practices – see leading practice section for funding technology.

Capital management

- Funding, with networks (e.g., investors, incubators, accelerators, advisory boards) providing women with access to funding opportunities and/or resources on how to navigate the fundraising process
- Financing with a financial institution

Cost management

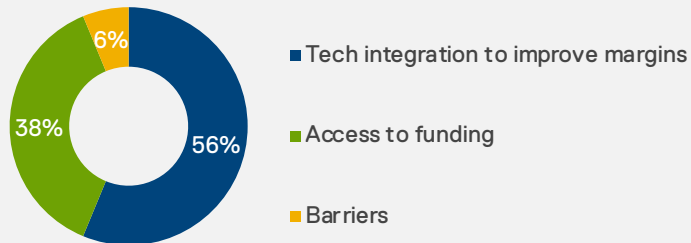
- Adopt free/low-cost technologies
- Shift the cost structures by adopting tools that limit their long-term variable costs
- Working with IT partners to arrange staggered payments



Factors influencing the strategy on funding technology

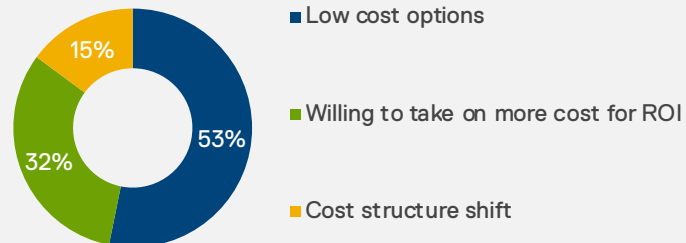
- More than half of all women entrepreneurs' interviews relied on the integration of technologies into their processes to improve decision-making, build revenue streams, and gain access to different verticals.
 - Access to funding made up nearly 40% of codes across all transcripts with networks (e.g., investors, incubators, accelerators, advisory boards) providing women with funding opportunities and/or resources on how to navigate the fundraising process.
 - In 6% of cases, discriminatory barriers to funding access were mentioned. In two of these cases, women entrepreneurs were inspired to democratize access, particularly for black, indigenous and people of color
- Constrained by cashflow issues, 53% of codes across all transcripts showed that women entrepreneurs adopt free/low-cost technologies
 - In 32% of cases, they are willing to take on additional cost if the technology they are evaluating demonstrates a significantly better ROI
 - Women entrepreneurs also shift their cost structures by adopting tools that limit their long-term variable costs or working with their IT partners to arrange staggered payments in 15% of cases

Factors affecting women entrepreneurs' capital management



Based on IHS Markit analysis of Executive Discussion Board and DWEN interview transcripts

Women entrepreneurs' approach towards cost management

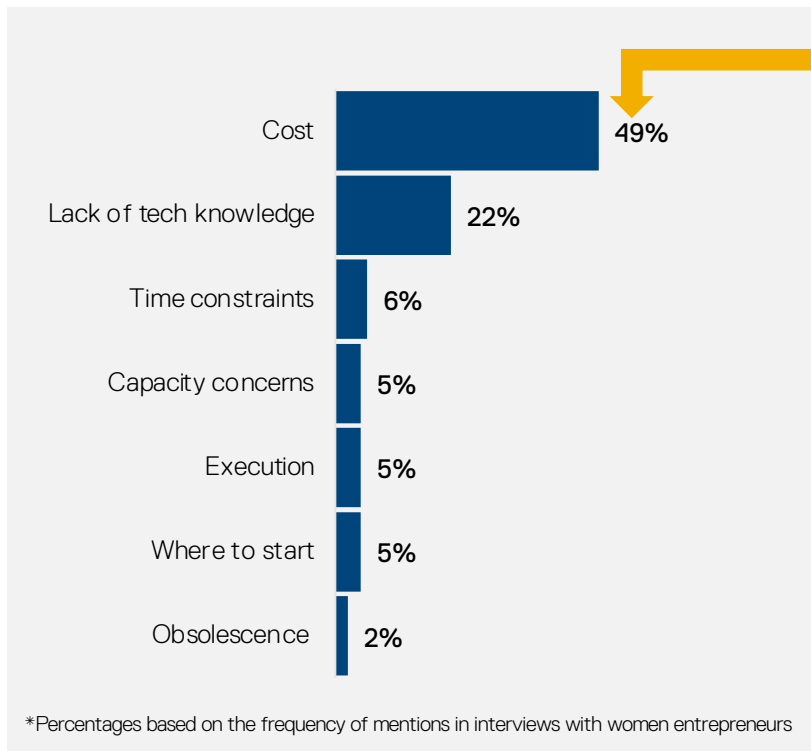


Internal Use - Confidential

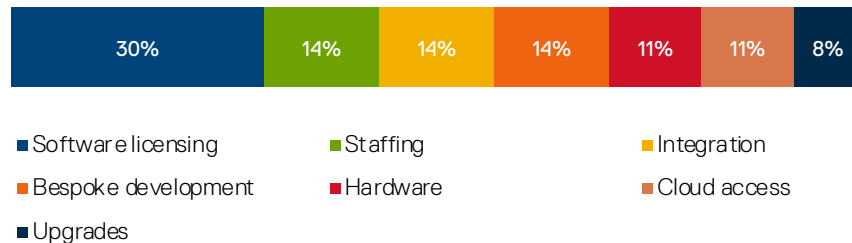
Cost is a driving influence in what strategy and technology to choose

Respondents cited cost and lack of tech knowledge as the two biggest barriers in utilizing technology solutions.

Barriers of technology adoption



Breakdown of major costs



*Percentages based on the frequency of mentions in interviews with women entrepreneurs

- For the majority, there are on-going subscription/license cost challenges
- However, having the right talent, along with the integration of technology to make the most of the solutions implemented are seen as other high-cost burdens
- Many also find the cost to develop tailor-made technology prohibitive

The funding strategy impacts the technology decision

Having investors, particularly VC investors, gives a longer-term view to the technology decision and can bring in expertise and awareness of available technology

- The sources of funding has some influence on how they buy technology and interact with IT technology providers
- In one example, the tools adopted depended on the ability to facilitate communication with remote clients/investors and manage touchpoints related to deal flows
- In another example, technologies were evaluated based on recommendations from their investors
- Where they are not funded by investors, women entrepreneurs face budget constraints and tend to implement free/low-cost technologies despite recognizing its importance to scale and already having a team in place to execute. They invest back into the business when they have funds at hand
- However, there are exceptions; women entrepreneurs also value technologies that offer better ROI or better savings as they scale, given the additional cost
- **Low/no code platforms enable a shift in the cost structure, meaning accelerator funding isn't needed until after customer base is built and after proving the product**



“We were able to build and land customers which also help us demonstrate our value. By proving your idea using something that approximates what you want, you may be able to land the VC money that helps you build it out.”
(Founder/CEO, 1-10 empls, Computer Software/Games, USA)

“(With) venture capital they get some external funding, different from a small business owner. [...] That changes how they buy technology, how they interact with IT technology provider, and so on” (Dell SME's)

“The company was mainly funded by the founders until 2019. At that time, I decided to look for, I would say, more external money from venture funds. So, two venture funds. [...] There was a need to develop this new market, so to invest more in either our ND or sales to go on this industrial market.”
(Founder, 51-100 empls, Biotech, France)

Conclusion

- Technology in a digital age is a powerful enabler for business growth. With so many choices and changes, technology decisions can be overwhelming.
- Two technology trends, increased digitalization and rapid simplification, are providing women entrepreneurs greater flexibility, access, and connections that can accelerate their growth.
- This research dives into the interconnections of the ecosystem with technology and technology decisions.
- Women entrepreneurs that navigate through is environment know how to leverage the whole ecosystem to integrate technology in a sustainable, growth-oriented way.



Increased digitalization

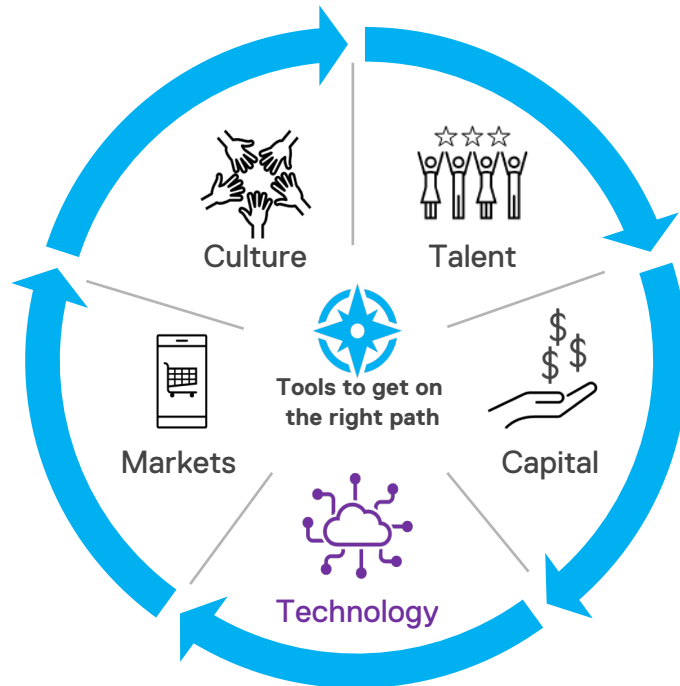
Enables greater access to markets, more flexibility to balance work and life obligations and greater connection with employees.



Rapid simplification

Enables greater access to technology tools by reducing skill/talent barriers and reducing cost barriers.

The ecosystem for women entrepreneurs



Leading practices for women entrepreneurs

(and all entrepreneurs)



Leading practices

How to adopt and integrate technology with an eye to the future while keeping your business going in the present?

- Develop a trusted tech network. Some of the best resources for the network include:
- Support from their trusted networks, i.e., domain SMEs, tech vendors/independent consultants, advisors and reference customers/users
- Employees who understand their own user needs/requirements and are willing to go and look for new, improved solutions
- Friends in the technology industry





Leading practices

How to manage “I don’t know what I don’t know” and uncertainty in technology decisions?

- It’s okay to grapple with the double-edged sword of the excitement and doubt around tech
- Be an avid and humble seeker of tech information
 - Systematically spend time researching whether it is once a week, once a month – have a plan to scan the landscape regularly. This can be self-guided research and evaluations; and other sources such as vendor demos, investors, etc.
 - Ask questions especially what tech others are using whenever you network
 - Don’t be afraid to call your vendors and ask “stupid” questions.

Leading practices

Weighing the cost and benefits of different technology decisions

- Implement the best technology (often bespoke) for things that are core to the business.
- Go cheap (or free) on things that are not core
- Use low-code or no-code platforms that are highly functional (simpler is often better)
- Focus on foundational technologies/systems architecture and integration.
- Think about future needs and what will grow with you or how you will change as you grow (an IT consultant can help you think forward).
- Match technologies to existing processes, and not the other way around
- Ask yourself: “Will this technology reduce friction?”





Leading practices

How to pay for technology so it doesn't break the bank

- Seek vendors that will be partners
- Work with the vendors on financing arrangements.
- Try to fund from current sales and its corollary; try to make the costs as variable as possible (subscription and licensing arrangements) vs. having a fixed cost (loan or big cash layout).
- Consider using an advisory board to help secure funding

Leading practices

Stay laser focused on efficiency – increasing revenue or minimizing cost

- Consider how the technology can increase your customer base (reach more customers), does implementing a new technology free up time for your employees and allow them to provide more value to your customers?
- Adding automation to all processes for better control, insight, efficiency when possible.
- “Free” is never free – make sure you understand what strings are attached with freebies



Project team

Jim Diffley

Executive director, consulting
jim.Diffley@spglobal.com
Executive in Charge and
Technical Lead

Karen Campbell, Phd

Associate director, consulting
karen.Campbell@spglobal.com
Project manager

Ben Siaw

Associate director, sales
ben.siaw@spglobal.com
Account Manager

Cassandra Pagan

Consulting principal
cassandra.pagan@spglobal.com
Country Team Lead Researcher

Noah Eiseman

Senior consulting analyst
Noah.Eiseman@spglobal.com
Research and Data team

Ian Chin

Senior consultant
ian.chinn@spglobal.com
Research and Data team

Dharani Kanagasingam

Consulting analyst
dharani.kanagasingam@spglobal.com
Research and Data team

Sean Windle

Senior consultant
Sean.windle@spglobal.com
Research and Data team

Appendix

References

College, D. I. (2020). COVID-19 Pulse Survey Results. Wellesley, Massachusetts: Babson College.

International Finance Corporation. (2021). Women and E-Commerce in Southeast Asia. Washington, DC: International Finance Corporation

UNCTAD. (2013). A Survey on Women's Entrepreneurship and Innovation. Retrieved from UNCTAD: <https://unctad.org/system/files/official-document/diaeed2013d1.pdf>

World Wide Web Foundation. (2015). Women's Rights Online: Translating Access into Empowerment. Washington, D.C.: World Wide Web Foundation.

YouGov. (2021). International Telco Report 2021. Retrieved from YouGov: <https://commercial.yougov.com/rs/464-VHH-988/images/International-Telco-Report-2021-Consumer-Adoption-of-5G.pdf>

Disclaimer: HS Markit is part of S&P Global Inc. ("SPGI"). The IHS Markit reports, data, and information referenced herein (the "IHS Markit Materials") are the copyrighted property of IHS Markit and represent data, research, opinions or viewpoints published by IHS Markit, and are not representations of fact. IHS Markit conducted this analysis and prepared the IHS Markit Materials utilizing reasonable skill and care in applying methods of analysis consistent with normal industry practice. Forecasts are inherently uncertain because of events or combinations of events that cannot reasonably be foreseen including the actions of government, individuals, third parties and competitors. The IHS Markit Materials speak as of the original publication date hereof (and not as of the date of this document). The information and opinions expressed in the IHS Markit Materials are subject to change without notice and IHS Markit has no duty or responsibility to update the IHS Markit Materials. Moreover, while the IHS Markit Materials reproduced herein are from sources considered reliable, the accuracy and completeness thereof are not warranted, nor are the opinions and analyses which are based upon it. To the extent permitted by law, IHS Markit shall not be liable for any errors or omissions or any loss, damage or expense incurred by reliance on the IHS Markit Materials or any statement contained therein, or resulting from any omission. NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. The IHS Markit Materials should not be construed as financial, investment, legal, tax or other advice of any kind including, without limitation, regarding IHS Markit's customer's corporate or legal structure, assets, liabilities or activities, nor should they be regarded as an offer, recommendation, or as a solicitation of an offer to buy, sell or otherwise deal in any investment or securities or make any other investments decisions. The IHS Markit Materials should not be relied on in making any investment or other decision. Nothing in the IHS Markit Materials constitutes a solicitation by IHS Markit or its Affiliates of the purchase or sale of any loans, securities or investments. The IHS Markit Materials are supplied without obligation and on the understanding that any person who acts upon the IHS Markit Materials or otherwise changes his/her position in reliance thereon does so entirely at his/her own risk. IHS Markit Materials were prepared for the sole benefit of IHS Markit's customer for IHS Markit's customer's internal business use. No portion of the IHS Markit Materials may be reproduced, reused, or otherwise distributed in any form without the prior written consent of IHS Markit. IHS Markit Materials reproduced or redistributed with IHS Markit's permission must display IHS Markit's legal notices and attributions of authorship. The IHS Markit name(s) and logo(s) are property of IHS Markit. Other trademarks appearing in the IHS Markit Materials are the property of IHS Markit, SPGI, or their respective owners. SPGI has the following divisions: S&P Dow Jones Indices, S&P Global Commodity Insights, S&P Global Engineering Solutions, S&P Global Market Intelligence, S&P Global Mobility, and S&P Global Ratings, each of which provides different products and services. SPGI keeps the activities of its business divisions separate from each other in order to preserve the independence and objectivity of their activities in accordance with the S&P Global Divisional Independence and Objectivity Policy. Your receipt of the IHS Markit Materials may also affect your ability to receive services and products from other SPGI divisions in the future.

SPGI divisions publish commodity information, including price assessments, ratings, and indices. SPGI divisions (including IHS Markit) maintain clear structural and operational separation between its respective activities to safeguard the quality, independence and integrity of its price assessments and indices and ensure they are free from any actual or perceived conflicts of interest.

DELLTechnologies

S&P Global Market Intelligence