


The Path to **Success:**

How Women-owned Businesses
Transform in the Era of Digitalization

Singapore Case Study





Disclaimer

Assumptions made in this document are not reflective of any entity other than the authors. Since we are critically-thinking human beings, these views are subject to change, revision, and rethinking at any time.

About Konrad-Adenauer-Stiftung's Regional Economic Programme Asia (SOPAS)

Konrad-Adenauer-Stiftung (KAS) is a German political foundation that holds freedom, justice, and solidarity as the basic principles underlying their work. KAS Regional Economic Programme Asia (SOPAS) is a regional forum that contributes to the debate and reform of economic and governance models in Asia. SOPAS focuses on the following three strategic areas: (1) advancing women in leadership; (2) free trade and multilateralism; and (3) the future of work. Furthermore, it brings together a network of policymakers, economists, political analysts, and thought leaders across Asia to discuss emerging issues, propose policy alternatives and share best practices. These discussions in Asia are also brought to the fore in Europe through expert conferences, seminars, and workshops. Publications on these key topics are regularly released to provide insights and recommendations to national and regional policymakers.

About Woomentum

Woomentum is an independent organization that supports women leaders and women in business. Our mission is to help better the lives of women and their communities by enabling women leaders to grow sustainable and profitable businesses. Woomentum's head office in Singapore runs multiple projects in research, advocacy, and capacity building throughout South-East Asia. Our project activities are in support of women-led SMEs and women-led technology startups. As ecosystem builders, we actively engage with entrepreneurs, investors, donors, and policymakers.

© COPYRIGHT 2021

Konrad-Adenauer-Stiftung, Japan Office

OAG-Haus 4F 7-5-56 Akasaka, Minato-ku Tokyo, 107-0052 Japan

Website : <http://www.kas.de/japan/en>

Facebook : <https://www.facebook.com/KAS.Japan>

Woomentum, Singapore Office

21 Woodlands Close #08-44

Primz Bizhub

Singapore (737854)

Website: <http://woomentum.com>

Facebook: www.facebook.com/Woomentum

Please cite this publication as:
Konrad-Adenauer-Stiftung. (2021). *The Path to Success: How Women-owned Businesses Transform in the Era of Digitalization, Singapore*.
KAS Publishing.

ISBN 978-4-910690-09-4

Foreword by KAS Japan



Rabea Brauer



Cristita Marie Perez

It is an established fact that women in Asia are less present in managerial positions and are hardly found in technological sectors. Accordingly, for the sake of stable societies and sustainable economic growth, we must understand what role women play in the current technological upheavals. Does the COVID-driven digitalization lead to business disadvantages? Are women left even further behind in the STEM sectors? Or does technological progress make way for new independence, more flexible work structures, new financing methods, and new startups?

In 2020, Konrad-Adenauer-Stiftung's Regional Economic Programme Asia (SOPAS) partnered with Woomentum and, after months of research amidst the COVID-19 pandemic, launched the publication, *The path to success: How women-owned businesses transform in the era of digitalization*. The first set of country studies focused on Cambodia, Indonesia, Malaysia, and Myanmar. These comparative case studies revealed how women-owned small and medium-sized enterprises (or WSMEs) use and take advantage of new technologies to grow their businesses. The research results also outlined WSME's challenges with regard to access to financing, mentoring, improving business processes, and COVID-19 mitigation and management.

The present volume is an expansion of the research we started almost two years ago. This time, we focus on three additional countries: Vietnam, South Korea, and Singapore. We continued to find similar themes with more countries included. The general findings can be summarized as follows:

- WSMEs continue to rely on internal funding for various reasons; the most dominant of these reasons are the reluctance to relinquish control and/or meet unsustainable growth targets.
- WSMEs crave and seek mentoring and networking. However, most want long-term mentor-mentee relationships based on shared values and beliefs. While continuous skills learning is prized, at the same time, time and the demands of both businesses and families pose certain limitations.
- Although the pandemic accelerated WSME's digitalization, these processes are adapted *ad hoc*, without a clear digitalization roadmap as a foundational guide. WSMEs have tremendously benefited from digitalization, but most want a systematic set of processes to sustain these gains.

The individual country contexts provide a deeper and more nuanced analysis of these common trends. In this publication, we outline concrete recommendations for action for policymakers in the respective countries on the analyzed difficulties of women, e.g., using financial instruments or using technologies profitably. We separately present recommendations for governments, financial institutions, SME networks, and other relevant institutions.

The message is clear: WSMEs can and want to thrive in the digital age. However, in order to turn this dormant potential into lived reality, support from all sides is necessary.

Rabea Brauer

Director, Regional Economic Programme Asia (SOPAS)
Country Representative, KAS Japan

Cristita Marie Perez

Senior Programme Manager, Regional Economic Programme Asia (SOPAS)
KAS Japan

Foreword by Woomentum



Mouna Aouri



Alice Thet

Despite the countless challenges that we have faced during the COVID-19 crisis, one silver lining of the current pandemic is that it has considerably accelerated the digital transformation of small- and medium-sized enterprises (SMEs) in Asia. While today's digital revolution is a pivotal movement among all businesses, it is particularly important for women-owned SMEs (WSMEs). Here at Woomentum, we believe that digitalization is a key factor that can help women entrepreneurs successfully overcome gender-specific challenges in business.

Aided by digital technologies, women entrepreneurs can further empower their families, communities, and society as a whole.

Since the beginning of our research in 2020, we have conducted in-depth interviews with a stunning total of 146 WSMEs and 60+ experts across seven Asian countries (Cambodia, Indonesia, Malaysia, Myanmar, Singapore, South Korea, and Vietnam). The results of this large-scale endeavor revealed that, while certain challenges to digitalization are universal, some opportunities are country-specific. Yet the biggest reward of our project has been the opportunity to discover and publish—in this report and via other Woomentum channels—the fascinating success stories of dozens of inspiring, resourceful, and courageous female entrepreneurs.

In this second volume, we mapped the digital maturity of participating WSMEs based on a model adapted from the Cisco Digital Maturity Index and sought to better understand the unique challenges at each level of digital maturity. While this report identifies numerous challenges, each of these challenges presents a meaningful opportunity for governments, financial institutions, WSMEs networks, and other relevant institutions to collaboratively ensure that women entrepreneurs are not left behind in today's digital revolution. Along with the valuable support of the Lee Kuan Yew School of Public Policy, we formulated key recommendations specific to government institutions and classified them by the policy cycle stage. It is our hope that this publication will spark dialogue within the community to support the digitalization of WSMEs in Asia, thereby unlocking the true economic potential of women entrepreneurs.

Last but not least, we are extremely grateful to Konrad-Adenauer-Stiftung, all interviewed WSMEs and participating experts, and, most importantly, to all our team members, researchers, writers, editors, and designers. Without your contribution, this much needed research would not have been published. Despite being spread across seven different time zones, our team has been able to seamlessly collaborate, brainstorm, and run events virtually – all thanks to the power of digitalization, so vehemently advocated for in the present volume.

Mouna Aouri

Founder & CEO, Woomentum

Alice Thet

Head of Research, Woomentum

Acknowledgments

The authors would like to thank our esteemed advisory panel: Irene Boey, Angela Choo, Neha Gupta, Mrinalini Venkatachalam, Regula Schegg, Kim Underhill, Zia Zaman, Minnie Venkatachalam. The authors would also like to thank Robin Pho, LJ Jang, Gwendolyn Regina, and Sharon Lim for their generous support.

Exchange Rate Used In the Report

1 S\$ = 0.74 US\$

Table of Contents

Foreword by KAS Japan	iv
Foreword by Woomentum	v
Acknowledgments	vi
Exchange Rate Used in the Report	vi
Table of Contents	vii
List of Figures	ix
Acronyms and Abbreviations	x
Executive Summary	1
Purpose of the Study	1
Pillar 1: Access to Financing	1
Pillar 2: Access to Mentoring, Networking, and Skills	1
Pillar 3: Business Process Management	1
Pillar 4: Crisis Management (COVID-19)	2
Key Policy and Practical Recommendations	2
1 Country Background	3
Digitalization and Economic Growth	3
Digitalization and Women-owned Small and Medium Enterprises (WSMEs)	3
Gender Lens in Government and Policies	4
Gender Lens in Financial Institutions and Investment Funds	4
2 Methodology	5
Research Objectives	5
Research Assumptions	5
Research Methods	5
Participant Selection Criteria	6
Data Analysis	7
Research Limitations	8
3 WSME Interview Findings	9
Pillar 1: Access to Financing	9
Pillar 2: Access to Mentoring, Networking, and Skills	12

Pillar 3: Business Processes and Management	14
WSME Spotlight I: Louisa Lee	18
Pillar 4: Crisis Management (COVID-19)	19
WSME Spotlight II: Crystalla Huang	21
4 The Future of Digital Transformation for WSMEs	25
Expert Interview Findings	25
Singapore WSME Ecosystem Map	27
Advisory Panel	28
Policy and Practical Recommendations	28
5 Conclusion	32
Endnotes	34
Appendices	36
Appendix A: Definition of Woman-Owned SME in Singapore	36
Appendix B: List of Singapore's Government Digitalization Grants and Tools for SMEs	37
Appendix C: Rapid Growth of Alternative Financing in Singapore	39
Appendix D: Digital Intensity Model Used in Singapore Case Study	40
Appendix E: List of Advisory Panelists	41

List of Figures

Figure 1.1 Gender representation in business ownership	3
Figure 2.1 Research methodology	5
Figure 2.2 Breakdown of WSME business sectors and maturity	6
Figure 2.3 Expertise area of expert interviews and advisory panel participants	7
Figure 2.4 Research pillars	7
Figure 2.5 Data analysis procedure	7
Figure 3.1 Digitalization awareness among WSME participants	9
Figure 3.2 Breakdown of sources of funding adopted by WSME participants	9
Figure 3.3 Government support used by WSME participants	10
Figure 3.4 IMDA's grant acquisition process	11
Figure 3.5 Grant-related issues faced by WSME participants	11
Figure 3.6 Sources of business advice for WSME participants	12
Figure 3.7 Digital learning resources used by WSME participants	13
Figure 3.8 Top five challenges in WSME participants' access to mentoring, networking, and skills	14
Figure 3.9 Top four business process-related challenges experienced by WSMEs	15
Figure 3.10 The state of participating WSMEs during the COVID-19 pandemic	19
Figure 3.11 Notable digital transformation efforts triggered by the COVID-19 crisis among WSME participants	20
Figure 3.12 Digital intensity model	22
Figure 3.13 Top three challenges in Pillar 3 faced by WSMEs in the low, medium, and high digital intensity categories	22
Figure 4.1 Singapore ecosystem map	27
Figure 4.2 Advisory panel methodology	28
Figure 4.3 Summary of policy and practical recommendations	28

Acronyms and Abbreviations

ACRA	Accounting and Corporate Regulatory Authority
ACT	Agri-food Cluster Transformation
AI	Artificial Intelligence
AP	Advisory Panel
ASEAN	Association of Southeast Asian Nations
ASME	Association of Small & Medium Enterprises
AVPN	Asian Venture Philanthropy Network
B2B	Business to Business
B2C	Business to Customer
BANSEA	Business Angel Network of Southeast Asia
BGP	Business Grant Portal
BIF	Business Improvement Fund
BPW International	Business and Professional Women International
CAD	Computer-aided Design
CAM	Computer-aided Manufacturing
CDG	Capability Development Grant
CPU	Central Processing Unit
CRIB Society	Creating Responsible and Innovative Businesses Society
CTOaaS	Chief Technology Officer as a Service
DBS	Development Bank of Singapore
EDG	Enterprise Development Grant
EFS	Enterprise Financing Scheme
EnterpriseSG	Enterprise Singapore
ERP	Enterprise Resource Planning
F&B	Food and Beverage
FEC	Future Economy Council
FinTech	Financial Technology
GDP	Gross Domestic Product
GEI	Gender Equity Index
GLI	Gender Lens Investment
HDB	Housing & Development Board
IDP	Industry Digital Plans
IIX	Impact Investment Exchange
IMDA	Infocomm Media Development Authority

IT	Information Technology
JSS	Jobs Support Scheme
MAS	Monetary Authority of Singapore
ME	Medium Enterprise
MIWE	Mastercard Index of Women Entrepreneurs
MNC	Multinational Corporation
MRA	Market Readiness Assistance
MTI	Ministry of Trade and Industry
OCBC	Oversea-Chinese Banking Corporation
OWD	Office of Women's Development
P2P	Peer-to-Peer
PE	Private Equity
POS	Payments & Digital Transactions (Point of Sales)
PSG	Productivity Solutions Grant
QR	Quick Response
SBPWA	Singapore Business and Professional Women's Association
SE	Small Enterprise
SFEC	SkillsFuture Enterprise Credit
SGD	Singapore Dollar (Currency)
SGUP	SGUnited Mid-Career Pathways
SME	Small and Medium Enterprise
SNDGO	Smart Nation and Digital Government Office
SSG	SkillsFuture Singapore
TA	Technical Assistance
TAP	Technology/Adoption Programme
UBS	Union Bank of Switzerland
UCTSETF	Undertakings for the Collective Investment of Transferable Securities
	Exchange Traded Funds
UNCDF	United Nations Capital Development Fund
UOB	United Overseas Bank
VC	Venture Capital
WLB	Women's Livelihood Bond
WME	Women-owned Medium Enterprise
WSE	Women-owned Small Enterprise
WSME	Women-owned Small and Medium Enterprise

Executive Summary

Purpose of the Study

This case study investigates whether digitalization offers opportunities to women-owned small and medium-sized enterprises (WSMEs) to overcome gender-related challenges in Singapore and provides policy and practical recommendations to stakeholders, such as policymakers, private sector, and business associations, on mitigating obstacles to digitalization faced by WSMEs. This study was carried out between April and July 2021. It was structured around four pillars: 1) access to financing; 2) access to mentoring, networking, and skills; 3) business processes and management; 4) crisis management (COVID-19).

Pillar 1: Access to Financing

Personal funds and operating profits remained the preferred way to finance. Out of 20 interviewed WSMEs, 18 used personal funds to start their businesses and strove to sustain or grow organically with operating profits. Government grants were the second most used form of financing, with 15 out of 20 WSMEs reporting that they have received them at least once. Traditional bank loans were the third most utilized financing source by WSMEs. Despite Singapore's thriving FinTech sector offering a variety of alternative financing options, the majority of the WSME participants indicated their strong preference toward more traditional financing, such as personal savings, bank loans or credit lines. Fear of losing control of the business and lack of in-depth understanding of financing solutions deter some WSMEs from seeking equity funding from investors. In addition, none of the research participants used gender-lens investing instruments. The expert interview findings concurred that WSMEs were not fully leveraging available financial resources to their advantage.

Pillar 2: Access to Mentoring, Networking, and Skills

Industry peers, family and friends, informal advisors were a major source of advice and knowledge. Out of 20 WSMEs, 13 sought business advice from peers in their industry, nine relied on family and friends, whereas only three have had a formal mentor or advisory board. Amid the COVID-19 pandemic, when the in-person learning environment was not possible, online learning served as an accessible and affordable resource for women entrepreneurs. All interviewed participants were eager to learn and the majority (17/20) gained access to new knowledge using various digital resources. Although only two out of 20 WSMEs participated in a mentorship program, almost half of all interviewed WSMEs wished to have mentors.

Pillar 3: Business Processes and Management

With varying degrees of digital intensity, most WSME participants adopted some form of digitalization within their business processes, while some only implemented technology in a few areas of their business. Digital financial and accounting tools were the most prevalent ones adopted by all research participants. Using the digital intensity model, the research team found that only three out of 20 were in the high-intensity category, almost half of the participants belonged to the medium-intensity category, while the remaining eight were in the low-intensity category. The data indicated that the WSMEs would tend to prioritize digital solutions for customer-centric processes over others. The interviewed experts pointed out that the SMEs need significant support in the form of system integrators in order for digital tools to truly support their business processes. While the government grants played a pivotal role in helping the WSMEs to digitalize their business processes, the advisory panel explained that the Singaporean government's vast selection of funding schemes can be overwhelming for small businesses with limited human resources. WSMEs might struggle on several fronts, including identifying grants relevant to their specific needs, conforming to grant criteria limitations, and if successful, fulfilling grant stipulations to access the funding.

Pillar 4: Crisis Management (COVID-19)

COVID-19 impacted digital transformation in two different ways. For some businesses, it accelerated the digital adoption, driven by the need to survive, but for others, it delayed the implementation of digitalization strategies. The Singaporean government's support to help SMEs to cope with the impact of the COVID-19 pandemic was timely and effective. The majority of the WSMEs in this study were able to take advantage of COVID-19 support measures from the government, with 13/15 WSEs and 4/5 WMEs receiving them. These measures included cash payouts, rental waivers, loans, wages, training support for local employees, and grants.

Key Policy and Practical Recommendations

Our findings from the WSME interviews were then reviewed by different stakeholders to co-create policy and practical recommendations to improve access to financing, increase the use of government grants, better structure grant schemes, improve access to mentorship and network, support successful execution of digitalization, tackle unconscious gender bias, and help SMEs to cope with the COVID-19 pandemic. These recommendations include the following:

- Leveraging gender-disaggregated data and gender-lens education programs to improve diversity, equity, and inclusion in financing;
- Promoting newly available fintech solutions, including the availability of gender-lens funding opportunities, which will help address the lack of awareness among WSMEs;
- Optimizing government support through the already established SME centers. Increase branding of SME centers as a one-stop resource for successful WSMEs;
- Providing financial planning, fundraising and business scalability workshops with practical tools for SMEs so that they are equipped with the necessary knowledge and skills to fully leverage available financing resources in Singapore.

1 Country Background

Digitalization and Economic Growth

As a regional tech leader in Asia, Singapore is a high-income economy with a GDP per capita of USD 59,797 (as of 2020) and a population of 5.68 million.¹ In the latest Asian Digital Transformation Index (2018),² Singapore is ranked the first, ahead of South Korea, Japan, and Hong Kong.¹ Singapore's household access to the Internet has steadily increased from 2013 to 2019, from 84% of the population to 98%,³ while the mobile penetration rate in Singapore was at 148.2% in 2020,⁴ meaning that people have more than one smartphone device.

The Singaporean government is dedicated to enabling and accelerating digitalization of its economy through a supportive regulatory and policy environment, as well as through grants. For example, the Monetary Authority of Singapore (MAS) Financial Technology Regulatory Sandbox and its Sandbox Express have relaxed specific legally binding regulatory requirements so that companies have the opportunity to test new financial products and services in the market, fostering more digital innovation through trials. Furthermore, Singapore's Future Economy Council (FEC) aims to drive economic growth by incorporating technology in various areas, including construction, education, commerce, medicine, and agriculture.⁵ In 2020, the Singaporean government announced a budget of SGD 3.5 billion (USD 2.58 billion) to be spent on information and communications technology, to support digitalization among local businesses.⁶

While the country has made significant progress in its journey toward digitalization, its economy was heavily impacted by COVID-19 in 2020. The restrictions on tourists, global supply chains, and fall in demand for locally produced goods and services resulted in the worst recession the country has faced since its independence.⁷ The most severely affected sectors were air transport, accommodation, and other tourism-related sectors. Consumer-facing sectors,

such as retail and food services, were also significantly adversely affected by progressively stricter safe distancing measures. However, there were some bright spots with the rise in demand for online sales and services.⁸ Mr. Tan Kiat How, chief executive of the Infocomm Media Development Authority (IMDA) said, "COVID-19 is a wake-up call that going digital is not an option—it is an imperative."⁹

Digitalization and Women-Owned Small and Medium-Sized Enterprises (WSMEs)

SMEs are an essential component of Singapore's economy (see Appendix A), comprising 99% of 281,000 enterprises,¹⁰ providing two-thirds of Singapore's employment, and capturing 40% of nominal GDP in 2020. In terms of women ownership, only 24.7% of businesses were owned by female business owners, indicating a wide gender equity gap in company ownership.

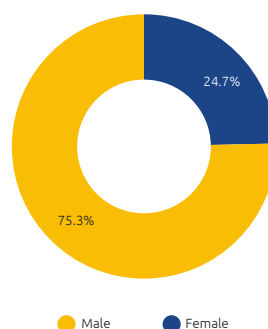


Figure 1.1 Gender representation in business ownership

COVID-19 negatively impacted the liquidity and cash flow of many SMEs. In an SME survey conducted by DBS Bank in February 2020, 70% of the respondents stated cash flow as their top concern.¹¹ Receivables and delays in payment became rife, with partial payments, defined as payments with only 50–90% of total bills paid within the agreed payment terms, hitting an all-time high in 2020 at 14.54%.¹²

The Singaporean government has supported SMEs through various agencies and initiatives (see Appendix B). These include Enterprise Singapore and the SMEs Go Digital program under the Infocomm Media Development Authority (IMDA), within the Ministry of Trade and Industry (MTI), which aims to strengthen SMEs' digital capabilities to increase their productivity and opportunities for growth. A last year's study on digital transformation among SMEs in Singapore reported that more than 80% of SMEs had digital transformation plans.¹³

Gender Lens in Government and Policies

The government of Singapore has started to recognize the importance of applying a gender lens to policies. In September 2020, Conversations on Singapore Women's Development was launched, an initiative spearheaded by the Ministry of Social and Family Development, and supported by the Home Affairs and Culture, Community and Youth ministries. This initiative aims to identify and address issues concerning women in Singapore in order to move toward greater gender equality.¹⁴ By engaging citizens in collecting feedback and recommendations on how to advance women in Singapore, it is expected that the government will be able to develop suitable policies and initiatives, including investing in WSMEs.

Gender Lens in Financial Institutions and Investment Funds

Traditional financial institutions in Singapore have increasingly recognized the importance of gender lens investing, with significant efforts invested to mobilize private wealth towards gender equality and female empowerment. For example, in 2018, the Union Bank of Switzerland (UBS), the top wealth manager in Asia and Singapore,¹⁵ announced the launch of their Global Gender Equality UCITS ETF (Undertakings for the Collective Investment of Transferable Securities Exchange Traded Funds), the first of its kind to put gender equality (and sustainability) at its core.¹⁶ Singapore's DBS Bank was also included in the Bloomberg Gender-Equality Index (GEI) for

the fourth year running in January 2021 and was the only ASEAN company in the GEI's top global quartile.¹⁷

As of 2019, the total capital raised by gender lens investment vehicles targeting East and Southeast Asia grew to USD 1.3 billion.¹⁸ Innovative gender lens financing instruments to address the funding gap have emerged in recent years, one example being the Singapore-based capital firm Impact Investment Exchange (IIX)'s Women's Livelihood Bond Series (WLB Series). The WLB Series is a series of debt securities with USD 150 million in capital to create sustainable livelihoods for underserved women in Southeast Asia through innovative finance. The WLB Series closed on the Singapore Exchange and supporters include The Rockefeller Foundation, United Nations Capital Development Fund (UNCDF), and Standard Chartered Bank.¹⁹ The second example is the launch of the Beacon Fund, a USD 50M private debt financing fund in 2020 that invests in female entrepreneurs in Southeast Asia.²⁰

The Asian Venture Philanthropy Network (AVPN), a social investor network, launched a gender platform²¹ in 2020 to mobilize capital to improve outcomes for women and girls, as well as the Asia Gender Network,²² which is the first pan-Asia network that moves capital to drive gender equality across the region²³ with members consisting predominantly of family business heirs.

2 Methodology

Research Objectives

The research is designed to shed light on the present and future opportunities of digitalization and provide insights to all stakeholders to address the challenges.

Research Assumptions

Digitalization offers new opportunities for WSMEs to overcome their gender-related challenges, which exist at varying degrees depending on the maturity of the business (small and medium enterprise).

Research Methods

A qualitative approach inclusive of in-depth interviews, content analysis, and case study research into 20 WSMEs (15 SEs and 5 MEs) to reveal their actions-behaviors and attitudes-perceptions. The main sources of data can be classified into two parts: (1) primary data, information collected through interviews and panel discussion, and (2) secondary data, which was obtained through publicly available information online.

The authors consulted three experts from three different fields on the preliminary findings: 1) digital transformation; 2) women's business associations; 3) SME entrepreneurship. Additionally, recommendations were sought through an advisory discussion panel with seven key stakeholders in the SME ecosystem.

Due to COVID-19 restrictions in Singapore, all research was conducted virtually. The data collection process was carried out in four procedural steps, as described below (Figure 2.1):

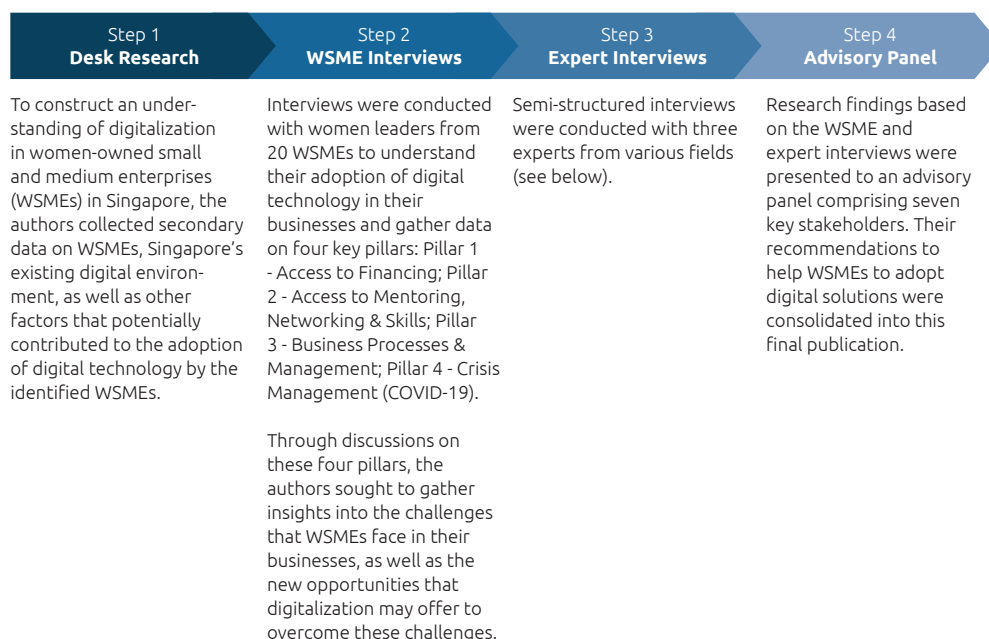


Figure 2.1 Research methodology

Participant Selection Criteria

WSME Participation

Twenty WSMEs, comprising 15 small enterprises (SEs) and five medium enterprises (MEs) of various sizes and from diverse sectors, were selected. To maintain anonymity, each participating WSME was coded using the country and business maturity identifiers, as well as corresponding numbers. For example, SG_SE01 means the first small enterprise that the researchers interviewed in Singapore, SG_ME03 means the third medium enterprise that the researchers interviewed in Singapore and so forth.

Demographic Profile of WSME Participants

All based in Singapore, the WSME participants represented diverse industries, spanning food and beverage (F&B), construction, health, textile apparel, and more. The women-owned medium enterprise (WME) segment has an average of 19.2 years in operation, and the women-owned small enterprise (WSE) has an average of just 12.9 years. Four out of five WMEs and seven out of 15 WSEs had been in business for greater than 10 years, as illustrated in Figure 2.2 below. Most of the WSMEs (14/20) interviewed had a female to male employee ratio of 1:1 or higher, with two WSEs having all female employees. Six WSMEs had less gender balance with 40% or more male employees.

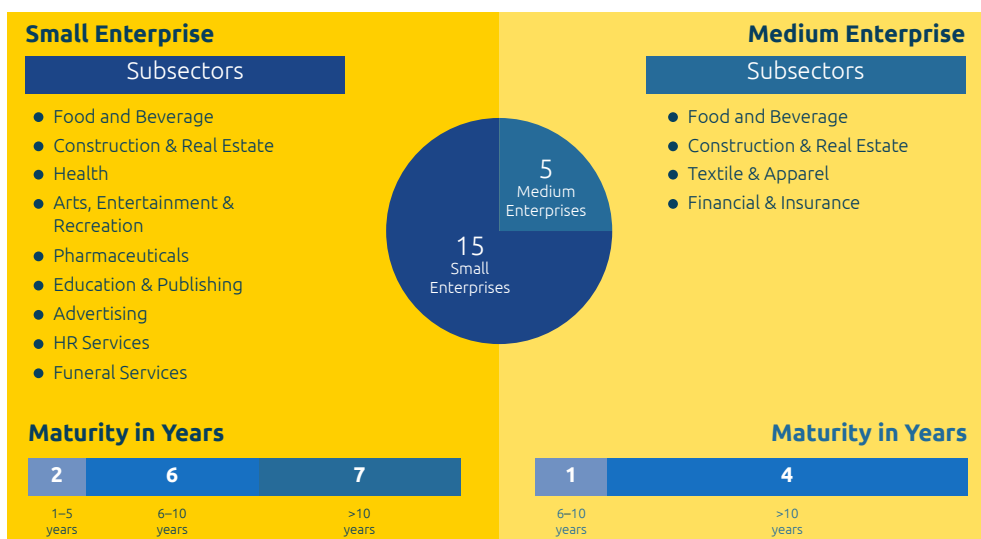


Figure 2.2 Breakdown of WSME business sectors and maturity

Expert Interviews and Advisory Panel

The expert interviews gave us deeper insight into the practical knowledge of the wider issues surrounding the WSME ecosystem and enabled us to craft problem statements to be presented and discussed during the advisory panel meeting. The panel was designed to reconstruct information gathered from previous interviews and draw benefit from it in the process of creating a set of practical and policy recommendations for relevant stakeholders.

See Appendix E for the detailed list of expert participants and advisory panelists, and page 27 for an ecosystem map of stakeholders.

Expert Interviews	Advisory Panel
<p>Experts from:</p> <ul style="list-style-type: none"> ● Food and Beverage ● SME Entrepreneurship Network ● Women-owned Business Marketplace Association 	<p>Experts from:</p> <ul style="list-style-type: none"> ● Venture Capital and Investment ● Government Scheme Advisory ● Technology and Digitalization ● SME Advisory Services Firm ● Women-owned Business Procurement Marketplace ● Professional Women Association

Figure 2.3 Expertise area of expert interviews and advisory panel participants

Data Analysis

The WSME interviews, expert interviews, and advisory panel discussion were structured into four pillars to allow for future comparative analysis. The hypothesis is that the following pillars play an important role in the digitalization of businesses for women: 1) access to financing, 2) access to mentoring, networking, and skills, 3) business processes and management, and 4) crisis management (COVID-19) (see Figure 2.4).



Figure 2.4 Research pillars

Most interviews and discussions were conducted in English (all participants' first language), with the exception of one interview in Mandarin (participant's and the chosen researcher's native language), and digitally recorded. Notes were written during the interviews and discussions were reviewed throughout the analysis. The adopted procedure for data analysis was as follows:

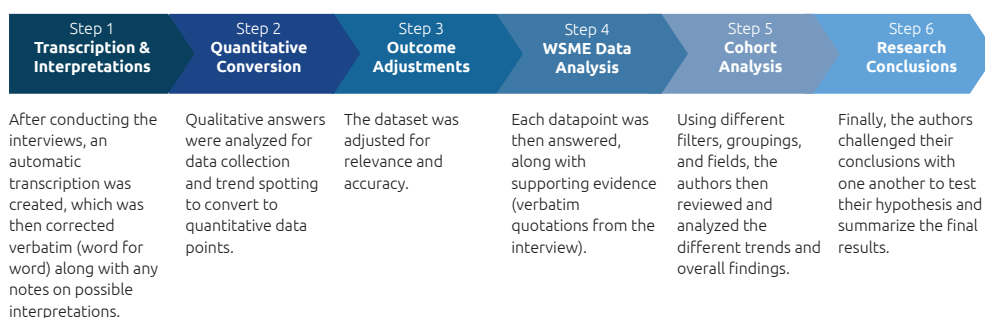


Figure 2.5 Data analysis procedure

Research Limitations

The primary data was collected over six weeks (May and June 2021) at a time when Singapore was going through multiple lockdowns and constant changes in safe distancing rules. Despite the interview appointment delays and cancellations due to the pandemic, the research team managed to seek interviews with 20 WSMEs. Each interview duration was between 60 and 45 minutes, depending on the availability of the research participants. In some cases, interviewees were followed up via email, phone call, or WhatsApp to gather additional information. The most challenging task for us was sourcing medium-sized women-owned enterprises, which was related to the fact that there was no available gender-disaggregated data on Singaporean SMEs and no available research or data on medium enterprises. Consequently, identifying and seeking the right candidates for WMEs within the limited time frame was a hurdle for the team, resulting in fewer WME research participants. In order to address the bias and limitations, a thorough complementary literature research was carried out as an additional triangulation tool.

3 WSME Interview Findings

Of the 20 women entrepreneurs interviewed, 18 recognized the importance of digitalization, while 15 were aware of the specific benefits of digitalization for their companies.

This section presents insights from the interviews with 15 women-owned small-sized enterprises (SE) and five women-owned medium-sized enterprises (ME), highlighting the challenges and opportunities that affected WSMEs during their digitalization journey across the four pillars: (1) access to financing; (2) access to mentorship, networking, and skills; (3) business processes and management; and (4) crisis management (COVID-19).



Figure 3.1 Digitalization awareness among WSME participants

Pillar 1: Access to Financing

The WSME participants were faced with many challenges in their daily operations, but not having a strong cash flow caused immediate risks to the viability and stability of the business.

Sources of Funding and Challenges Associated with Each Source

Personal Funds and Operating Profits

Personal funds and operating profits remained the preferred way to finance. Out of 20 interviewed WSMEs, 18 used personal funds to start their businesses and strove to sustain or grow organically with operating profits (see Figure 3.2).

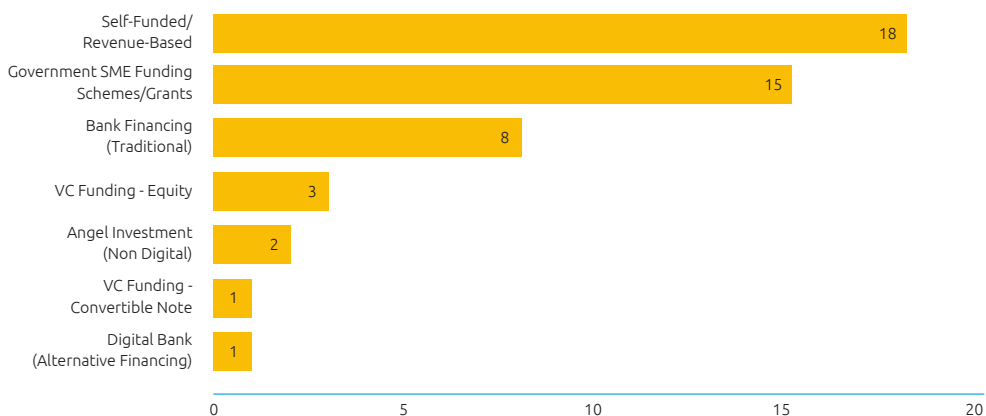


Figure 3.2 Breakdown of sources of funding adopted by WSME participants

Fear of losing control of the business and the lack of in-depth understanding of financing solutions deterred some WSMEs from seeking equity funding from investors. In this study, four women-owned small business owners and one medium-sized enterprise owner mentioned that they were reluctant to get funding from investors, because having equity investors can be a liability for the business. They felt that having a third party join their business may pose a risk that would jeopardize their independence and freedom. They expressed a strong desire to retain their autonomy in their businesses. Inherently, the participants believed that they knew what was best for their business and were not willing to compromise their stake in decision making. In addition, seven WSEs and one WME in this study indicated they were not very aggressive in seeking external financing because they do not have a well-defined long-term business growth strategy that will steer them in the direction of seeking additional funding.

Government SME Funding Schemes

In Singapore, governmental support of SME growth is very strong, with a coordinated network of policies and grants in place and significant resources dedicated specifically to funding the digital transformation journey of local businesses (see Appendix B). Grants were the second most used form of financing after self-financing, with 15 out of 20 WSMEs reporting that they have leveraged the support of government grants at least once (see Figure 3.3). Most of the grants utilized by the participants were from Enterprise Singapore under the Ministry of Trade and Industry. It is important to note that, there are currently no gender-specific grants for WSMEs or grants for small vs. medium-sized enterprises.

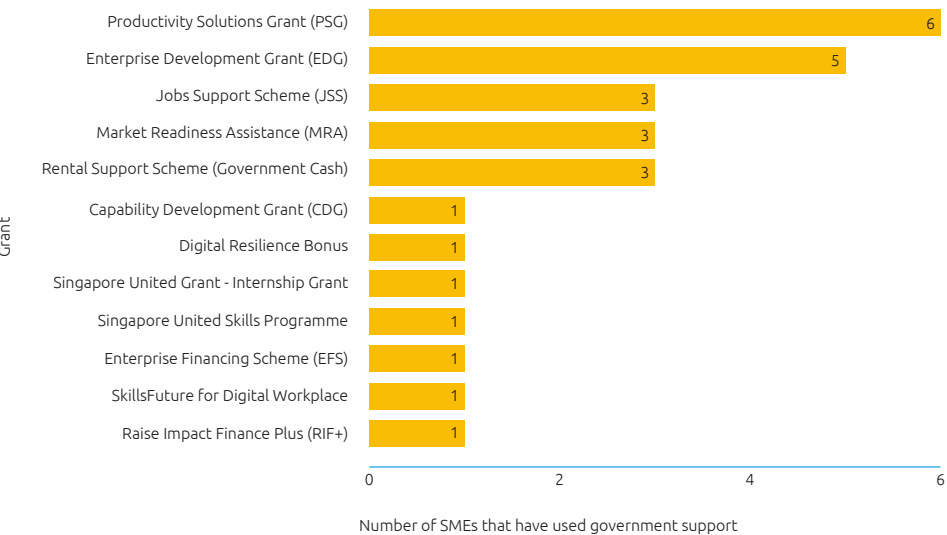


Figure 3.3 Government support used by WSME participants

Figure 3.4 summarizes the steps of a structured IMDA grant acquisition process. In general, SMEs can enter the system in two ways: taking an online self-assessment or making an appointment with an SME center. Afterward, they can consult with the corresponding staff and have their needs assessed to be matched with the available help. Consultancy is an essential step as the Singaporean government offers a wide array of programs and grants that can be very specific. After deciding on which program to apply for, SMEs need to go through a tedious process and meet specific requirements, which can consume a lot of their resources. Lastly, government programs implement a fund reimbursement model that requires SMEs to provide advanced cash payments.

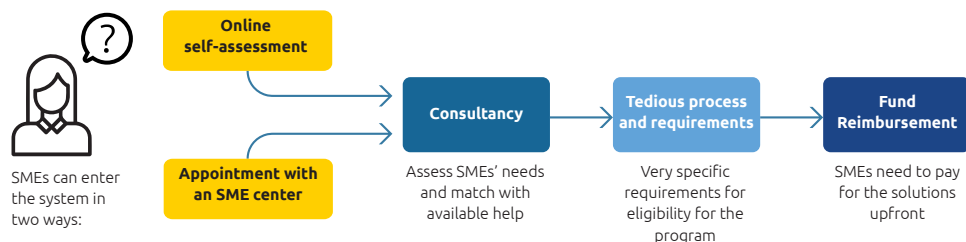


Figure 3.4 IMDA's grant acquisition process



There are different grant schemes. Some are for specific pre-approved items, some allow you to submit proposals, and others are for expanding into new markets.

(Ramya Ragupathi, Oh My Goodness!)

We investigated why five of the 20 WSMEs interviewed did not utilize government grants. The grant-related difficulties faced by the WSMEs were the lack of awareness of available grants, the daunting grant process, the difficulty of paying upfront before reimbursement, grants being unsuitable for their needs, and the extensive documentation requirements.

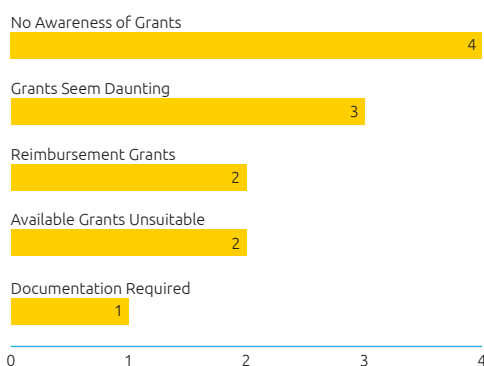


Figure 3.5 Grant-related issues faced by WSME participants

Traditional Bank Loans

Traditional bank loans were the third most utilized financing source among the WSME participants. The authors discovered that eight of the 20 WSMEs interviewed had used bank loans.

The WSME participants were concerned about personal loan guarantees when taking on unsecured bank loans. In Singapore, only 22% of all bank loans are extended to SMEs.²⁴ All unsecured bank loans without collateral require a personal guarantee from the business owners. Although a personal guarantee enables lenders to quickly issue loans to a wider number of businesses, it was considered unsafe by the WSME participants. Three interviewees shared their worries about losing their homes in the event of insolvency issues. A second-generation business owner pointed out that the banks need to become more progressive and look for other means to ensure loan repayment and assess credit worthiness.



I'm the personal guarantor for all our loans and it is genuinely scary, because if anything happens, my HDB (Housing Development Board) flat will be taken away.

(SG_SE05)



Coming from a second generation, the one thing that I hope can be realized by this generation is that [banks] can seriously review personal guarantees. For a personal guarantee, if I'm not wrong, a lot of foreign companies don't practice that. They go by corporate guarantee. For Singapore, a lot of the SMEs, even if you are a certain size, [banks] still go by a personal guarantee. I find that very limiting and not very progressive if I would compare that with other banking structures overseas.

(SG_ME05)

Other Financing Options

Adoption remained low for alternative financing options. Only two of the 20 WSMEs interviewed had explored alternative financing solutions (see Appendix C), and only one out of those two used such solutions. One of the solutions was a digital bank platform that offers micro- to medium-sized loans to SMEs. The two WSME participants found the user interface unfriendly and experienced sudden changes in financing terms. The second alternative financing solution explored by a WSME was equity crowdfunding, but this financing solution was a better fit for tech startups as the method of valuation is different for more conventional medium-sized businesses.

There was also very low awareness of gender lens investing (GLI) instruments among WSMEs. Among the 20 WSMEs interviewed, none of them have explored the GLI instruments in Singapore or in the region despite the fact that gender lens investing (GLI) has been gaining traction and attention from various stakeholders in the ecosystem of SMEs. Millions of dollars have been poured into the hands of fund managers in private funds, financial institutions, and family offices. The lack of awareness about these gender-oriented financing instruments can be considered a missed opportunity for WSMEs to tap into both equity and debt financing solutions. These GLI instruments often come with

technical assistance (TA) and customized mentoring programs with a strong understanding of the specific challenges faced by female entrepreneurs.

Pillar 2: Access to Mentoring, Networking, and Skills

Mentoring, networking, and skills are crucial factors that can improve the quality of businesses run by female business owners. Finding fellow women embarking on the same journey could encourage WSMEs to pursue this unconventional path and become successful. Building a strong business network, accessing mentoring, and learning new skills become more critical to the success of their business.²⁵

Informal, Close-Knit Personal Network

Industry peers, family, friends, and informal advisors were the main sources of advice and knowledge. Most WSMEs in the study sought advice and knowledge from peers in their industry (13 out of 20 WSMEs) and family/friends (nine out of 20 WSMEs). Figure 3.6 illustrates the breakdown of sources from which WSMEs seek business advice. Only three out of 20 WSMEs have had a formal mentor or advisory board.

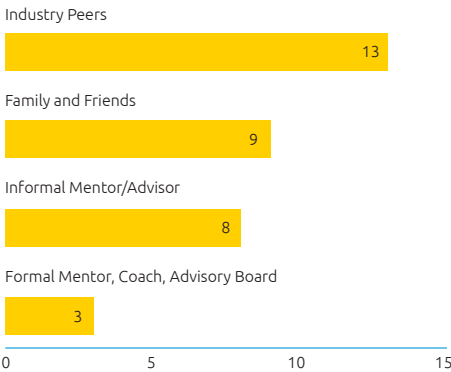


Figure 3.6 Sources of business advice for WSME participants

Formal Business Associations and Networking Groups

The majority of WSME participants belonged to formal business associations and professional networking groups. Out of 20 WSME participants, 17 were in formal business associations or professional networking groups from which they gathered information and sought emotional support, and about half were specifically for women in business. Half of the WSMEs were part of online communities on LinkedIn, Facebook, and WhatsApp for informal social and professional networks.

The WSME participants wanted a genuine and organic connection that could sustain a long-term mentor-mentee relationship. Although half of the participants had formal advisors, coaches or informal mentors, nine WSME participants were still open to mentorship. The authors learned that finding the most suitable one is dependent not just on a potential mentor's expertise or industry experience. Three WSMEs said that they wanted a mentor who was inspiring, and it was crucial for them to establish a genuine mentor-mentee connection. For example, one of the participants said she preferred a mentor with a similar background or a woman owner with a family.



I feel that many people who call themselves mentors don't spend [sufficient] time with their mentees.

(SG_SE05)

The authors learned that only two out of 20 WSMEs had participated in a mentorship program. These two founders did not have positive experiences and left the programs. One felt the program she was in was overly critical/harsh in their feedback and was not supportive; the other shared that the program was only three months long, and although the mentors were knowledgeable, their available time was limited and the feedback was often no longer relevant by the time she received it.

How Did WSME Participants Acquire Necessary Skills and Knowledge?

All of the interviewed participants were eager to learn, and the majority (17/20) gained access to new knowledge using various digital resources, as illustrated in Figure 3.7. Fourteen WSEs attended virtual events, free e-learning courses and online resources, and paid e-learning courses. Three WME participants used only free online resources or paid online courses.

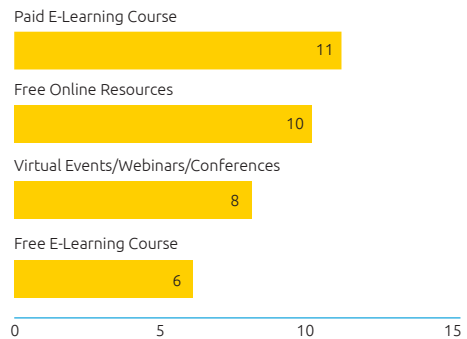


Figure 3.7 Digital learning resources used by WSME participants

Online learning resources were affordable and accessible, but less engaging. Cost was not a major barrier, with 11/20 WSMEs having paid for themselves or for their staff to attend online courses. Several WSMEs mentioned tapping into SkillsFuture for staff training, a government initiative that provides courses (often online) across many disciplines through partnerships with private providers and public tertiary institutions, with subsidies of up to 90%. The accessibility of free online resources is made easier with online search engines. Despite the popularity of online learning, 6/20 WSME participants still preferred face-to-face learning. Two of the WSME participants indicated they did not use any digital tools for learning. Instead, they reached out and learned directly from experts within their networks. Four out of 20 WSMEs felt that virtual settings did not enable the trainer to pay attention and cater to individual attendees.



But now everything is online, [and] unless you're a fantastic speaker or you're very engaging. I think even if you have the best of brains or best modules, it falls flat. So [the] attention span is a bit short.

(SG_ME05)

The top constraint for access to mentoring, networking, and skills was the limited time. Half of the WSME participants stated that time was a big limitation when it came to gaining new knowledge, including the time required for finding the right resources. The day-to-day business operations also took much of their time, as most WSME participants reported having very lean team structures. Two MEs shared similar views, "I can't afford the time to learn. So what I do is, I learn on the job," said SG_ME05. The other ME owner noted that between work and prioritizing her family commitments, she had less time not just for learning, but also for finding a mentor.

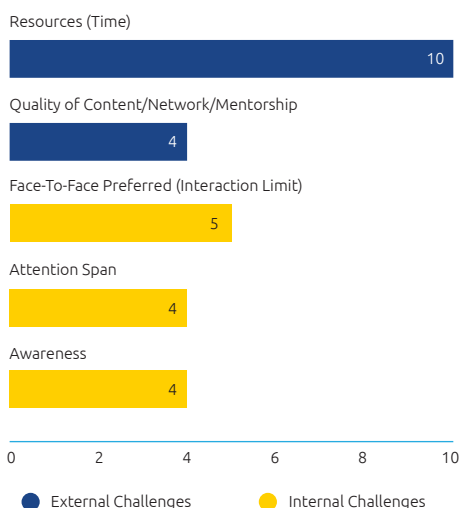


Figure 3.8 Top five challenges in WSME participants' access to mentoring, networking, and skills

Pillar 3: Business Processes and Management

Digital Tools Adopted by WSMEs and Challenges Faced During the Process

With varying degrees of digital maturity, most WSME participants adopted some form of digitalization within their business processes, while some only implemented technology in a few areas of their business. A wide range of digital tools were used to improve their business processes, yet not all participants necessarily utilized digital tools from all categories. The 11 categories spanned across:

- Finance and accounting
- Customer relationship management
- E-commerce
- Business management
- Cashless payment
- POS/inventory
- Collaboration/communication
- Cloud storage/workspace
- Cybersecurity
- Digital marketing
- Social media

The use of digital tools to assist in finance and accounting seemed to be the most prevalent, with all participants having used them before. Secondly, all 20 WSMEs reported having websites, while half of them were active on social media and e-commerce marketplaces. Digital tools for team collaboration (18 WSMEs), cloud storage (15 WSMEs), cashless payment (15 WSMEs), customer relationship management (13 WSMEs), and human resources (12 WSMEs) were widely used among the research participants. However, digital tools for cybersecurity seemed less popular, with only three WSMEs having used them. Although some of the more tech-related WSMEs had created in-house-developed tools designed for their own specific needs, the majority chose to utilize existing off-the-shelf digital products in the market. Among these, the tools most commonly used by WSMEs were those for collaboration/communication purposes, finance and accounting, and social media platforms.

Meanwhile, six interviewees signaled that integrating various digital platforms posed a serious hurdle for them during the digitization process.



“

I think the barrier is using the right tools at the right time in the right way, and then getting them to work together, and getting them to amplify your business strategy.

(Louisa Lee, DP Dental)

The most common challenges mentioned by the WSME participants were digital literacy, change management, talent resources, and financial resources. In this study, the interviewees were asked to categorize business process-related challenges as medium and large challenges based on their judgment. In total, digital literacy & skills and team adoption/change management were the two top challenges experienced by both SE and ME owners.

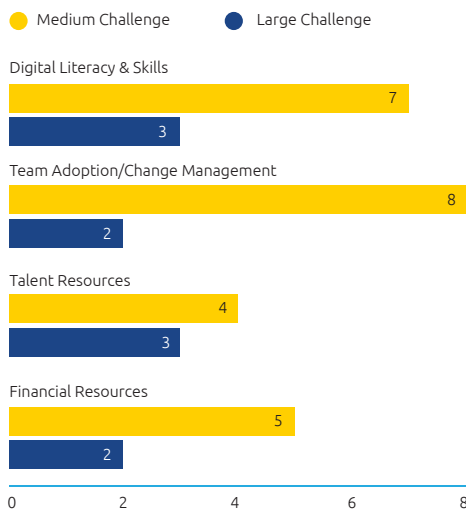


Figure 3.9 Top four business process-related challenges experienced by WSMEs

A participant from the F&B industry recalled her experience in dealing with resistance from employees who lacked digital skills:

“[Initially] my journey started in 2003 with the digitization and, at that point, my average age employee was 50 something and they are the group of people that’s not highly educated and they don’t even know what a CPU or a mouse is. Initially there was a lot of fear, there was a lot of pushback.” She explained that adopting new technology required not only operational changes but also managing people and their expectations.

Another WSME acknowledged that her team’s digital skills had reached a plateau in digitalization, requiring them to acquire new skills and knowledge on automation:

“

I definitely want to explore automation. I feel like we don’t know enough of it...I have come to realize that the skills that brought me here for the past 16 years, they’re not going to be adequate to bring me to the next level of business that I want to bring it to.

(SG_SE10)

None of the 20 interviewees saw gender as a large challenge in the digitalization of business processes, indicating that Singapore has a relatively equal perspective of genders.

Most Important Decision Factors for Digitalization

The two most mentioned factors that affected the participants’ decisions on which tools were most suitable for their businesses were operational efficiency and change in customer behavior and client needs.

Operational Efficiency

Five participants suggested that digitalization can help with improving efficiency including being less reliant on people and having more streamlined processes. Being efficient and lean was considered to be particularly important to keep the business afloat during crises such as the COVID-19 pandemic. For example, a catering business owner

integrated its various reservation channels to efficiently process reservations and avoid human errors. A clothing business used machine learning to track customer preferences, which allowed her to efficiently and accurately predict inventory requirements and fashion trends.



We are building a pure tech company. Everything we're doing requires technology. Recently, I sold off all parts of my company that needed human resources because we needed to make the business much leaner during the COVID-19 crisis. We have a fully automated business. So technology allows us to be super lean and hopefully soon be highly profitable.

(Rosaline Chow Koo, CXA)

Change in Customer Behavior and Client Needs

The adoption of customer-facing digital tools, such as online booking systems (four WSMEs), e-commerce marketplaces (10 WSMEs), and cashless payment (15 WSMEs), was primarily accelerated by a change in customer behavior due to the COVID-19 pandemic. In addition, six WSMEs adapted their service offerings into digital forms. For example, one WSME participant with a company in the insurance industry reported that her organization decided to fully digitalize the product after finding that the mobile application approach had grown 200% before and after the start of the pandemic, while their conventional brokerage business stalled. Another interesting case came from a participant in the event organizing service industry who had digitally transformed her company's services and operation since the COVID-19 lockdown measures put a halt to communal gatherings. After a successful transition, the company

adopted the virtual approach, invested significant effort in building the company website, and managed to have a profitable business during the COVID-19 crisis.



It was one of our clients who asked us to do a virtual event (during lockdown). Zoom has been an absolute grace for us, because there's no way we could have done any physical events, and thanks to digital technology, we have been running events every two weeks.

(SG_SE04)

The Role of Government Support in Digital Transformation

The Singaporean government has gone to great lengths to support digital transformation of businesses by providing grants and other initiatives. In August 2020, the Fortitude Budget put aside SGD 500 million (USD 368.7 million) to help SMEs and local businesses to manage the COVID-19 crisis through digital transformation. The 2021 budget also includes a SGD 24 billion (USD 17.7 billion) plan to help businesses to transform and adapt to the post-pandemic world. In particular, Singapore has launched SMEs Go Digital, a program from Infocomm Media Development Authority (IMDA) that provides a detailed industry digitalization plan (IDP) for 16 industries; it is a guide on how to digitalize and transform an existing business.

Among our 20 research participants, 12 applied for and received government grants for their digital transformation. Although the grant recipients expressed their appreciation of governmental support, four out of 20 WSMEs reported that the long grant application and approval process was challenging for them. Due to the pre-approved solutions requirement, one WSME owner had to develop solutions that were not the best fit for her needs. Two WSME owners were not qualified to apply for the grants, as the nature of their businesses required customization of digital solutions. Moreover, the requirement of

some government grants to invest upfront cash put pressure on cash-strapped WSMEs, while the application process itself could be long and tedious. Out of 20 WSMEs, four reported that it was challenging for them to pay upfront costs and set aside their operational money until the reimbursement came in.



With the current reimbursement system in the CDG (Capability Development Grant), we have to provide a lot of money in advance and wait for the government to reimburse us back.

(SG_SE03)

WSME Spotlight I: Louisa Lee



Picture of Louisa Lee, Founder of DP Dental

DP Dental is a dental service based in Singapore that takes a meaningful and integrated approach to oral healthcare. In the years since it was founded, Louisa Lee has valued the customer's experience, and this central focus has shaped the way her business has transformed—digitally and otherwise. The developments in DP Dental's business processes always remained focused on a goal to make dental healthcare accessible and convenient for its customers.

From the time Louisa started the business 16 years ago, she was aware that technology would become increasingly important in achieving her business goals. For her, "technology is not something to be feared, but something to be a friend of." She understood its importance in automating processes and making business operations easier. As a result, DP Dental became one of the first dental services to adopt advanced technology, such as lasers, CAD/CAM (Computer-aided-Design/Computer-aided-Manufacturing) to improve the design and creation of dental restorations. Despite the initial setback in cost and time, Louisa pursued digital transformation because she "knew [they] were on the right track."

The major digitalization transformation happened after the impact of COVID-19. In 2021, DP Dental ventured into using AI technology in their dental practice. This was achieved through adopting a technology, Invisalign, which allows dentists to help more patients align their teeth through the use of the Invisalign AI. Coupled with the use of Invisalign, DP Dental has integrated dental monitoring of its patients through a digital application. Patients are able to submit a scan of their teeth every week to their dentist through the application so that their teeth can be more frequently monitored. As a result, they only need to come in for dental emergencies. This solution came about in response to the difficulties DP Dental faced with COVID-19 restricting the number of patients that could come in for an in-person checkup. Through the use of this technology, they have gotten closer to achieving the vision of remote dentistry—an unprecedented feat in the industry.

Moving forward, DP Dental is now progressing into tele-dentistry. This entails sending patient X-rays to dentists using technology, such as dental monitoring technology, so that clearer pictures can be taken of patients' mouths for more accurate snapshots of their teeth. With this more refined diagnostic evidence, more accurate diagnoses can be made and dentists will be able to issue treatment plans and even give second opinions to patients—wherever they might be in the world. Tele-dentistry and other digital transformation efforts will open up new pathways for DP Dental to reach patients internationally.



Pillar 4: Crisis Management (COVID-19)

The interview findings highlighted that 13 WSMEs were negatively impacted by the pandemic, while the remaining seven improved their businesses. When the data were closely examined, we found that six out of seven respondents who did well were in the service sector. They managed to quickly transform their products/services to a digital format. For the bakery business that quadrupled its B2C sales in the first month of the pandemic and quintupled it in the second month, it was equipped with an online e-commerce setup, cashless payment, remote working capabilities, and delivery, which enabled the business owner to readily capture the changing consumer behavior around food shopping and gifting via online outlets.



I wish COVID hadn't happened, but just in terms of keeping it purely on a business story, we went through the hard times, we gave out the freebies, then we won some new clients that wouldn't have happened otherwise, and now we're doing this. It's actually been our most successful year ever.

(Michelle Lim, Chatsworth Medi@rt Academy)

Overall, the authors discovered that about half of the 20 WSMEs were surviving, seven were thriving, while the remaining two were struggling.

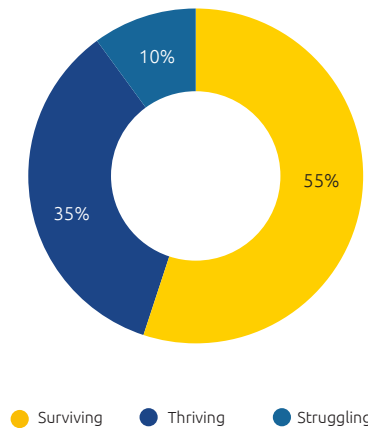


Figure 3.10 The state of participating WSMEs during the COVID-19 pandemic

According to the interview findings, digital technologies played a critical role in lessening the business impacts for 15/15 of WSEs and 4/5 WMEs. Most notably, digitalization allowed one company to downsize from 330 to 21 employees, create a more simplified workflow that made the organization more efficient, and use websites, instant messaging apps, e-payment, and social media platforms that helped the businesses to reach out to its customers. Moreover, 11 WSMEs reported that the digital solutions adopted prior to the pandemic helped them cope with the impacts. Meanwhile, 15 out of 20 WSME participants managed to increase digitalization due to COVID-19. Figure 3.11 summarizes examples of digital innovations among WSME participants triggered by the COVID-19 crisis.

Notable Digital Transformation Efforts Triggered by the COVID-19 Pandemic		
Food and Beverages	Health	Art, Entertainment, and Recreation
The pandemic made the founder realize that new business avenues would be needed to maintain revenue. After doing research, they found the right technology to preserve fresh food without affecting its quality. (SG_ME04)	With the increase in demand for healthcare, the founder received an overwhelming number of requests to be introduced or connected to other healthcare stakeholders. This sparked the idea to create a digital connection platform as a new B2B business angle to explore. (SG_SE07)	The founder explored virtual forms of events only to survive the COVID-19 crisis, yet now with audiences being more comfortable with not having to travel or dress for the occasion, this may become the new norm. (SG_SE04)

Figure 3.11 Notable digital transformation efforts triggered by the COVID-19 crisis among WSME participants

One WSME working in the F&B sector utilized a technology that could preserve fresh food without affecting its quality. Another WSME in the health sector developed a digital connection platform to explore B2B opportunities. Meanwhile, the arts, entertainment, and recreation sector needed to adapt to new audiences that are more comfortable with not having to travel/dress for the occasion. In general, the COVID-19 pandemic has pushed entrepreneurs to be more creative and innovative in order to survive and grow their businesses.

The Role of Government Grants and Initiatives in the COVID-19 Pandemic

The Singaporean government created the COVID-19 (Temporary Measures) Act 2020 ("the Act"), offering temporary relief to businesses and individuals who have been affected by the COVID-19 pandemic. The majority of the WSMEs in this study were able to take advantage of COVID-19 support measures from the government, with 13/15 WSEs and 4/5 WMEs receiving them. These measures included cash payouts, rental waivers, loans, wages, training support for local employees, and grants. Specifically, increased digitalization was supported by government digitalization grants, with 13 WSMEs receiving digitalization grants (e.g., PSG). Seven WSME participants also received government support through training grants, subsidized internships and traineeship programs. MEs generally had no challenges with accessing grants; however, WSEs still needed further financial support for marketing, rent, and reimbursement for previously adopted technologies. The various business support measures have been shared through numerous government portals to help businesses cope with the COVID-19 crisis through means of finance and cashflow, manpower costs, and employee training.

WSME Spotlight II: Crystalla Huang



Picture of Crystalla Huang, the owner of RedDot Brewhouse

RedDot Brewhouse is a restaurant-brewery nestled in the heart of Singapore's Dempsey Hills, a charming oasis in the midst of a bustling city, transporting visiting Singaporeans to a Bavarian beer garden. In this family-owned business, daughter Crystalla Huang is the face of the brewery, and Singapore's first and only certified female brewmaster.²⁶ Crystalla's mother manages the back of house operations, and together they kept the business afloat throughout the challenging COVID-19 times, which saw many F&B businesses go under.

Digitalization was a key component of their success. In April 2020, Singapore entered a nationwide "circuit breaker" to contain the spread of COVID-19, and all businesses deemed "non-essential" were required to close. Food establishments were only allowed to offer take-away and delivery services, with no dining-in permitted.

RedDot acted quickly, stating that "The management team actually just overnight turned, activated the e-shop, activated many things, and that saved us." RedDot was able to utilize government grants to go through a full digital transformation, beyond just their e-shop. The business quickly digitalized front to back, implementing a quick response (QR) code ordering system, revamping their e-shop and delivery, expanding their social media marketing to reach more customers, and digitalizing their payroll and accounting systems.

Pre-COVID-19, the majority of their processes were manual, and the brick-and-mortar shop was the focus. Now, their payroll and accounting are automated, saving time and effort for the staff, reducing the risk of manual error, and providing key insights about food procurement through data analysis within the accounting system. Ultimately, for Crystalla, understanding the human factor to digitalization was key to achieving success.



I'm quite a big fan of technology. So, I actually do look out for the most suitable apps and software for my business. When doing so, I ask myself, 'How do we make our work more efficient, or how do we use technology to help our team?'



Opportunities for Digital Transformation

In order to evaluate the opportunity for digital transformation, we modelled the adoption rate of digitalization through the lens of a digital intensity model adapted from the model by KAS et al. (2020; see Appendix D for more details).²⁷ The result was then mapped against the number of challenges that the participants had faced in Pillar 3, i.e., the pillar that was immediately affected by technology adoption (see Figure 3.12).

From the analysis of the model, eight out of 20 WSME participants were classified into the low-intensity category, nine out of 20 WSMEs were in the medium-intensity category, and three out of 20 were in the high-intensity category.

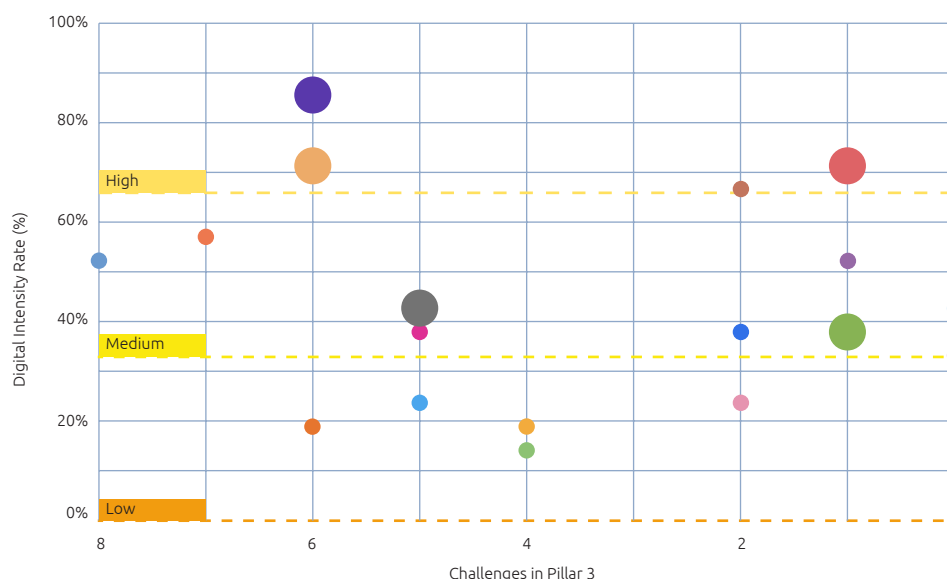


Figure 3.12 Digital intensity model
(Y-axis: intensity rate (%), X-axis: total challenges from Pillar 3). Larger bubble size indicate MEs, while smaller size indicate SEs.

Challenges and Opportunities Associated with Digital Intensity Levels

When analyzed based on the challenges in Pillar 3, the most frequently mentioned challenges are summarized in Figure 3.13.

Top Three Challenges in Pillar 3		
Low Intensity	Medium Intensity	High Intensity
31 challenges in total	31 challenges in total	13 challenges in total
6 Lack of Digital Literacy & Skills	6 Lack of Financial Resources & Shortage of Digital Talent	3 Lack of Team Adoption/Change Management
3 Lack of Financial Resources	5 Lack of Team Adoption/Change Management	2 Shortage of Digital Talent Resources
3 Lack of Awareness in Digital Adoption	4 Lack of Digital Literacy & Skills	2 Other (Including Need for Roadmap)

Figure 3.13 Top three challenges in Pillar 3 faced by WSMEs in the low, medium, and high digital intensity categories

Challenges and Opportunities for WSEs with Low Digital Intensity

For the low intensity group, the lack of digital literacy and skills, financial resources, and awareness were found to be the three most prominent challenges. These challenges—coupled with managing the operational load manually, without the help of digitalization—were significant tasks that took up most of the company's resources. One of the WSMEs with the lowest digital adoption, SG_SE03, found that because she was the sole owner of the business, she was already occupied with a lot of operational tasks, which made it hard for her to implement new innovations in the business. Despite the constraint, this participant recognized the value of adopting digital solutions specific to the problems in the business.



I don't know where to start [re: the digitalization process].

(SG_SE03)

This finding reaffirms that the role of SME Centers or the IMDA is central, as they help to provide awareness, early support, and build the momentum for WSMEs to digitalize and embark on their journey in digital adoption.

Challenges and Opportunities for WSEs with Medium Digital Intensity

For the medium-intensity group with some experience in doing digitalization already, the main challenges were the lack of talent and financial resources, team adoption/change management, and digital literacy and skills. The challenges stemmed from the need to integrate the company's processes to simplify the digital operation, eliminate redundancy, and achieve operational efficiency. As affirmed by one WSME, they reported no issues when adopting new technology, but faced challenges in integrating more complex operations with digital solutions.



So for us, a big thing is inventory management; it remains an issue. I would really love an entire platform [re: to be digitalized], but it's challenging.

(SG_SE04)

This finding suggests that the challenge of digitalization also evolves as the company adopts more technology and realizes further opportunities that could be achieved via digitalization. This also suggests that the more the WSME experiences digitalization, the more complex their digitalization needs become; hence the need for more funding, talent scouting, and provision of specialized technical knowledge. In addition to technical assistance, it is also important to provide support to WSMEs on how to navigate changes and effectively execute digital adoption projects, which will help WSMEs to better deal with the experience of digital transformation.

Challenges and Opportunities for WMEs with High Digital Intensity

For the high-intensity group, the most frequently mentioned problems were related to team adoption/change management, lack of talent, and other needs, including the need for a technological roadmap. One participant (SG_ME02) mentioned that because business trends evolve quickly, it becomes a challenge for her organization to always respond to the changes. The participant also showed that digital adoption comes gradually. In her case, the initial adoption occurred through omni-channel digital marketing, such as blogs, which then evolved into a more committed technology adoption in the form of an e-commerce website, and later turned into an even bigger technological commitment—namely, a customized ERP system for the business. This showed that the initial adoption could improve the baseline knowledge and appetite of the organization for an ever bigger technological and digitalization adoption.

Once the adoption is on a sufficiently advanced level, the need for a roadmap arises to organize the changes in a more systematic way. This observation can add to the IMDA's existing roadmap recommendation to possibly add customized roadmap consultation for more digitally advanced WSMEs that are willing to further improve in their digital adoption journey.



There is a lack of advisory centers or advisors to help us build the full digital transformation roadmap.

(SG_SE03)

4 The Future of Digital Transformation for WSMEs

Expert Interview Findings

Interviews with the following three experts were conducted to provide further insights into digital transformation in Singapore and to strengthen the WSME interview analysis findings.

Digital Transformation Expert

Managing Director of an information technology (IT) consultancy in Singapore working with SMEs. Francine Martindale, Content & Systems Pte Ltd.

SME Entrepreneurship Network Expert

President of a local business and professional women's association. Kim Underhill, Singapore Business Professional Women Association.

Women-Owned Business Marketplace Association Expert

Regional director of an international women-owned business marketplace. Minnie Venkatachalam, WeConnect International.

Pillar 1: Access to Financing

For access to financing, the WSME and expert interview findings were consistent, revealing that WSMEs are not yet fully leveraging resources to their advantage. The experts indicated that a multitude of new funding opportunities exist; however, the businesses need to identify funding options that are appropriate for the stage of growth and cash flow cycle. However, analyzing and comparing financing

options require time, which is a limited resource frequently cited amongst the major financing challenges for WSME participants.

One of the experts commended the business women's can-do attitude in acquiring the necessary financing for their businesses: "I find people here to be quite pragmatic. You know, if they feel like they are meeting some kind of roadblock, they will just find a way to resolve it." She noted, however, that WSMEs would benefit from the soft skills training required to actively seek investment opportunities beyond traditional banks and grants, because those soft skills are not taught at universities and are difficult to acquire on the job without appropriate guidance from qualified advisors.

According to another expert, a USD 95 billion opportunity to grow the economy would be missed if organizations, including investment and financial institutions, failed to adopt a gender lens, helping the women-owned businesses grow. She asserted that WSMEs did not need preferential treatment, but a recognition that they could be as good as any other businesses. Adopting gender-conscious approaches will ensure WSMEs are not overlooked for funding and contract opportunities due to unconscious gender bias.

Pillar 2: Mentoring, Networking, and Skills

Experts concurred that WSMEs have consistently shown high interest in mentoring, networking and upskilling but time was a key constraint. A difference in networking was also noted between MEs and SEs. According to the experts, SE owners typically do not have the time to look into formal networking programs as they are focused on running their business. MEs, on the contrary, typically realize the importance of networking, can delegate their teams for business operations, and make time to expand their networks.

The COVID-19 pandemic has increased the need for WSME leaders to consult with mentors and peers to inform their business resilience strategies. One expert also noted that they were receiving increased requests for corporate mentors. Other skills regularly requested for coaching and mentorship by WSMEs revolve around branding and visibility, both at the individual and business levels. Despite the growing demand for mentorship, the experts questioned the efficacy of existing mentorship programs, citing similar issues raised by the WSME participants in developing long-run mentor-mentee relationships. More needs to be done to incentivize mentors to stay invested in their mentees' growth. Although digital tools were helping women business owners network more, experts indicated that confidence remained a key barrier to networking for women business owners.

Pillar 3: Business Processes and Management

The experts agreed that while WSMEs in Singapore are aware that digitalization could benefit their business processes, they might need assistance to formulate a digitalization strategy that fits their needs. To prepare for a digital future, the ecosystem stakeholders should help create a long-term digital roadmap. Consistently with WSME findings, the experts did not observe any gender-specific challenges to digital adoption, but noticed that women business owners were more conscious of team consensus when adopting digital technologies. Both the experts and the three WSME participants that identified this trait attributed this behavior to women's tendency to be more empathetic and people-oriented. Findings from WSME participants and findings from global studies on the digital transformation journey of small businesses indicated that the lack of digital skills and stakeholder resistance are the top challenges to digitalization.²⁸ While these challenges are not particular to WSMEs, women business owners' consideration for employee buy-in alongside the quality of digital technologies can be a double-edged sword. On the one hand, technologies welcomed by employees have a higher chance of successful adoption; on the other hand, WSMEs may be slower to adopt technologies as they wait for their team members to desire change.

Pillar 4: Crisis Management (COVID-19)

Similarly to businesses globally, the experts noted that the COVID-19 crisis has forced many WSMEs to accelerate their digitalization. The experts also agreed that the government's support via salary offsets and development grants helped many SMEs weather the pandemic. It was indicated that agile change management is crucial for women business owners when implementing new technologies and addressing the challenges that emerged from the crisis. Previous studies have consistently shown that a clear digital strategy informed by business objectives is what drives the digital maturity of organizations.²⁹ Although 15 out of 20 WSME participants rushed to digitize their businesses during the pandemic, decisions to adopt digital tools had to be made without a fully realized digital strategy. However, SMEs must adopt the right technology for their business needs to avoid creating an additional burden and to successfully transition in the long run.

The experts also identified that many businesses face challenges when adapting their business offerings and differentiating themselves online. For example, businesses that previously created value for customers through premium retail experiences had to adapt their differentiation factor as they moved onto e-commerce platforms shared by local and international competitors. Several WSME owners who demonstrated the ability to adapt and manage such changes to address COVID-19 related challenges have improved their business resilience (see WSME Spotlight 1: DP Dental).

Singapore WSME Ecosystem Map

In the WSME ecosystem in Singapore (see Figure 4.1), multiple groups of stakeholders are present, each with their own role. The first group is capital providers, composed of institutions that provide access to various types of financing that can be utilized by WSMEs. Small businesses have numerous financing options, with various vendors offering the financing services. In Singapore, this includes banks, angel networks, private equity/venture capital, and alternative/digital financing. The second group is government entities, whose responsibility includes provision of government grants and support. In particular, IMDA provides detailed industry digitalization plans and roadmaps that can help WSMEs navigate in their digitalization journey. The third group consists of networks, associations, and platforms, which can be utilized by WSMEs to find the right connections for their needs. Through this group of entities, WSME owners can discover mentors, experts, even future clients and partners—those who are important for the growth of their businesses. The fourth group consists of NGOs and development institutes, whose main role is advocacy and support. Through their programs, WSMEs can also find digitalization support and other sources of grants and financial support. Finally, the fifth and last group of stakeholders includes SME digitalization services, a category of stakeholders that support the technical side of digital adoption. As WSMEs often lack in knowledge and change management, SME digitalization services can help to reduce the difficulties and smoothen the digitalization process.



Figure 4.1 Singapore ecosystem map
*Please refer to the Acronyms and Abbreviations section.

Advisory Panel

The advisory panel (AP) comprising seven participants and representing cross-sectoral stakeholders (see Appendix E) discussed insights distilled from interviews with 20 WSMEs and three experts. The findings from these interviews were condensed and presented in the form of five problem statements around digital strategy, mentorship, and mindset, adoption of digital financing solutions, limitations of grants, and the gender lens reality. The AP discussed the context, as well as practical and policy recommendations for problem statements.



Figure 4.2 Advisory panel methodology with the panelists in Singapore

Policy and Practical Recommendations



Figure 4.3 Summary of policy and practical recommendations

After the research findings were presented, the advisory panel and the research team made the following observations, insights and recommendations (see Figure 4.3).

Improving Access to Financing

Despite Singapore's thriving FinTech sector offering a variety of alternative financing options, the majority of the WSME participants identified as self-funded—indicating their strong preference for more traditional financing, such

as personal savings, bank loans or credit lines. This mindset correlates to a fear that external financing could lead to negative situations, such as demanding requests from external funders or losing some control of their company's direction. The panel observed that low interest in external funding is also linked to the lack of awareness of the potential benefits of raising external funding, which could be remedied with more representation of women business owners who have successfully raised capital and had positive repercussions.

Although the participants in this study did not cite gender as a barrier to financing, the panelists agreed that there is an apparent gender gap when it comes to access to capital. Access to capital in Singapore continues to be male-dominated, which may be a cause for an unconscious hesitation among WSME owners to approach them, and vice versa, for their support and funding of WSMEs.

Policy Recommendation

- Policies related to access to financing should be based on gender-disaggregated data to promote equity in SME financing.

Practical Recommendations

- Business associations and SME service providers can promote profiling of fundraising success stories and the use of digital financing solutions among WSMEs, as well as provide more aggressive funding opportunities, which will help address the lack of awareness among WSMEs.
- Financial institutions and service providers catering to SMEs should provide fundraising and business scalability workshops with practical tools for business development targeted at SMEs.
- Financial institutions and SME financing providers can promote and provide unconscious bias training as part of a multipronged approach to improve diversity, equity, and inclusion in financing.

Increasing Use of Government Grants

Effective utilization of grants requires deliberate planning by the WSMEs. The panel explained that the Singaporean government's vast selection of funding schemes can be overwhelming to navigate for small businesses with limited human resources. WSMEs may struggle on several fronts, including identifying grants relevant to their specific needs, conforming to grant criteria limitations, and, if successful, fulfilling grant stipulations to access the funding. Many WSMEs also do not have a clear digital transformation strategy articulated and hence are unsure of their eligibility and suitability when accessing grants. While there are five trade associations and chambers providing a network of 12 SME centers as a one-stop resource for entrepreneurs, there remains a need for greater awareness of these centres among women entrepreneurs, as well as encouragement for them to reach out for support.

Practical Recommendations

- To raise a greater awareness of the resources available at SME centers, they should be branded and marketed more proactively as a one-stop resource for successful modern WSMEs, helping them navigate the grant process.
- Communication strategies for raising awareness of the available grant initiatives should be reviewed and improved to more effectively reach a wider WSMEs audience.

Structuring Better Grant Schemes

The panel emphasized that the Singaporean grantmakers should strive for an in-depth and up-to-date understanding of the diverse needs of SMEs so that the grant schemes can be structured to address challenges faced by entrepreneurs. Currently, some grant schemes operate on a reimbursement basis, which may be a deterrent as small businesses would find it challenging for their cash flow to pay upfront for digital solutions.

Policy Recommendation

- When studying SMEs for grant-making policies, their needs should be differentiated based on size, maturity, industry, business model and cash-flow cycle so that the grants can be designed to reach a wider range of qualifying SMEs with varying backgrounds.

Improving Access to Mentorship and Network

The panelists agreed that existing mentorship programs for WSMEs, especially the conventional ones of matching or assigning mentors to mentees, were mostly ineffective. They further noted that mentoring is time-consuming and not enough attention is paid to expectation setting. Instead of matching mentors to mentees, it was noted that mentoring relationships work when they develop organically and are based on genuine rapport. The AP concurred with the observation that WSMEs tend to seek support and guidance within their personal circles, which can be limiting as their peers are likely to be experiencing similar challenges and pathways. More measures are needed to upgrade the design of existing mentorship programs while shifting the mindsets of WSMEs to prioritize the expansion of their network and access to a variety of mentors.

Policy Recommendation

- The government can provide grants to subsidize the cost of mentoring so that mentoring programs can be monetized for increased incentives for both mentors and mentees, and to address dropouts. Such grants should be extended to existing volunteer-based mentoring programs and peer mentoring arrangements developed beyond formal mentoring programs.

Practical Recommendations

- Business and networking associations should consider promoting monetized mentoring programs to remunerate mentors and provide mentor training to improve mentoring quality and increase mentor commitments, particularly if this is supported by a government subsidy.
- The mentoring program should include meaningful touchpoints designed to provide opportunities for the participants to establish genuine rapport with the mentors and grow their relationship organically.

Supporting Successful Execution of Digitalization

The resource-strapped WSMEs are unlikely to have dedicated digital transformation experts who can create and implement a holistic and long-term digital strategy for the businesses. With a gap in digital skills to effectively leverage digital tools, WSMEs tend to prioritize digital solutions for customer-centric processes over others, in an effort to survive amidst the global pandemic. As a result, the digital solutions adopted are disintegrated, and SMEs need significant support in the form of system integrators for digital tools to truly support their business processes.

Practical Recommendations

- SME centers should proactively reach out to WSMEs to raise awareness about the importance of developing a roadmap for digital transformation.
- SME centers and business associations can form strategic partnerships to promote the available digitalization programs and grants among SMEs, in addition to engaging digital transformation experts so that WSMEs with low digital skills can seek more accessible technical assistance from the experts.

Tackling Unconscious Gender Bias

The panel noted that gender bias can be better mitigated by utilizing gender-disaggregated data. There is a significant perception of equality in Singapore, which could lead to disadvantages faced by women and minorities failing to be acknowledged within the Singaporean SME business community. Panelists asserted that gender inequity continues to exist, despite the perception of equality, and brought up the hidden quandary where women do not want to talk about bias they have faced to avoid being seen as 'troublesome' or 'difficult' to work with. The scarcity of gender-disaggregated data and research further conceals gender inequities.

Policy Recommendation

- Policies should be created based on gender-disaggregated data as a foundation for grant schemes that are aimed to solve WSMEs' most pressing challenges in digitalizing their business processes and management.

Policy and Practical Recommendation

- Gender-disaggregated data should be collected to highlight women's economic participation, particularly among the SME community, and widely published to educate key stakeholders.

Practical Recommendation

- Women's business associations should use existing facts and data to raise awareness of the existing covert gender barriers and biases to demonstrate the impact on women entrepreneurs.

Supporting SMEs to cope with the COVID-19 Pandemic

The panel commended the government for helping SMEs to cope with the impact of the COVID-19 pandemic, and particularly for their timeliness, availability, and effectiveness.

Policy Recommendations

- The Singaporean government should continue providing extensive and comprehensive support measures to help SMEs cope with the impact of COVID-19.

- Grants for SMEs should include financing change management activities, since this is a significant factor in the digital transformation process.

Practical Recommendation

- SME centers should offer additional advisory services, specifically in the areas of digital marketing, branding, change management, and business model adaptation, to cope with the changing environment.

5 Conclusion

Looking through the lens of the four pillars framework, this study analyzed the challenges and opportunities faced by WSMEs in terms of (1) access to financing; (2) access to mentoring, networking, and skills; (3) digitalization of business processes and management; and (4) crisis management (COVID-19).

Being the regional tech leader with tremendous support from the government, Singapore has made significant strides towards the digital transformation of its SMEs. Though the majority of the research participants were able to access government grants and traditional bank loans, WSMEs missed a huge opportunity in seeking out the newly available digital financing solutions, as well as gender-lens investment funds, many of which not only offer investment capital but also technical know-how and business advisory. Equipping WSMEs with a clear digital roadmap and strategy will help them assess the suitability and eligibility of the government grants more effectively, as well as enhance their business capabilities to survive and thrive in the post-COVID era.

Secondly, the majority of WSME participants currently relied on industry peers, family, friends and informal advisors for business advice and knowledge, not having a formal mentor or advisory board. They also took advantage of online learning, digital resources and webinars to continue their learning journey. The WSMEs in this study expressed strong needs in finding mentors, building their business networks and increasing their skills—indicating their preference for having a mentor who also shares the same background and struggles as a fellow woman business owner. The experts also concurred that there was a surge in demand for business counseling, mentorship, and learning business-related skills as the women entrepreneurs strove to cope with the impact of the COVID-19 pandemic.

In terms of digitalizing business processes and management, all WSME participants had adopted various forms of digitalization, ranging from financial and accounting digital tools to more advanced process automation using AI, with

varying degrees of digital intensity. This study found that only a small number of WSMEs were in the high-intensity category, whereas almost half of them were in the medium-intensity category and the rest in the low-intensity one, indicating that the women entrepreneurs would continue to need technical and financial support for digitalization in the future. While the government grants played an important role in supporting the WSMEs as they digitalized their business processes, the experts cautioned that the vast selection of funding schemes could be overwhelming for small businesses with limited human resources. In addition, they pointed out that the SMEs need significant support in the form of system integrators in order for digital tools to truly support their business processes.

Although COVID-19 has created grave difficulties for WSMEs, it should also be seen as an opportunity to accelerate digital transformation efforts as 75% of the participants managed to increase digitalization while trying to cope with the impact. According to 19 out of 20 WSMEs, digital technologies played a critical role in lessening the business impacts on them. The authors found out that about half of the 20 WSMEs were surviving, seven were thriving and the remaining two were struggling because of the changes imposed by the pandemic. Those who were thriving came mostly from the service sector, displaying resilience, adaptability, and agility by transforming their product and service offerings to a digital format. The majority of the WSMEs in this study were appreciative of the Singaporean government's timely support for SMEs, which helped them cope with the impact of the pandemic through various measures, such as cash grants, rental waivers, loans and training grants for upskilling local employees.

The study concludes that digitalization, combined with the Singaporean government's effective SME support initiatives, alleviated the negative impact of COVID-19 among the WSME participants. During the study, gender issues did not surface as a serious barrier for WSMEs across the four pillars. Yet, the lack of readily available gender-disaggregated data for SMEs indicated

that there was a pressing need to gather such data, which could shed light on the specific challenges faced by women entrepreneurs and remedy those challenges with more informed policy and practical solutions.

The report has also identified the opportunities and recommendations that need to be addressed to uplift and future-proof WSMEs in Singapore through the continuing digitalization process. We believe that most WSME research participants will not only survive, but thrive beyond the COVID-19 pandemic because of their resilience, pragmatism, adaptability, and hard-working nature.

Endnotes

- ¹ The World Bank. (2021). *Singapore*. <https://data.worldbank.org/country/singapore>
- ² The Economist. (2018). *The Asian digital transformation index 2018*. <http://connectedfuture.economist.com/wp-content/uploads/2018/12/ADTI-whitepaper.pdf>
- ³ Infocomm Media Development Authority. (2020). *Infocomm usage - households and individuals*. <https://www.imda.gov.sg/infocomm-media-landscape/research-and-statistics/infocomm-usage-households-and-individuals>
- ⁴ Infocomm Media Development Authority. (2021). *Telecommunications*. <https://www.imda.gov.sg/infocomm-media-landscape/research-and-statistics/telecommunications#1x>
- ⁵ Ministry of Trade and Industry Singapore. (2021). *The future economy council*. <https://www.mti.gov.sg/FutureEconomy/TheFutureEconomyCouncil>
- ⁶ Channel News Asia. (2020). *Singapore to spend S\$3.5 billion on information and communications technology to support businesses*. <https://www.channelnewsasia.com/singapore/covid-19-support-businesses-3-5-billion-info-comm-govtech-720636>
- ⁷ Ministry of Trade and Industry Singapore. (2021). *Performance of the Singapore economy in 2020*. <https://www.mti.gov.sg/Resources/feature-articles/2021/Performance-of-the-Singapore-Economy-in-2020>
- ⁸ Ministry of Trade and Industry Singapore. (2020). *Economic survey of Singapore first quarter 2020*. https://www.mti.gov.sg/-/media/MTI/Resources/Economic-Survey-of-Singapore/2020/Economic-Survey-of-Singapore-First-Quarter-2020/FullReport_1Q20.pdf
- ⁹ Infocomm Media Development Authority. (2020). *Accelerating nationwide digitalisation to build a world-class resilient digital future*. <https://www.imda.gov.sg/news-and-events/Media-Room/Media-Releases/2020/Accelerating-Nationwide-Digitalisation-To-Build-A-World-Class-Resilient-Digital-Future>
- ¹⁰ Singapore Department of Statistics. (2021). *Singapore economy*. Singapore Department of Statistics. <https://www.singstat.gov.sg/modules/infographics/economy>
- ¹¹ The Development Bank of Singapore Limited. (2020). *DBS survey reveals government-assisted financing schemes paying off; proportion of SMEs flagging cash flow as top concern more than halves since February 2020*. https://www.dbs.com/newsroom/DBS_survey_reveals_Government_assisted_financing_schemes_paying_off_proportion_of_SMEs_flagging_cash_flow_as_top_concern_more_than_halves_since_February_2020
- ¹² Tay, V. (2021). *Singapore firms' payment performance hits all-time low in 2020 amid Covid-19*. The Straits Times. <https://www.straitstimes.com/business/economy/singapore-firms-payment-performance-hits-all-time-low-in-2020-amid-covid-19>
- ¹³ Association of Small & Medium Enterprises and Microsoft Singapore. (2020). *2020 SME digital transformation study*. Microsoft Singapore News Center. <https://news.microsoft.com/en-sg/2020/10/22/over-80-of-singapore-smes-embrace-digital-transformation-more-than-half-report-slowdowns-due-to-covid-19-asme-microsoft-study-2020/>
- ¹⁴ Abdullah, A. Z. (2020). *Singapore to embark on a review of women's issues in move towards greater gender equality, leading to white paper next year*. Channel News Asia. <https://www.channelnewsasia.com/singapore/gender-equality-womens-issues-singapore-to-embark-engagements-596861>
- ¹⁵ The Union Bank of Switzerland. (2018). *Singapore factsheet*. https://bit.ly/SG_ubs

- ¹⁶ The Union Bank of Switzerland. (2018). *UBS announces launch of new global gender equality UCITS ETF*. UBS Media. <https://www.ubs.com/global/en/media/display-page-ndp/en-20180108-global-gender-equality-ucits-etf.html>
- ¹⁷ The Development Bank of Singapore Limited. (2021). *DBS is sole company in ASEAN in top global quartile of Bloomberg's Gender-Equality Index*. https://www.dbs.com/newsroom/DBS_is_sole_company_in_ASEAN_in_top_global_quartile_of_Bloombergs_Gender_Equality_Index_sg
- ¹⁸ Biegel, S., Papp, R., Aslam, A., Shih, N., & Yabashi, Y. (2020). *Gender lens investing landscape [East and Southeast Asia]*. Sasakawa Peace Foundation. https://www.spf.org/en/global-data/user50/gender_investmen_report.pdf
- ¹⁹ Batra, N. S. (2020). *Gender smart investing: the US\$4.5t opportunity Singapore can leverage*. Singapore Business Review. <https://sbr.com.sg/economy/commentary/gender-smart-investing-us45t-opportunity-singapore-can-leverage>
- ²⁰ Yu, D. (2020). *Patamar capital-backed Beacon launches \$50m fund for female founders*. Tech in Asia. <https://www.techinasia.com/patamar-capitalbacked-beacon-launches-50m-female-fund>
- ²¹ Asian Venture Philanthropy Network. (2021). *Gender platform - AVPN*. <https://avpn.asia/impact-communities/gender-platform/>
- ²² Asia Gender Network. (n.d.). *Asia gender network powered by AVPN*. <https://asiagendernetwork.avpn.asia/>
- ²³ Asia Gender Network. (n.d.). *Find out about our members*. <https://asiagendernetwork.avpn.asia/members>
- ²⁴ Teo, K. (2020). *The perfect storm for SME digital financing in Singapore*. Entrepreneurs' Digest. <https://www.articles.asme.org.sg/single-post/2020/06/09/The-perfect-storm-for-SME-digital-financing-in-Singapore>
- ²⁵ Blokland, A. (2018). *Why female entrepreneurs should join women's networks*. Forbes. <https://www.forbes.com/sites/anettebvanblokland/2018/10/18/why-female-entrepreneurs-should-join-womens-networks/?sh=54ccc1732a13>
- ²⁶ Loh, G. S. (2021). *'Are you a beer girl?': Meet Singapore's first and only certified female brewmaster*. Channel News Asia Lifestyle. <https://cnalifestyle.channelnewsasia.com/women/singapore-female-brewmaster-crystalla-huang-reddot-brewhouse-14780976>
- ²⁷ Konrad-Adenauer-Stiftung. (2020). *Digitalization: Women-owned businesses transform in the era of digitalization. Case studies from Indonesia, Cambodia, Malaysia, and Myanmar*. KAS Publishing. https://bit.ly/KAS_Path_to_Success_Vol1
- ²⁸ Cisco and International Data Corporation. (2020). *2020 small business digital transformation*. Cisco. https://www.cisco.com/c/dam/en_us/solutions/small-business/resource-center/small-business-digital-transformation.pdf
- ²⁹ Kane, G. C., Palmer, D., Phillips, A. N., Kiron, D., & Buckley, N. (2015). *Strategy, not technology, drives digital transformation*. MIT Sloan Review and Deloitte University Press. https://www2.deloitte.com/content/dam/Deloitte/fr/Documents/strategy/dup_strategy-not-technology-drives-digital-transformation.pdf

Appendix A: Definition of Woman-Owned SME in Singapore

For the purpose of this publication, a woman-owned SME is defined as one where a woman or group of women own more than 30% of the company's shares and are involved in the day-to-day operations and decision making in the company. SMEs in Singapore are defined by the Singaporean government as companies with:

- (i) at least 30% local shareholding; and
- (ii) group annual sales turnover of not more than SGD 100 million (USD 74 million), or a group employment size of not more than 200 employees.¹

Micro SMEs are firms with an annual revenue below SGD 1 million (USD 0.74 million) or fewer than 10 employees.² Beyond that, the government does not officially distinguish between small and medium-sized enterprises. For the purpose of this publication, the authors have defined a small-sized enterprise (SE) in Singapore as a company with less than 200 employees, and making SGD 1 million (USD 0.74 million) to SGD 10 million (USD 7.4 million) in annual revenue, while a medium-sized enterprise (ME) is defined as a company having less than 200 employees and making SGD 10 million (USD 7.4 million) to SGD 100 million (USD 74 million) in annual revenue, and only SMEs with at least 30% local shareholding were selected. The SGD 10 million (USD 7.4 million) threshold was selected based on the qualifying criteria for audit exemption as a "small company"³; a company qualifies for this exemption if it has at least two of the following:

- Total annual revenue of not more than SGD 10 million.
- Total gross assets at the end of the financial reporting period of not more than SGD 10 million.
- Total number of employees at the end of the financial year was not more than 50.

¹ Update in definition of SMEs in relation to eligibility for Enhanced Training Support for SMEs Scheme and Activation of Updated SME Definition in SkillsConnect. (2014, April 21). SkillsConnect. https://www.skillsconnect.gov.sg/sop/portal/important%20Notes/SME_definition_not_updated.jsp

² Enterprise Singapore. (2020, May 15). SME Centres - 'go-to' help for enterprises to build capabilities, scale-up and collaborate to grow. Enterprise Singapore. <https://www.enterprisesg.gov.sg/media-centre/media-releases/2019/april/sme-centre-update>

³ Accounting and Corporate Regulatory Authority. (2019, January 29). More Details on Small Company Concept for Audit Exemption. Accounting and Corporate Regulatory Authority. <https://www.acra.gov.sg/legislation/legislative-reform/companies-act-reform/companies-amendment-act-2014/two-phase-implementation-of-companies-amendment-act-2014/more-details-on-small-company-concept-for-audit-exemption>

Appendix B: List of Singapore's Government Digitalization Grants and Tools for SMEs

Name	Type	Website
Digital Resilience Bonus	Bonus	https://www.imda.gov.sg/programme-listing/smes-go-digital/Digital-Resilience-Bonus
Chief Technology Officer-as-a-Service (CTOaaS)	Digital Tech Consulting Service	https://www.imda.gov.sg/programme-listing/smes-go-digital/CTOaaS
SME Digital Tech Hub	Digital Tech Consulting Service	https://www.imda.gov.sg/programme-listing/smes-go-digital/sme-digital-tech-hub
Agri-food Cluster Transformation (ACT) Fund	Fund	https://www.sfa.gov.sg/food-farming/funding-schemes/act-fund
Business Improvement Fund (BIF)	Fund	https://www.stb.gov.sg/content/stb/en/assistance-and-licensing/grants-overview/business-improvement-fund-bif.html
Stronger Together, Aiding Recovery	Fund	https://www.sgtech.org.sg/starfund
Enterprise Development Grant (EDG)	Grant	https://www.enterprisesg.gov.sg/financial-assistance/grants#for-local-companies-
Financial Sector Tech & Innovation Digital Acceleration Grant	Grant	https://www.mas.gov.sg/-/media/MAS/resource/covid-19/ANNEX-B---DIGITAL-ACCELERATION-GRANT.pdf
International Co-Innovation Programs	Grant	https://www.enterprisesg.gov.sg/financial-assistance/grants#for-local-companies-
Market Readiness Assistance (MRA) Grant	Grant	https://www.enterprisesg.gov.sg/financial-assistance/grants#for-local-companies-
Operation & Technology Roadmap	Grant	https://www.a-star.edu.sg/enterprise/innovation-offerings/programmes-for-smes/operation-technology-roadmap
Productivity Solutions Grant (PSG)	Grant	https://www.enterprisesg.gov.sg/financial-assistance/grants#for-local-companies-
Skills Future for Digital Workplace	Grant	https://www.skillsfuture.gov.sg/digitalworkplace
SkillsFuture Enterprise Credit (SFEC)	Grant	https://www.enterprisesg.gov.sg/financial-assistance/grants#for-local-companies-

List of Singapore's Government Digitalization Grants & Tools for SMEs

Name	Type	Website
Start Digital	Grant	https://www.imda.gov.sg/programme-listing/smes-go-digital/start-digital-pack
Nationwide E-Invoicing Initiative	Initiative	https://www.imda.gov.sg/programme-listing/nationwide-e-invoicing-framework
Enterprise Financing Scheme (EFS)	Loans & Insurance	https://www.enterprisesg.gov.sg/financial-assistance/loans-and-insurance
Temporary Bridging Loan Programme	Loans & Insurance	https://www.enterprisesg.gov.sg/financial-assistance/loans-and-insurance
T-Up Programme	Tech Support	https://www.a-star.edu.sg/enterprise/innovation-offerings/programmes-for-smes/technology-for-enterprise-capability-upgrading
Technology Adoption Programme (TAP)	Tech Support	https://www.a-star.edu.sg/i2r/partnerships/small-and-medium-sized-enterprises-(smes)
Smart Industry Readiness Index Assessment	Toolkit	https://www.siri.gov.sg/
SGUnited Jobs and Skills	Training / Hiring	https://www.ssg-wsg.gov.sg/sgunitedjobsandskills.html
SGUnited Mid-Career Pathways – Company Training (SGUP)	Training / Hiring	https://www.ssg-wsg.gov.sg/programmes-and-initiatives/sgunitedmidcareerpathwaysprogramme.html
SGUnited Skills Programme	Training / Hiring	https://www.skillsfuture.gov.sg/sgunitedskills
Resources for Businesses	Useful Link	https://www.smartnation.gov.sg/resources/resources-for-businesses
Skills Future SG - Workforce SG	Useful Link	https://www.ssg-wsg.gov.sg/

Appendix C: Rapid Growth of Alternative Financing in Singapore

The tech-supportive environment in Singapore has led to the rapid growth of emerging industries in alternative financing. With favorable policy and regulations, the government, especially the Monetary Authority of Singapore (MAS), has provided fast-track support for new fintech companies, such as peer-to-peer lending, invoice financing, equity crowdfunding (although only available for institutional investors and not yet regulated for retail investors). These new fintech solutions are designed to mostly serve the SME sector in Singapore.

The most commonly used alternative financing solutions by SMEs in Singapore are P2P-lending platforms that connect investors to SMEs and approve non-collateralized loans in as little as 24 hours, and invoice financing—also defined as invoice trading—which enables SMEs access to short-term loans against invoices due from their customers.

Some of the most active platforms are as follows:

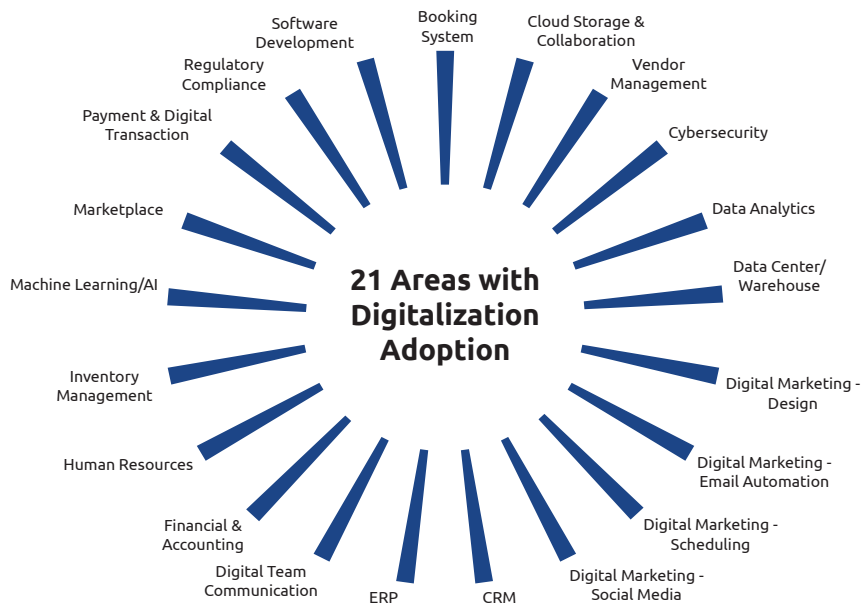
- **Aspire:** a new digital bank with borderless payments, corporate cards, expense management and credit solutions. Despite launching in May 2020, it has already reached over SGD 1 billion in annualized transaction volume;
- **Validus:** Singapore's largest peer-to-peer lending platform;
- **Funding Societies, GrabFinance, Finaxar, MoolahSense, Zetl:** flexible, specialized working capital loans and/or invoice/purchasing financing;
- **Fundnel:** MAS-licensed equity and lending crowdfunding platform to match startups with investors for larger ticket sizes, both loans and equity.

Appendix D: Digital Intensity Model Used in Singapore Case Study

The intensity model provides a framework for categorizing WSMEs based on the extent of their technology adoption, from which the government can offer tailored help based on where each WSME is located in the digital intensity model. The digital intensity model was assessed based on interviews by looking at the tools that were utilized by WSMEs.

The tools that were found to have been used by WSMEs were then each categorized into one of the 21 areas of business where digitalization was adopted (see Figure D.1).

Figure D.1 Areas with digital solution adoption



To determine the level of digital intensity, the authors used the following equation:

$$\text{Intensity Score} = n/21$$

Where n is defined as the number of areas in which digital solutions have been adopted for each WSME. The category, from low, medium, to high, is defined in Table D.1.

Table D.1 Categorization of digital intensity model for Singapore WSMEs

Category	Definition
High	$66\% < \text{Intensity Score} \leq 100\%$
Medium	$33\% < \text{Intensity Score} \leq 66\%$
Low	$0\% < \text{Intensity Score} \leq 33\%$

Appendix E: List of Advisory Panelists



Irene Boey

Chairperson of the @ASME SME center, president of UWAS, data strategy and consulting director, AI and data solutions.

Irene Boey is the consulting director of Integral Solutions (Asia) Pte Ltd. She is responsible for leading Integral's data mining and CRM business in Asia. Her responsibilities include solving customers' business problems by simplifying advanced technology to address users' business needs. She has implemented many successful data mining and CRM projects in various industries, like banking and finance, telco, retail and wholesalers, government, and manufacturing.

Ms Boey was involved in bringing data mining technologies to Asia since 1994 through Integral Solutions (Asia) Pte Ltd. She was a pioneer in data mining consulting in Asia. With her long history in data mining and data analytics, she has accumulated a good collection of business best practices from these different industries.

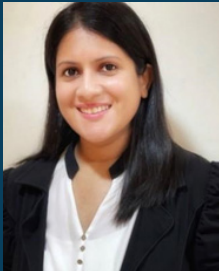
She has worked for Integral Solutions (Asia) Pte Ltd since 1994. She has more than 10 years of business and marketing experience in the electronics and IT industries and holds a marketing degree from the Chartered Institute of Marketing, UK and an MBA in Entrepreneurial Management.



Angela Choo

SMB lead, Microsoft Singapore

Angela Choo is an experienced director of marketing and product management with a demonstrated history of working in the information technology and services industry. She is skilled in business alliances, managed services, business development, partner management, and go-to-market strategy.



Neha Gupta

Business advisor to SMEs at the @SICCI (Singapore Indian SME center chamber of commerce and industry)

Neha Gupta is a digital marketing expert passionate about helping small-medium businesses and startups scale by enabling digital transformation.

As an experienced entrepreneur, Neha has created and successfully exited her own startup in the food tech space. She has APAC-wide experience, including India and Southeast Asia, and has worked with brand builders like Procter & Gamble.

Neha has digital marketing expertise in programmatic & mobile advertising, Facebook & Instagram Content & Ads Manager, Google Search (SEO/SEM) & Google Analytics, YouTube content and advertising, online campaigns, digital media planning and e-commerce.



Mrinalini (Minnie) Venkatachalam

Regional director, WeConnect International

As regional director of Southeast Asia and Oceania, Mrinalini (Minnie) provides support to WeConnect International by enhancing brand visibility and conducting outreach to women entrepreneurs and corporate buyers in Southeast Asia, East Asia and Oceania. Her region is probably the fastest growing for small and medium-sized enterprises, including those that are women-owned.

With experience spanning over a decade, Minnie has worked to bridge the gap between unmet social needs and service providers, giving large corporations, government agencies, community organizations and social enterprises the platform to create measurable social impact.

Minnie has been awarded the Singapore Women's Weekly Great Women of Our Time Award in the Public Service and Education category and has been nominated as one of Cleo Singapore's 2016 top ten changemakers.

List of Advisory Panelists

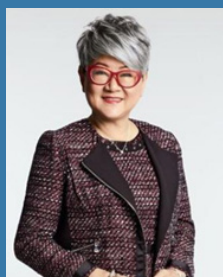


Regula Schegg

Managing director, Asia at Circulate Capital

Regula is Circulate Capital's managing director for Asia. She leads the investment strategy, manages the investment team and oversees the fund's investment portfolio in South and Southeast Asia. Together with her team, Regula manages asset allocations as well as due diligence portfolio management of fund investments. She also provides strategic advisory to the portfolio companies, focusing on strategy, business development, fundraising, key hiring decisions, financial management, and governance.

Regula is an experienced global professional with over 20 years of leadership, business development, project management, finance, and social enterprise/startup expertise. Throughout her corporate career, she has held positions in corporate strategy, M&A, private equity, financial controlling and business development. Regula graduated with an MBA (Honors) in Global Management from Thunderbird, School of Global Management, USA, with undergraduate studies in Switzerland, the United Kingdom and France. She is an Aspen Institute Business & Society First Movers Fellow.

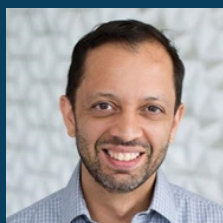


Kim Underhill

Singapore Business Professional Women Association

Kim Underhill is a leader in change management strategy with over 25 years of international management experience. She has successfully led profitable sales, marketing, and operations throughout APAC for global MNCs and management of fortune in 50 organizations.

Kim is a keynote speaker certified executive coach certified practitioner for NLP & Belbin Team Roles, and the author of *Success Inside Out*—a 6-step self coaching methodology—and *New Age Leadership*, which helps individuals be effective, influential, and inspiring leaders.



Zia Zaman

Managing partner, Beaver Lake Capital

Zia is a full-spectrum leader with proven expertise in innovation, strategy, and marketing. His track record includes launching businesses, building innovation pipelines and systems, growing revenue while improving margins, managing substantial P&L responsibilities, selling and delivering senior-level consulting engagements, leading global line organizations in innovation, strategy, product marketing, corporate development, and achieving a successful exit via a billion-dollar sale to Microsoft. Zia's educational highlights include a MBA from Stanford University Graduate School of Business and Master's and Bachelor's degrees from MIT.



KONRAD
ADENAUER
STIFTUNG

Knowledge Partner:



© COPYRIGHT 2021

Konrad-Adenauer-Stiftung, Japan Office

OAG-Haus 4F 7-5-56 Akasaka, Minato-ku Tokyo, 107-0052 Japan

Website: <http://www.kas.de/japan/en>

Facebook: <https://www.facebook.com/KAS.Japan>

Woomentum, Singapore Office

21 Woodlands Close #08-44

Primz Bizhub

Singapore (737854)

Website: <http://woomentum.com>

Facebook: www.facebook.com/Woomentum