



Funding female inclusive start-ups in low- and middle-income countries (LMICs)

Recommendations for investors, donors and funders



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GSMA Innovation Fund

The GSMA Innovation Fund accelerates digital tech solutions that are addressing key global challenges. Through grant funding and tailored venture building support, we enable innovators in LMICs to scale and amplify social and environmental impact.

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Definitions

Start-up	An organisation developing a business model that is repeatable and scalable. This distinguishes start-ups from other companies, which are assumed to already have a repeatable and scalable business model. ¹ As a result, the type of investment and support a start-up requires differs from that of other organisations.
Funding organisation	A donor, investor or other entity providing finance to a start-up, including equity and non-equity funding.
Non-equity funding	All forms of funding where the investor or funder does not have any ownership or shares in the start-up. Examples include catalytic grant funding and traditional debt or loans (not to be confused with convertible notes that are commonly converted into equity).
Equity funding	All forms of funding where the investor or funder takes ownership or equity share (preferred and/or common shares) of the start-up in exchange for funding, such as angel investment (including convertible debt) and venture capital (VC) investment.
Female-led start-up	An organisation where at least half (50%) of the founders or owners identify as female.
Male-led start-up	An organisation where fewer than half (50%) of the founders or owners identify as female.
Female inclusion	The active engagement and participation of women in various roles within the start-up ecosystem, including as investors, founders, leaders, employees and customers of start-up services or products.
Scalability	A company's ability to grow its business without encountering resource constraints.
Start-up ecosystem	The start-up ecosystem consists of start-ups, corporates, funding providers (including donors, venture capitalists, angel investors and others), universities and tech hubs, such as incubators and accelerators.

1. As defined by Steve Blank, US entrepreneur and adjunct professor of entrepreneurship at Stanford University.



1 Introduction

Start-ups in LMICs have the potential to reduce inequalities by scaling innovative digital solutions, but lack capital as they are often considered too risky for commercial investors. This results in a critical gap in funding on the pathway to scale for these companies. The GSMA Innovation Fund bridges that gap by offering equity-free grant funding and venture building support tailored to the bespoke needs of innovators in these markets. The GSMA Innovation Fund, along with other challenge funds, accelerators and early-stage supporters, aims to develop a pipeline for commercial investors by de-risking these innovations and providing investor readiness and partnership building support to entrepreneurs.

Female inclusion is a cross-cutting theme for the GSMA Innovation Fund and a key UN Sustainable Development Goal for achieving economic empowerment. A study of nearly 8,000 businesses across 29 emerging economies revealed that those with greater gender diversity in ownership and management are more likely to invest in research and development, which enhances both technological and non-technological innovation.² The innovative capabilities of these organisations are further strengthened by a diverse workforce and human resource practices that promote creativity and learning.³

An analysis of over 1,500 applications to the GSMA Innovation Fund has found that businesses predominately led by women are more likely to have a gender-diverse workforce, including at the management level. However, there is a significant and persistent financing gap for women-led businesses once they move beyond early-stage investment.^{4,5}

Female inclusion is a key focus of the GSMA, and one of many considerations in the GSMA Innovation Fund's scoring process. However, not all funding organisations meaningfully value the participation of women in their portfolio. This report begins with an overview of female entrepreneurs in LMICs and the barriers they face, finding that commercial investment and access to credit is a bigger challenge for female entrepreneurs than early-stage financial support.

The second section of this report analyses the journey of female-led start-ups through the GSMA Innovation Fund's selection process to understand how well they navigate the application cycle, finding that the percentage of women applying is largely similar to the percentage receiving funding (around 30%). The GSMA Innovation Fund prioritises female inclusion within its portfolio of grantees without setting quotas or targets, and while the achievements are positive, there are regional and thematic disparities where the GSMA Innovation Fund could improve. The report concludes with recommendations for funding organisations to meaningfully increase female inclusion within their portfolios.

2. Tonoyan, V., & Boudreaux, C.J., (2023). [Gender diversity in firm ownership: Direct and indirect effects on firm-level innovation across 29 emerging economies](#). Research Policy 52, 4.

3. Ibid.

4. Abouzahr, K., et al. (2018). [Why Women-Owned Startups Are a Better Bet](#). Boston Consulting Group.

5. IFC. (2019). [Moving toward gender balance in private equity and venture capital](#).



2 Understanding the landscape: Female-led start-ups in LMICs

Globally, women in the formal and informal economy are more likely to face barriers in wage work, such as discrimination, greater exposure to vulnerable conditions, and restrictive social norms, compounded by the additional responsibilities of unpaid family work.⁶ They are more likely to have part-time or temporary jobs, earn less money and hold a lower position than their male counterparts.⁷

Given the scarcity of decent wage opportunities, entrepreneurship emerges as a critical pathway for empowering women, especially in LMICs. According to the Global Entrepreneurship Monitor (GEM), 17% of women in LMICs are entrepreneurs, while an additional 20% aspire to do the same.⁸ Most of these female entrepreneurs focus on local markets, emphasising their importance in supporting local economies and community resilience.⁹

2.1 Characteristics of female entrepreneurs in LMICs

Sectors

While the landscape of female entrepreneurship in LMICs is heterogeneous, varying across regions and socioeconomic contexts, there is evidence that shows female entrepreneurs are increasingly expanding their presence in the start-up ecosystem.

In 2022, female entrepreneurs in LMICs outnumbered their male counterparts in the wholesale/retail, government, health, education and social services sectors.¹⁰ Retail, the most common sector for entrepreneurs in LMICs, is

especially attractive to entrepreneurs as it has low upfront costs.¹¹ While vital to building the economy and creating jobs, these sectors are however less attractive to commercial investors. Boston Consulting Group found that female entrepreneurs whose business model centred on categories like childcare and beauty struggled to get investors to understand their commercial value.¹² Anecdotal evidence suggested this is also the case for social enterprises that target people in much lower socioeconomic groups than the potential investor.¹³

Female entrepreneurs operate in financial, professional and manufacturing sectors at rates similar to men, but are far less active in the agricultural and internet, communications and technology (ICT) sectors.¹⁴

Technology

Digitalisation emerged as a crucial element for start-ups in LMICs during the COVID-19 pandemic.^{15,16} For women in particular, online business operations offer significant appeal by allowing them the flexibility to manage household and childcare responsibilities while running their businesses.¹⁷ The Cherie Blair Foundation for Women found that nearly half (44%) of surveyed female entrepreneurs in 2023 had already adopted AI tools within their business, with the majority of respondents reporting they use it for content generation and editing.¹⁸ However, female entrepreneurs in LMICs are still less inclined to use technology compared to men. They are less likely to use a mobile phone for business purposes and less likely to understand how a mobile phone could be used for business purposes.¹⁹

6. Langer, L. et al. (2018). *Women in wage labour: A systematic review of the effectiveness and design features of interventions supporting women's participation in wage labour in higher-growth and/or male-dominated sectors in LMICs*. Technical Report. London:EPPI-Centre.

7. Ibid.

8. Elam, A.B., et al. (2021). *Women's Entrepreneurship 2020/21, Thriving Through Crisis*. GEM.

9. Ibid.

10. Elam, A. (2023). *GEM 2022/23 Women's Entrepreneurship Report: Challenging Bias and Stereotypes*. GEM.

11. Ibid.

12. Abouzahr, K., et al. (2018). *Why Women-Owned Startups Are a Better Bet*. Boston Consulting Group.

13. Ibid.

14. Elam, A. (2023). *GEM 2022/23 Women's Entrepreneurship Report: Challenging Bias and Stereotypes*. GEM.

15. Cherie Blair Foundation for Women. (2023). *Bridging the Divide: Women, Technology and Business Success. 2023 Audit of Women Entrepreneurs in Low and Middle Income Countries*.

16. Elam, A. (2023). *GEM 2022/23 Women's Entrepreneurship Report: Challenging Bias and Stereotypes*. GEM.

17. Moodley, L., et al. (2019). *The power of parity: Advancing women's equality in Africa*. McKinsey Global Institute.

18. Cherie Blair Foundation for Women. (2023). *Bridging the Divide: Women, Technology and Business Success. 2023 Audit of Women Entrepreneurs in Low and Middle Income Countries*.

19. Carboni, I., et al. (2023). *Understanding women micro-entrepreneurs' use of mobile phones for business*. GSMA.

Adopting digital tools in LMICs is crucial, as most start-ups in these markets are run by solopreneurs (a business where the founder is the sole employee), and this is even more common for female entrepreneurs.²⁰ Just over half of female-led start-ups have between one and five employees, and fewer than 10% have more than six.²¹ Mobile phones are the most prevalent way for individuals in LMICs to connect to the internet, making them critical for scaling small businesses through skills development, accepting orders and payments, and marketing.²² Women that use mobile technology for business report they could not run their enterprise without it.²³ However, those that do not access smartphones face barriers such as social norms (disapproval from family and community members), fears for their safety, and lack of confidence and digital skills, compounded by the high costs of handsets.²⁴

Regional variations



Africa

Less than a decade ago, sub-Saharan Africa had the highest start-up activity rate for women at 25.9%, signalling that one in four women in the labour force were entrepreneurs.²⁵ However, even in regions with high levels of female entrepreneurship, women are less present in tech start-ups. Data on over 2,000 tech start-ups in Africa found that only 11% were led by all-female teams, with the highest concentration in health, e-commerce and education.²⁶ Education tech and health tech have lower levels of investment compared to other technology industries.²⁷ Women entrepreneurs in sub-Saharan Africa are more active in retail and services, which require less capital and have lower barriers to entry, but also attract less investment.²⁸



Latin America and the Caribbean

Today, Latin America and the Caribbean has overtaken sub-Saharan Africa and now has the highest start-up activity rate for women globally at 21.2%, led by Guatemala at 28.2% and Colombia at 26.1%.²⁹ Notably, this region also has the highest start-up activity rate for men globally at 24.8%. However, it also has a high business exit rate for women at 6.6% and the lowest rate for established businesses (operating for 3.5 years or more) at 4.7%, indicating a volatile business environment.³⁰ The highest rate of female solopreneurs is also found in Latin America and the Caribbean, where 44.5% of women entrepreneurs work alone.³¹



Asia

In Asia, female entrepreneurship is much lower. India has the highest percentage of female-led start-ups in the region at 11.5% (similar to the start-up rate for men), followed by Indonesia at 9.1%.³² However, for microentrepreneurs in Southeast Asia, data shows that businesses led by women have between 11-41% lower profits than businesses led by men in the same industries.³³ Women in Southeast Asia face several barriers to launch and scale businesses. These include employment challenges due to stereotypes that women are not good managers, childcare and household responsibilities, less capital, and difficulties building networks due to social norms.³⁴ Asian countries also have the lowest levels of female representation in management.³⁵

20. Elam, A. (2023). *GEM 2022/23 Women's Entrepreneurship Report: Challenging Bias and Stereotypes*. GEM.

21. Ibid.

22. Carboni, I., et al. (2023). *Understanding women micro-entrepreneurs' use of mobile phones for business*. GSMA.

23. Ibid.

24. Ibid.

25. Kelley, D.J., et al. (2017). *Women's Entrepreneurship 2016/2017 Report*. GEM.

26. Africa Gender Innovation Lab. (2021). *In Search of Equity: Exploring Africa's Gender Gap in Start-up Financing*. World Bank.

27. Ibid.

28. Elam, A. (2023). *GEM 2022/23 Women's Entrepreneurship Report: Challenging Bias and Stereotypes*. GEM.

29. Ibid.

30. Ibid.

31. Ibid.

32. Ibid.

33. World Bank. (n.d.). *Enterprising Women: Toward Equal Business Opportunity in Southeast Asia*.

34. Ibid.

35. Hanna, T., et al. (2023). *Forecasting Women in Leadership Positions*. UN Women.

2.2 Addressing the financing gap for female entrepreneurs

Despite their crucial role in driving economic growth and innovation in LMICs, female-led start-ups face significant challenges in securing both equity and non-equity funding.^{36,36} In a 2023 survey of over 1,100 female entrepreneurs, 26% listed access to finance as their biggest constraint and 80% said financial support would help them overcome their biggest obstacles to growing their business.³⁸

The median female-led business secures only 65% of the funding that their male-led counterparts receive, with significant discrepancies evident at different stages of investment. Female-led businesses often receive more funding in the early stages where investments are smaller, while later stages, which typically involve larger investments, see a greater gender disparity.³⁹

Early-stage funding

Challenge funds, like the GSMA Innovation Fund and other start-up accelerators that typically offer equity-free funding and/or venture building support, target start-ups at the earlier stage of their growth, aiming to de-risk innovations and create a pipeline for commercial investors. They often provide seed or pre-Series A funding of less than \$500,000.

Funding is most accessible for female entrepreneurs at the accelerator/incubator and seed stages of funding.⁴⁰ At the early venture capital stage, the number of deals made to female entrepreneurs decreases by about 28% from seed stage, and the value drops by 50%.⁴¹ Unsurprisingly, women are less likely than men to run an established business (having been in operation for more than 3.5 years).⁴²

Access to credit

The World Economic Forum reports that 80% of female entrepreneurs who need access to credit to launch or scale their businesses are unserved or underserved by financial institutions.⁴³ Many women in LMICs lack bank accounts, and even those with access to financial services often face dissatisfaction.⁴⁴ High collateral demands and elevated interest rates further impede female entrepreneurs' ability to secure loans, resulting in women receiving significantly lower loan amounts than men.⁴⁵

This results in a gap between the amount of credit female entrepreneurs need and the amount they can secure. The credit gap for women-owned SMEs in LMICs is largest in Latin America and the Caribbean, followed by East Asia and the Pacific.⁴⁶ However, the problem is widespread across LMICs, as women lack access to bank accounts and collateral (especially land).⁴⁷ There is some evidence to suggest that products and services tailored to female entrepreneurs, such as micro-credit and cashflow-based lending as an alternative to credit scores, are starting to improve credit access.⁴⁸

Commercial investment

The International Finance Corporation (IFC) reports that female-led start-ups in emerging markets receive less than 10% of nearly \$800 billion channelled through venture capital and private equity funds, and the lack of gender diversity within investment companies contributes significantly to this funding gap.⁴⁹

Only 15% of the 700 senior investment teams surveyed by the IFC have teams with at least 30% women, while nearly 70% are entirely male.⁵⁰ This impacts investment decisions, as gender-balanced teams invest in nearly twice as many female

36. Abouzahr, K., et al. (2018). *Why Women-Owned Startups Are a Better Bet*. Boston Consulting Group.

37. IFC. (2019). *Moving toward gender balance in private equity and venture capital*.

38. Cherie Blair Foundation for Women. (2023). *Bridging the Divide: Women, Technology and Business Success. 2023 Audit of Women Entrepreneurs in Low and Middle Income Countries*.

39. Ibid.

40. IFC. (2019). *Moving toward gender balance in private equity and venture capital*.

41. Ibid.

42. Elam, A. (2023). *GEM 2022/23 Women's Entrepreneurship Report: Challenging Bias and Stereotypes*. GEM.

43. World Economic Forum. (2019). *To improve women's access to finance, stop asking them for collateral*.

44. Siegrist, F. (2022). *Supporting Women Entrepreneurs in Developing Countries: What Works? A Review of the Evidence Base and We-Fi's Theory of Change*. Women Entrepreneurs Finance Initiative.

45. Ibid.

46. Ganuza, M., et al. (2014). *Women-owned SMEs: a business opportunity for financial institutions - a market and credit gap assessment and IFC's portfolio gender baseline*. World Bank.

47. World Economic Forum. (2019). *To improve women's access to finance, stop asking them for collateral*.

48. Siegrist, F. (2022). *Supporting Women Entrepreneurs in Developing Countries: What Works? A Review of the Evidence Base and We-Fi's Theory of Change*. Women Entrepreneurs Finance Initiative.

49. IFC. (2019). *Moving toward gender balance in private equity and venture capital*.

50. Ibid.

entrepreneurs compared to male-dominated teams.⁵¹ The findings align with similar research on gender biases in the investment community in the US, which shows that investors tend to rate pitches by women-led start-ups lower than their male counterparts, even when the quality is the same.⁵² Women-led start-ups are often subjected to more risk-related questions,⁵³ yet the IFC reports that gender balanced investment firms, whose portfolios include more women-led start-ups, report 10-20% higher returns.⁵⁴

Women in LMICs are underrepresented as business investors, which exacerbates the gender financing gap.⁵⁵ Women in Latin America and the Caribbean, the most active region for female investors, still invest significantly less on average (\$648) compared to men (\$1,122).⁵⁶ Limited networks and access to information, including online resources, further restrict women's access to substantial investment opportunities, which is critical for start-up growth and innovation.⁵⁷

Addressing this finance gap requires systemic change to investment firms' approach to funding. While many investors acknowledge the importance of gender balance, there is a noticeable gap in prioritising it. While 67% of private equity and venture capital funds recognise the significance of gender balance in their investment teams, fewer than 10% have implemented concrete strategies or targets to enhance female representation.⁵⁸ Similarly, 65% of institutional investors view gender diversity as important in their investment decisions, but only 25% actively consider gender diversity during the due diligence process for the funds they invest in.⁵⁹

Tools for improving female inclusion

In recent years, several initiatives and frameworks have been introduced to address the gender gap in entrepreneurship and investment, focusing on promoting diversity, equity and inclusion. These tools can be used by donors and investors at any stage of start-up funding. Primarily, they require funding organisations to collect and monitor data related to female inclusion. They also set a foundation for companies to measure progress against, whether it is within the workforce or the customer base. Paired with relevant venture building support, mentorships and access to

partners, these tools can make meaningful improvements within start-ups.

2X Criteria: Created by development finance institutions (DFIs) and multilateral development banks, the 2X Criteria initiative serves as a global standard for gender finance. It assesses the gender impact of investments by evaluating indicators such as female ownership, women's leadership, gender-responsive products and gender-inclusive workplace policies. This framework guides investment decisions towards businesses and projects that support gender equality and empower women.

EDGE Certification: EDGE Certification is an internationally recognised standard for evaluating gender equality within organisations. It assesses practices related to equal pay, recruitment, promotion, leadership development and workplace flexibility. The certification process includes reviewing gender pay gaps, policies, leadership opportunities and employee surveys to gauge perceptions of equality. Organisations receive feedback and action plans to improve their practices and align with global standards.

Innovating for Gender Equality Fund: Launched by the Global Innovation Fund (GIF), the Innovating for Gender Equality Fund supports innovations aimed at enhancing opportunities and outcomes in developing countries with a focus on gender considerations. It uses a gender marker tool to assess the gender impact of potential investments, evaluating aspects such as women's economic empowerment, access to resources and leadership opportunities. Projects with high gender impact scores are prioritised for funding.

SEAF Gender Equality Scorecard®: This tool evaluates women's economic empowerment and gender equality within investment opportunities and portfolio companies. It assesses performance across six areas: pay equity, workforce participation, leadership and governance, benefits and professional development, workplace environment, and women-focused value chains. The scorecard includes an analysis of pay disparities, recruitment practices, leadership opportunities and employee feedback, providing detailed recommendations for improvement.

51. Ibid.

52. Brooks, A.W., et al. (2014). *Investors prefer entrepreneurial ventures pitched by attractive men*. Proceedings of the National Academy of Sciences 111, 12: 4427-4431.

53. Kanze, D., et al. (2017). *Male and Female Entrepreneurs Get Asked Different Questions by VCs — and It Affects How Much Funding They Get*. Harvard Business Review.

54. Ganuza, M., et al. (2014). *Women-owned SMEs: a business opportunity for financial institutions - a market and credit gap assessment and IFC's portfolio gender baseline*. World Bank.

55. Elam, A. (2023). *GEM 2022/23 Women's Entrepreneurship Report: Challenging Bias and Stereotypes*. GEM.

56. Ibid.

57. World Bank. (2019). *Profiting from Parity: Unlocking the Potential of Women's Business in Africa*.

58. IFC. (2019). *Moving toward gender balance in private equity and venture capital*.

59. Ibid.





3 Analysis of GSMA Innovation Fund data on female inclusion

The GSMA Innovation Fund targets post-revenue start-ups in LMICs whose digital technology innovations accelerate social and/or environmental impact. It is positioned as an early-stage supporter, where most of its grantees have not yet raised Series A funding, but already have active users. During the grant period and for several years after, the GSMA supports start-ups to secure follow-on funding from other equity-free donors, debt and commercial investment.

The GSMA's geographic scope is largely limited to select LMICs in Africa and Asia. In Round 4, the GSMA Innovation Fund opened to start-ups in Latin America and the Caribbean for the first time. However, the low success rate in reaching start-ups from this region is a result of several factors, including the GSMA Innovation Fund's limited network there.

3.1 Selection process

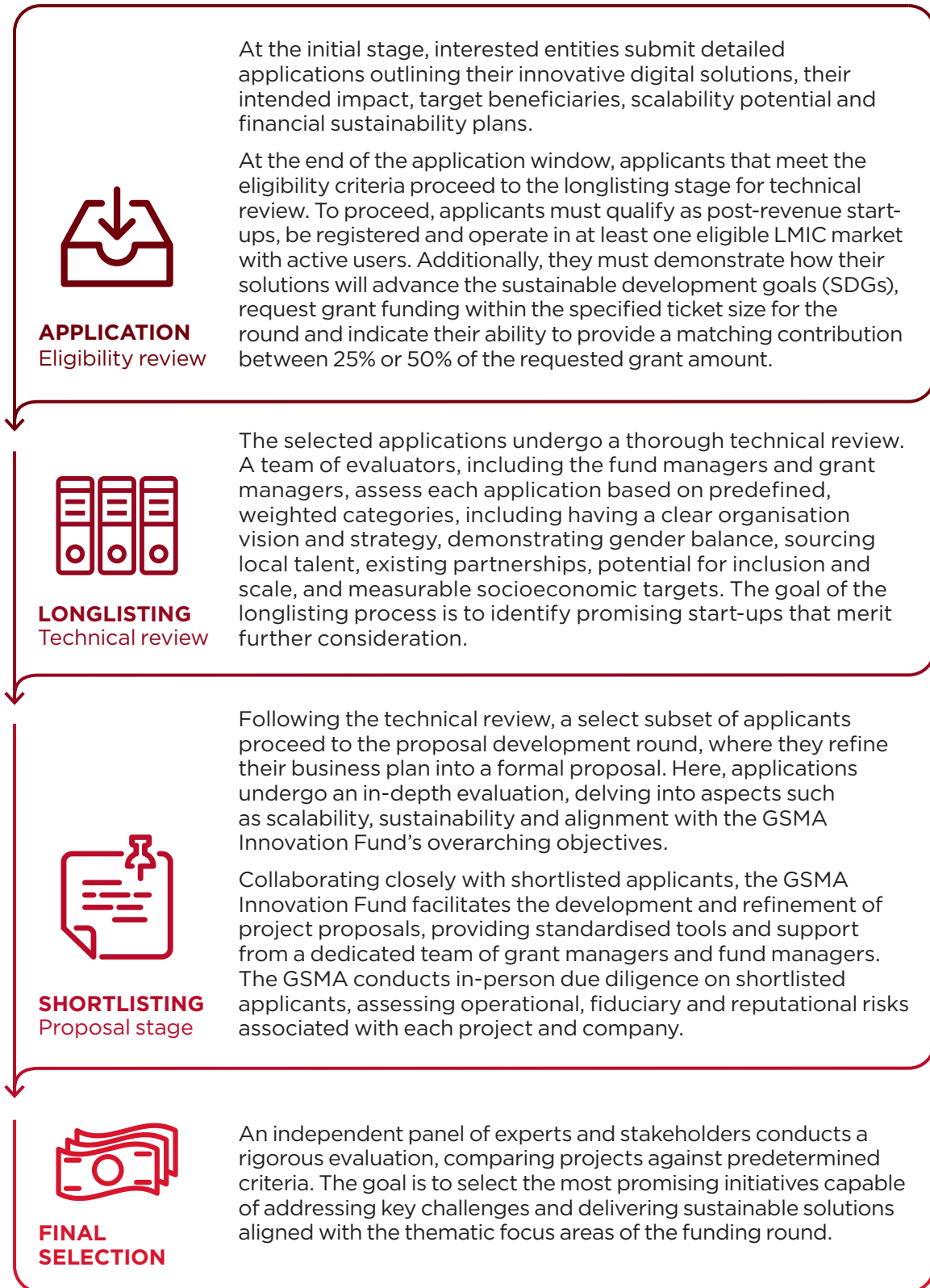
The journey from pitch stage to the final selection stage of the GSMA Innovation Fund involves several steps aimed at identifying innovations with the potential for scale. The GSMA Innovation Fund operates within specific funding cycles, typically opening application windows once or twice annually for an extended period. Using diverse channels and methods such as social media platforms, regional networks cultivated by grant managers, and targeted advertising campaigns, outreach efforts aim to attract a wide array of start-ups and SMEs.

During selection, applicants are assessed on a range of factors, including female inclusion. This is not limited to the gender of the start-up's owner, but includes the company's gender balance in their workforce, management teams, current customer base and future customer base. Other factors, such as sustainability and social impact, are equally as important to a start-up's application.

The following analysis (Figure 2) was conducted to assess how well current methods of outreach and scoring result in a gender-diverse portfolio. Over three years of funding cycles, the application itself evolved to improve efficiencies and fill gaps in knowledge. This analysis relies on questions that are consistent across the four rounds of funding so the data can be accurately compared.

Figure 1

The GSMA Innovation Fund application process





3.2 Findings

Between 2020 and 2023, the GSMA Innovation Fund team conducted four funding rounds, focused on Mobile Internet Adoption and Digital Inclusion, Assistive Technology, Digital Urban Services, and Climate Resilience and Adaptation. Of the 1,581 start-ups that applied in all four rounds, 206 were longlisted, 100 were shortlisted, and 34 were selected to receive grant funding. Of these 34 start-ups, 32% are female-led, meaning that 50% or more of their founders or owners identify as women. For this analysis, the definition of female-led has intentionally expanded from including firms with any number of female owners or founders, to those with at least half. This narrows the sample of applicants to those with a higher participation of women and reduces the chances that any of these start-ups have women listed as owners or founders simply to score higher during the application process.

The following analysis compares female-led applicants to their male-led counterparts and evaluates trends in regions, sectors, technologies and other business demographics to better understand barriers to reaching and funding more organisations led by women.

Applicants of all rounds were asked to specify the primary technologies they would employ for their proposed innovations. The main technologies identified include universal tech (SMS/USSD/IVR), mobile internet, mobile money, big data analytics and the Internet of Things (IoT). From Round 2 onwards, AI started to emerge as a key technology among start-up applicants. For every round, both female-led and male-led start-ups demonstrated a similar adoption of technologies throughout the selection process.

Figure 2

Analysis of GSMA Innovation Fund rounds from 2020 - 2023

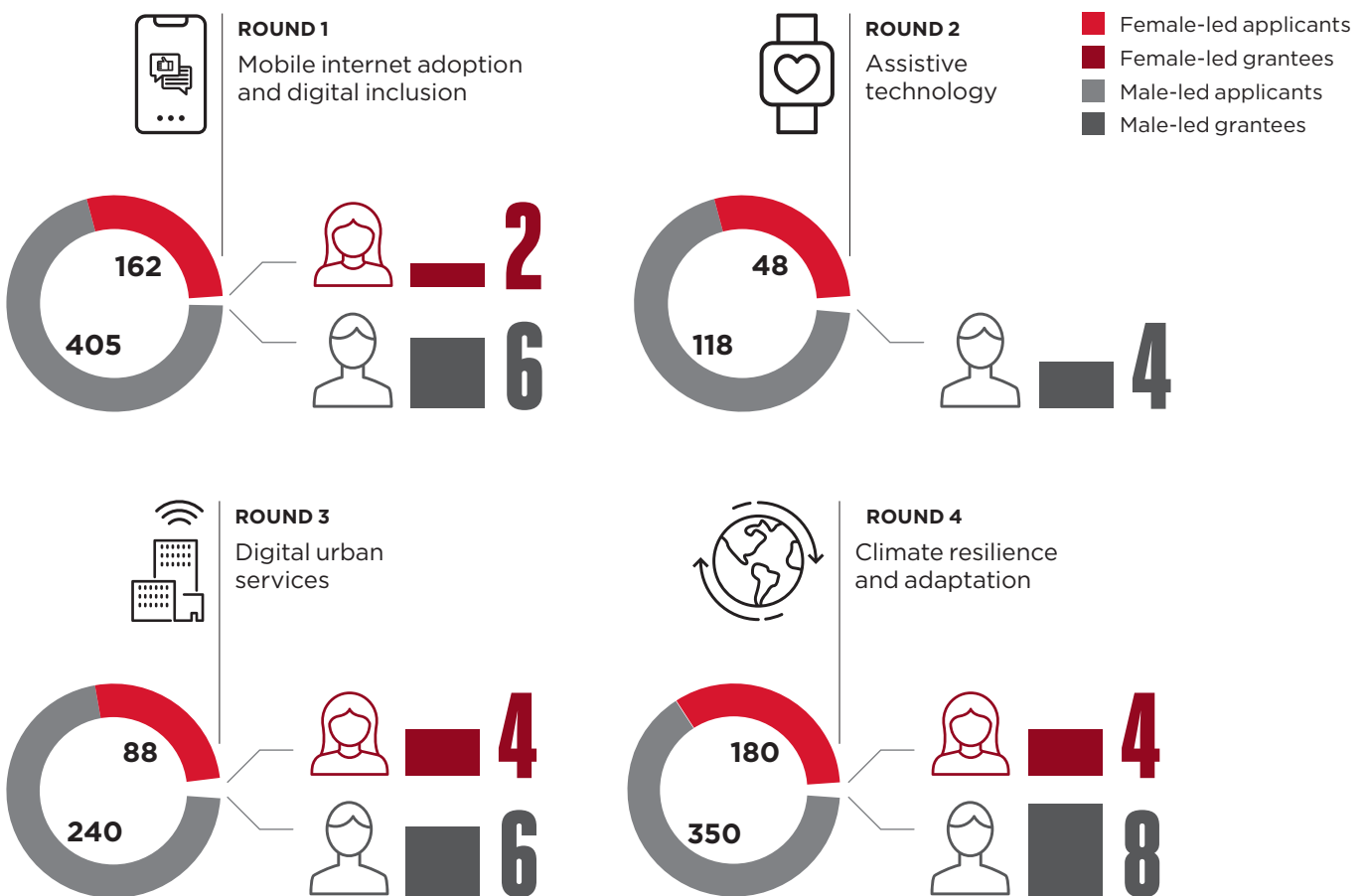










Table 1

Applicants of the GSMA Innovation Fund

Round 1		Round 2		Round 3		Round 4		
								
70%	38%	85%	38%	77%	32%	99%	6%	50% or more managers are female
52%	28%	69%	30%	57%	27%	59%	32%	50% or more employees are female
70%	54%	56%	54%	67%	51%	62%	55%	50% or more customers are female













 Female-led applicants  Male-led applicants

Table 2

Selected grantees of the GSMA Innovation Fund

Round 1		Round 2		Round 3		Round 4		
								
100%	17%	0	25%	100%	20%	100%	0%	50% or more managers are female
100%	0	0	50%	80%	0	25%	25%	50% or more employees are female
50%	50%	0	25%	60%	60%	50%	25%	50% or more customers are female

 Female-led applicants  Male-led applicants

Across all rounds, applicants led by women were more likely to have gender inclusive management teams, employees and current customers.⁶⁰ However, the gap varies by round and may be specific to the theme of each funding cycle.

All applicants were also requested to specify when their company was first registered and how many staff they employed at the time of application. Analysis of this data found no statistically significant difference between female-led and male-led applicants in either maturity of company or size. On average, male-led start-ups operated for 4.1

years before applying, and female-led start-ups for 4.2 years. Female-led start-ups have slightly more founders, with 2.78 on average compared to 2.2 for male-led start-ups, but their overall workforce sizes are similar. Given the similarities between technology type, years in operation and the size of their team, it is unlikely that female-led start-ups could be considered riskier investments due to these characteristics.

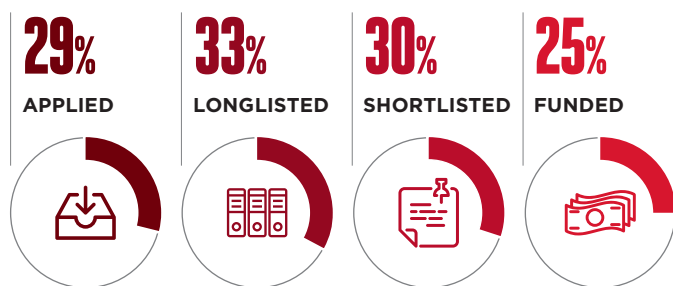
The following sections provide a deeper level of insight per round of funding.

60. The number of female-led applicants with 50% or more female managers, employees or customers is divided by the total number of female-led applicants. The same formula is applied to male-led applicants and grantees.

Round 1 – Mobile Internet Adoption and Digital Inclusion

Around 3.2 billion people globally are covered by mobile broadband networks yet do not use mobile internet,⁶¹ with over 90% of this disconnected population residing in LMICs.⁶² To address this challenge, Round 1 of the GSMA Innovation Fund focused on mobile internet adoption and digital inclusion-supported start-ups developing scalable digital solutions to address the barriers to mobile internet access. These obstacles encompass issues related to accessibility, usability, cost, digital literacy and safety and security.

REPRESENTATION OF FEMALE-LED START-UP APPLICANTS



Female-led start-ups comprise nearly one-third of digital inclusion start-ups that applied for the GSMA Innovation Fund, and their consistent participation throughout the selection process suggests there are no drop-off points for these entrepreneurs when applying for funding.

More than one-third (31%) of all female-led start-up applicants are headquartered in Western

Africa, followed by 30% in Eastern Africa, but the female-led start-ups that were eventually funded were based in Southern Africa. While Africa has a high percentage of female entrepreneurs, it is also a region where the GSMA had a more robust presence at the call for applications, which likely influenced reception. The geographical spread of applications received also does not necessarily reflect the spread of connectivity in LMICs, so the link between start-up applicant country and the theme of the round may not be relevant.

The female-led digital inclusion applicants are more likely to hire female managers, as 70% had management teams with over 50% female staff, compared to just 38% of male-led start-ups. They are also more likely to hire women in non-management positions. Just over half (52%) of female-led applicants had a workforce composing of 50% or more women, compared to 28% of male-led start-ups. In an industry focused on inclusivity, the gender composition of the workforce can be very relevant to a start-up's success. Female agents, brand ambassadors, and merchants can help companies onboard more female users, as many women are more comfortable talking to and trusting other women.

There was less of a difference between male-led and female-led applicants regarding their customer base. 70% of all female-led applicants had a customer base of more than 50% women, compared to 54% of male-led applicants. This is likely due to the nature of the funding round, which focused on start-ups that address a challenge disproportionately faced by women.

61. Omoju, J. (2023). *Driving mobile internet use in low- and middle-income countries: Lessons and insights from the GSMA Innovation Fund*. GSMA.

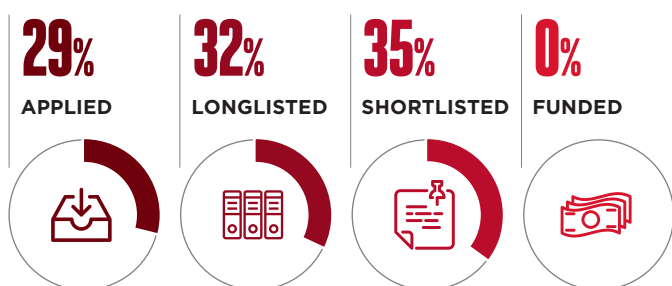
62. Ibid.

63. Lindsey, D., et al. (2020). *Reaching 50 Million Women With Mobile: A Practical Guide*. GSMA.

Round 2 – Assistive Technology

About 15% of the global population has a disability, with 80% living in LMICs.⁶⁴ Access to assistive technology could improve their lives, but 90% lack these tools.⁶⁵ To address this challenge, Round 2 of the GSMA Innovation Fund focused on assistive technology start-ups tackling key barriers such as access, affordability, relevant content, knowledge and skills, and safety and security in mobile internet use for people with disabilities.

REPRESENTATION OF FEMALE-LED START-UP APPLICANTS



Similar to the previous funding round, nearly one-third of all applicants were businesses led by women, yet zero female-led businesses were funded. The drop-off point for female-led start-ups occurred between the proposal stage, where business plans are refined and full proposals are developed, and grant funding, which is dependent on review by an independent panel and completion of contracting.

The assistive technology industry is considered niche, and this round had the smallest number (less than 200) of total applicants. Although 80% of individuals with disabilities reside in LMICs, digital assistive technology innovations in these regions are still emerging and not widely accessible. These technologies are often poorly understood, inadequately adapted to local needs or prohibitively expensive.⁶⁶ This may explain the low number of start-up applications received.

The absence of any female-led start-ups in this round may also highlight the need for tailored and/or additional support and guidance to female-led digital assistive technology start-ups during the proposal development stage. Geographically, Western African start-ups dominated female-led applications (31%), but none made it to the shortlist. Half of the shortlisted female-led start-ups were headquartered in Eastern Africa, with the rest based in Southern Africa, South Asia, and Southeast Asia, respectively.

Similar to Round 1, assistive technology applicants led by women were more likely to employ women at all levels. 85% of female-led applicants had management teams composing of 50% or more women, compared to just 38% of male-led applicants. 69% of female-led applicants had more than 50% female employees, compared to 30% of male-led start-ups.

Following the Round 1 findings, the trend for female customers is less significant. 56% of female-led start-ups and 54% of male-led start-ups had a customer base composing of 50% or more female end users. However, this decreased during the selection process and only 25% of the selected grantees had customer bases where 50% or more end users were female. In contrast, nearly all (83%) of the shortlisted female-led applicants had a predominately female customer base, but no female-led applicants were funded.

Where digital assistive technology solutions are available, they tend to be more accessible to male users than female users. This is often due to restrictive social norms, particularly in South Asia, as well as factors like affordability, which restrict women's access to and use of mobile phones and smartphones.⁶⁷ By prioritising women customers, female-led digital assistive technology start-ups demonstrate a commitment to bridging the gender gap in access to digital assistive technology solutions for individuals with disabilities in LMICs. Supporting and investing in female-led start-ups and entrepreneurs in this sector presents an opportunity to promote gender equality and accessibility.

64. Omoju, J. (2023). *Empowering persons with disabilities through digital innovation: Insights from the GSMA Innovation Fund for Assistive Tech*. GSMA.

65. Ibid.

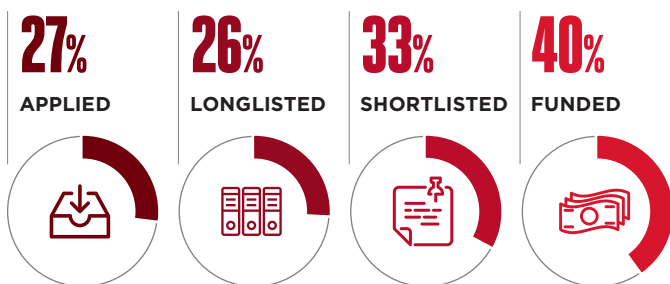
66. Omoju, J. (2023). *Empowering persons with disabilities through digital innovation: Insights from the GSMA Innovation Fund for Assistive Tech*. GSMA.

67. Shanahan, M. (2022). *The Mobile Gender Gap Report 2022*. GSMA.

Round 3 – Digital Urban Services

By 2050, two-thirds of people worldwide will live in cities, with Africa and Asia seeing the most urban growth.⁶⁸ This rapid expansion makes it difficult for city authorities and utilities to provide essential services.⁶⁹ To address this challenge, Round 3 of the GSMA Innovation Fund focused on digital urban services, supporting start-ups that use digital innovations and partnerships to deliver essential urban services such as energy, water, sanitation, and plastics and waste management in a way that is accessible, reliable, sustainable and affordable.

REPRESENTATION OF FEMALE-LED START-UP APPLICANTS



While Round 3 had a slightly lower proportion of female-led start-up applicants compared to previous rounds, it had the highest rate of female-led start-ups selected for funding, accounting for 40% of grants funded. This trend may be attributed to the diverse challenges and opportunities of urban living, which resonate strongly with female entrepreneurs.

Of the selected female-led start-ups, 60% were headquartered in Western Africa, 20% in South Asia and 20% in Western Europe. The increase in female-

led start-ups in South Asia could be due to the GSMA's growing network in the region. It may also be linked to the expanding accessibility of mobile internet in LMICs. Urban residents in LMICs are 40% more likely to use mobile internet compared to those in rural areas, due to more affordable smartphones and growing digital literacy among urban populations.⁷⁰ Between 2017 and 2019, smartphone usage in sub-Saharan Africa increased from 26% to 38%, and in South Asia, from 36% to 47%.⁷¹

Round 3 saw the biggest difference in management team composition between male-led and female-led start-ups. 77% of female-led applicants had more than 50% female management teams, compared to 32% of male-led applicants. All five selected female-led start-ups had predominantly female management teams, while only 20% of male-led grantees did.

More than half (57%) of female-led applicants had predominately female employees, compared to just 27% of male-led applicants. Additionally, 80% of the funded female-led grantees had predominately female teams, whereas every male-led grantee had a predominately male team.

At the application stage, female-led start-ups had a slightly higher rate of female customers, with 67% of applicants having mostly female end users, compared to 51% of male-led applicants. At the final selection stage, 60% of both female-led start-ups and male-led start-ups reported a predominately female customer base. This is likely related to the end users of utility services, who are often women. Funded projects included clean cooking solutions, access to drinking water, and refrigeration. Even if whole households benefit from these products, the user engaging with the company is often a woman.

68. Bauer, G., et al. (2020). *Digital Solutions for the Urban Poor*. GSMA.

69. Ibid.

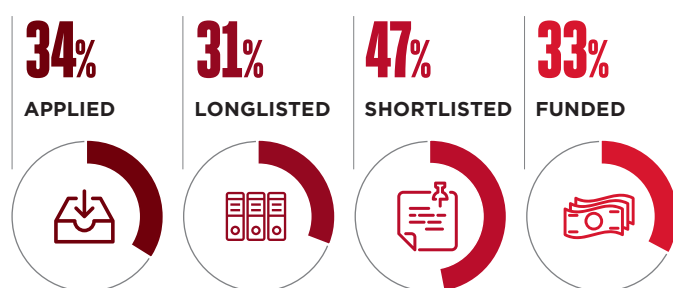
70. Shanahan, M., & Bahia, K., (2023). *The State of Mobile Internet Connectivity 2023*. GSMA.

71. Ibid.

Round 4 – Climate Resilience and Adaptation

Climate change presents a significant global challenge, especially for LMICs where adaptation and recovery are often more difficult. Digital technology holds the potential to support these vulnerable communities in developing resilience and sustainability,⁷² however, it is crucial to test technologies and applications related to these impacts. To explore this potential, the GSMA Innovation Fund’s round on climate resilience and adaptation focused on supporting mobile and digital innovations aimed at enhancing the resilience of some of the world’s most affected populations.⁷³

REPRESENTATION OF FEMALE-LED START-UP APPLICANTS



In Round 4, 34% of applicants were female-led start-ups, which is the highest percentage across all four funding rounds. During the selection process, Western Africa (28%) and Eastern Africa (27%) emerged as the frontrunners in female-led start-up applications.

Nearly all female-led applicants (99%) had predominately female management teams, compared to just 6% of male-led applicants. Over half (59%) of female-led applicants also had predominately female employees, compared to just under one-third of male-led applicants.

However, only 25% of the female-led start-ups that were funded had a team of employees with 50% or more women, which is the lowest percentage across all rounds. While female-led start-ups excel in fostering diversity among their leadership teams, there is room for improvement in achieving gender balance at the employee level, as women may encounter barriers to entry and advancement within a male-dominated field like technology, resulting in fewer female candidates available for recruitment. All female-led grantees had at least half of their management team staffed by women.

Many of the funded projects in this round of funding support smallholder farmers and others in the agriculture industry, which could be why some grantees struggled to onboard female users.⁷⁴ 62% of all female-led applicants had a predominately female user base, but this decreased to 55% of funded female-led applicants. More than half (55%) of all male-led start-ups had a predominately female user base, decreasing to just 25% of those funded.

Considering the disproportionate impact of climate change on women and girls, more solutions that address the unique needs and vulnerabilities of women to ensure they benefit equitably from climate-tech advancements are necessary.⁷⁵

72. Sharma, A. (2021). *The Role of Digital and Mobile-Enabled Solutions in Addressing Climate Change*. GSMA.

73. Hafiz, S., & Colquhoun, A., (2022). *Application Highlights from The GSMA Innovation Fund for Climate Resilience and Adaptation*. GSMA.

74. Hafiz, S., & Colquhoun, A., (2023). *Emerging Trends in Climate Tech Innovations: The GSMA Innovation Fund for Climate Resilience and Adaptation*. GSMA.

75. Ibid.



4

Recommendations for funding organisations to increase female inclusion within their portfolio

Female entrepreneurs face more barriers than their male counterparts when launching and scaling their businesses. A primary obstacle is access to finance. This finance gap is less significant at early stages of funding, when accelerators, challenge funds and other organisations provide support to de-risk innovation through catalytic funding. These early-stage support organisations can improve female inclusion by adjusting their funding and outreach strategies. However, the biggest challenge for female-led start-ups is accessing commercial investment later in their fundraising journeys, and this requires significant changes to investment forms to address this barrier.

Drawing on existing industry practices and insights gathered from reviewing the GSMA Innovation Fund's applicant and grantee data, the following recommendations can help all funding organisations, and specifically commercial investors, to better tailor their outreach and funding application processes to meaningfully increase female inclusion in their respective portfolios.



Evaluate outreach channels

The GSMA Innovation Fund rounds that focused on niche and nascent sectors like assistive technology saw low female representation during the application and selection process, whereas rounds that encompassed more established sectors like agriculture had higher levels of female inclusion across all stages of the selection process, even though this is not a common sector for female entrepreneurs. Successful outreach models should be assessed to evaluate their ability to reach and attract female-led start-ups. Considerations can include geographic focus, language barriers and partners. By partnering with local organisations, such as women's business associations and start-up accelerator programmes, funders can leverage existing networks and expertise to expand their outreach to more female entrepreneurs in a culturally and contextually appropriate manner.



Highlight female entrepreneurs

Sharing the stories of female-led start-ups that have secured funding can signal to other female entrepreneurs that applying to a particular fund is a worthwhile opportunity with realistic chances of securing funds. As women are more likely to be solopreneurs and have childcare and homemaking responsibilities, their time is more restricted than male entrepreneurs. Spending a significant amount of time on applications that have a small chance of success can be dissuading but seeing other women who have successfully won funding may encourage more women to apply in future rounds. Additionally, profiling women in business also tackles stereotypes that female entrepreneurs are not active in certain industries. While women may be less present in industries like agriculture and ICT, promoting women in these industries sends a positive message to investors that consider these start-ups to be higher risk than those led by men.



Adjust for geographic differences

The availability of female-led companies and their ease of doing business varies across countries, regions and cultures. For example, Latin America and the Caribbean has the highest rate of female entrepreneurs globally, but also has a very high exit rate. African countries have a high rate of female entrepreneurship, but they often focus on retail, which does not attract much outside investment. These nuances should be considered when developing a portfolio strategy and venture building support package. Funding organisations may need to provide further and more targeted outreach in certain regions, and additional and specific venture building support in particularly challenging markets. In contrast, a one-size-fits-all approach to funding is unlikely to address the unique local barriers faced by female entrepreneurs.



Prioritise female leadership in applicants

Findings across various rounds of the GSMA Innovation Fund reveal that female-led start-ups consistently outperform male-led start-ups regarding diversity and inclusion in management roles and workforce composition. Moreover, increased gender diversity in leadership is associated with greater innovation in LMICs.⁷⁶ By prioritising start-ups run by women during application cycles, funders are more likely to support companies that have more gender diversity across their entire workforce. Funders can consider additional support to female-led companies at the application stage, such as business planning and proposal development venture building support, to increase their chances of securing funding. However, setting quotas for reaching female entrepreneurs is not enough, as all companies should be motivated to increase their gender diversity.

76. Tonoyan, V., & Boudreaux, C.J., (2023). *Gender diversity in firm ownership: Direct and indirect effects on firm-level innovation across 29 emerging economies*. Research Policy 52, 4.



Develop tailored gender action plans for all

While female-led businesses have greater participation of women within their companies, female inclusion is still a broader initiative relevant for all businesses. Instead of creating portfolio targets for female entrepreneurs, funders can support all their investees and grantees by developing gender action plans that aim to move the needle on female inclusion for every company, regardless of what they have achieved to date. Numerous tools, such as the SEAF Gender Equality Scorecard[©] and 2X Criteria, are available to support funding organisations by monitoring gender inclusivity data and setting goals for improvement. By aligning venture building support with the objective of enhancing gender inclusivity, funders can ensure that companies receive the necessary guidance and resources to foster gender diversity. This approach promotes the development of a diverse and inclusive organisational culture, leading to better outcomes and contributing to a more equitable entrepreneurial ecosystem.



Evaluate female inclusion within the funding organisation

To cultivate a portfolio of gender-inclusive companies, it is crucial for funders to introspect and address any internal gender biases. This report has shown that investors are most likely to fund people that resemble themselves, and implicit biases result in female-led start-ups reporting as higher risk. Addressing these biases, which may reflect broader gender biases in the investment community—including familiarity bias,⁷⁷ biases in pitch evaluations,⁷⁸ and biases in risk assessment⁷⁹—will enable donors and investors to achieve greater inclusivity within their portfolios and processes. Conducting internal reviews is an important first step to identify and mitigate these biases. In the long term, these changes can set a new standard for gender inclusivity within the investment community, benefitting not only female entrepreneurs but also driving broader economic growth and development across various regions.

77. IFC. (2019). [Moving toward gender balance in private equity and venture capital](#).

78. Brooks, A.W., et al. (2014). [Investors prefer entrepreneurial ventures pitched by attractive men](#). Proceedings of the National Academy of Sciences 111, 12: 4427–4431..

79. Kanze, D., et al. (2017). [Male and Female Entrepreneurs Get Asked Different Questions by VCs — and It Affects How Much Funding They Get](#). Harvard Business Review.

Annex: Female-led grantees of the GSMA Innovation Fund

At the time of their application, the following 11 start-ups had 50% or more female owners or founders:



1. **WidEnergy Africa** is a women-led company registered in Zambia. Their mission is to provide last mile delivery of clean, reliable and affordable energy and connectivity solutions, and to empower African women in last mile distribution of climate resilient solutions in household energy and mobile connectivity.



2. **Zonful Energy** aims to reduce the mobile internet gap in Zimbabwe through an affordable PAYG model, by procuring, marketing and distributing low-cost smartphones and data bundles with 24-month data plans from Econet. Smartphones and data bundles are available to both their solar home system customers and other customers.



3. **The Freetown Waste Transformers** turn organic waste into electricity, replacing diesel generators with green technology to reduce the cost of energy and increase the reliability of energy and heat. Their app, DortiBox, was launched for waste collectors in partnership with the Freetown City Council, which can manage inputs from waste collection partners and provide live data on waste volumes, types of waste, collection times and locations.



4. **Bhumijo** provides hygienic, inclusive and affordable smart toilets in low-income areas in Bangladesh, with extra services such as showers, clean drinking water, laundry, refreshments and advertising space. These services are available through a subscription or pay-per-use model. Their centres offer a separate area for women to ensure their privacy and safety.



5. **Koolboks** produces off-grid, solar-powered refrigeration accessible to everyone who needs it. Their refrigeration uses ice, as well as batteries, to convert the power of the sun into cooling, cutting the cost of off-grid refrigeration by 40%. Koolboks offer their freezers on a lease-to-own basis with a locking device embedded in the compressor. Customers can make affordable weekly or monthly instalment payments.



6. **Soso Care** provides micro-health insurance to Nigerians through waste plastic recycling. They purchase the recyclable waste from low-income individuals and sell to intermediaries and recycling companies, tackling waste management issues in the country while also supporting individuals to access healthcare.



7. **Simusolar** supports fishers in Tanzania in securing livelihoods, adapting to weather changes and sustaining fisheries management through IoT-enabled productivity and activity tracking equipment. They increase rural incomes through productive solutions like fishing lights, water pumps and freezers.



8. **BENAA** supports water resource management by using IoT to convert wastewater into irrigation water for small farms in rural Egypt. They have developed an IoT system in decentralised water treatment units to monitor and analyse the quality of treated wastewater and the concentration of nutrients.



9. **Lersha** provides digital services to enable smallholder farmers in Ethiopia to access farm inputs, hire mechanisation services and receive advice, credit and insurance through their in-house call centre, mobile app and agents.



10. **CoAmana** provides farmers and stakeholders in the Nigerian agri-value chain with essential digital tools via their digital agricultural marketplace management and trade platform. This platform improves agricultural productivity and helps farmers manage financial risks related to drought conditions, purchase drought-resistant seeds and access information on best practices and financial services.



11. **Powerstove** offers Nigerians a smokeless, biomass cookstove which can generate enough electricity to charge phones or power LED bulbs using the built-in USB and DC port. It uses pellets (wood waste), which enables users to save 70% on their energy costs.

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