BRITER ALIVE

# REDUCING GENDER GAPS IN THE MOBILE WORKFORCE ECONOMY.

Research findings, practical recommendations and implementation tools to strengthen women's participation, retention and progression in mobile workforce models.

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# Contents

# Executive Summary

Organizations operating in the mobile workforce economy face a shared execution challenge: many business models depend on distributed, field-based, subcontracted or mobile labour, but the systems used to recruit, allocate, support and retain that workforce often reproduce gender gaps that remain invisible in standard business and impact metrics.

This matters because gender gaps in the mobile workforce economy do not only appear as inclusion issues. They also show up as workforce turnover, underused technical talent, weak supplier performance, field deployment constraints, limited progression into higher-value roles, ESG exposure and incomplete impact measurement. For companies, the relevant question is whether workforce systems allow women to remain, progress and capture value.

ALIVE Ventures commissioned this research to understand how gender dynamics affect women's participation, retention, progression and value capture in the mobile workforce economy in Latin America, with particular attention to Colombia, Peru and selected comparable contexts. The mobile workforce economy refers to work that is field-based, decentralised, distributed or dependent on physical mobility, including infrastructure services, distributed energy, agricultural value chains, logistics, field-based technical services and community-level service provision.

The research examined evidence from literature, sector studies, investment frameworks and qualitative interviews with companies, ecosystem actors and technical training institutions. The purpose was to identify where gender gaps appear in mobile workforce models, how they affect company operations and value chains, and which practical strategies companies, funds and ecosystem partners can adopt to reduce them. For a comprehensive description of the methodology please refer to **Annex C.**

The central finding is clear: gender inequality in the mobile workforce economy is not primarily a participation problem. Women are present across many of the systems studied, but they are often concentrated outside the roles where income, assets, certification, technical responsibility and decision-making are located. This creates a persistent gap between presence and power.

For newly founded organizations, this gap is operational. Women may enter through customer-facing, community-based, administrative or support roles, while technical, supervisory, asset-intensive and higher-income positions remain harder to access. As a result, companies may report female participation while still reproducing unequal access to income progression, technical mobility and decision-making authority.

The research also shows that formalisation alone is not enough. In mobile workforce models, effective participation often depends on enabling assets such as mobile devices, connectivity, transport, protective equipment, safe field infrastructure and access to sanitation facilities. Without these assets, workers may be formally included but unable to access payroll systems, healthcare records, digital wallets, task allocation, reporting systems or other benefits linked to their role.

Retention is another critical issue. Women's exit from mobile workforce roles is not driven by a single factor. The research identifies several mechanisms, including project discontinuity, care and mobility constraints, unsafe or inadequate field conditions, lack of sanitary infrastructure, and budget limitations that force companies to concentrate too many functions into one role. This means companies need to diagnose the specific cause of turnover before designing retention strategies.

The study also shows that progression into higher-value roles is often blocked by certification systems, informal promotion criteria, geographic gaps in technical talent pipelines and weak visibility of certified female workers. For organizations, this creates a practical challenge: they may perceive a lack of qualified women when the real constraint is pipeline visibility, recruitment channels, role design or access to training institutions.

The recommendations are practical. Companies should move beyond aggregate female participation and examine where women are located across roles, income levels, contract types, technical responsibility, asset access, supervisory authority and promotion pathways. They should track effective access to enabling assets, not only formal registration. They should diagnose turnover by mechanism, make progression criteria explicit, review recruitment language, map certified female talent, improve field-readiness standards and use supplier or contractor relationships to extend gender-smart practices across the value chain.

Some actions are low-cost and immediately applicable, including inclusive recruitment language, basic diagnostics, gender-disaggregated data, review of job requirements and transparent promotion criteria. Others require investment, technical assistance or ecosystem coordination, including enabling assets, role redesign, field safety protocols, certified talent pipeline mapping, supplier engagement and board-level governance.

| Key Findings | |
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| 1 | **Gender gaps are not primarily participation gaps; they are value-chain positioning gaps.:**<br>» Women are present, but often concentrated in lower-value roles.<br>» Men remain more represented in technical, supervisory, asset-linked and higher-income positions.<br>» The key gap is not presence, but access to income, assets, progression and decision-making.<br>» Inclusion has limited economic impact when women do not move into higher-value roles. |
| 2 | **Role-track concentration is structural and begins before hiring:**<br>» Occupational segregation is shaped before recruitment, through training choices, certification pathways and gender expectations.<br>» By the time companies hire for technical or field roles, the pipeline may already be segmented.<br>» Job titles, role descriptions, onboarding and supervisor assumptions can reinforce this segmentation.<br>» Without intentional correction, women are routed into support roles while men access technical and asset-linked roles. |
| 3 | **Formalization is necessary but insufficient without enabling assets:**<br>» Legal registration does not guarantee effective access to benefits or protections.<br>» Workers may remain excluded if they lack devices, connectivity, transport, PPE or access to digital systems.<br>» In mobile workforce models, enabling assets determine whether formalisation translates into real inclusion. |
| 4 | **Turnover reflects operational design, not only individual choice:**<br>» Retention challenges often reflect how work is structured, not only individual decisions.<br>» Key drivers include project discontinuity, care and mobility constraints, unsafe field conditions, limited sanitation and overly broad roles.<br>» Companies need to identify the specific turnover mechanism before designing a retention response. |
| 5 | **Field conditions determine whether mobile work is viable for mixed teams:**<br>» Field-based roles often involve remote sites, private homes, isolated locations or low-supervision environments.<br>» When operations are designed around an assumed male worker, women's participation becomes constrained.<br>» Lodging, sanitation, transport, PPE, safety protocols and grievance channels are core requirements for safe and effective participation. |

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| 6 | **Certification operates as a gate to higher-value roles:**<br>» Technical certification is a gateway to higher-income, field-based and supervisory roles.<br>» Barriers appear before, during and after training, from career choices to institutional constraints and geographic access.<br>» Low female applications should not be read as lack of capacity; companies need better visibility of certified female talent. |
| 7 | **Progression into higher-value roles remains informal and uneven:**<br>» Women's participation does not automatically translate into advancement.<br>» Informal criteria, supervisor discretion and limited certification access can block movement into technical or supervisory roles.<br>» Clear promotion criteria, salary bands and gender-disaggregated tracking are needed to make progression visible and fair. |
| 8 | **Some barriers require investment; others require immediate operational correction:**<br>» Some barriers require capital, including devices, transport, equipment, field infrastructure or role redesign.<br>» Others can be addressed through low-cost changes, such as neutral recruitment language, clearer job descriptions and documented advancement criteria.<br>» Companies need to distinguish between barriers that require management action, technical support or targeted financing. |
| 9 | **Company action has limits where the constraint sits in the ecosystem:**<br>» Some barriers sit within company control, including recruitment language, role design, field conditions and progression criteria.<br>» Others depend on ecosystem conditions, such as training pipelines, certification systems, local talent availability and social norms.<br>» Companies should separate what can be redesigned internally from what requires partnerships with training institutions, suppliers, buyers or workforce intermediaries. |
| 10 | **The core opportunity is operational redesign**<br>» Gender inclusion cannot be solved through representation targets or generic gender training alone.<br>» The priority is to change how companies define roles, recruit, structure contracts, support field work, manage safety and track outcomes.<br>» Gender inclusion becomes actionable when it is embedded into how the company designs and manages its workforce. |

| Recommendations | |
|---|---|
| 1 | **Move from participation metrics to value-chain positioning analysis:**<br>» Assess not only how many women are in the workforce, but where they are positioned across the value chain.<br>» Map women's and men's distribution by role type, income level, contract modality, asset access and technical responsibility.<br>» Identify whether women access roles linked to higher income, skill accumulation, operational authority and long-term mobility. |
| 2 | **Review recruitment, onboarding, and role allocation systems:**<br>» Examine whether job titles, role descriptions, recruitment channels and onboarding pathways reinforce occupational segregation.<br>» Use neutral, skills-based language for technical, installation, field, maintenance and supervisory roles.<br>» Where female applications are low, assess whether role requirements, recruitment channels or pipeline visibility are limiting access. |
| 3 | **Treat enabling assets as part of effective formalization:**<br>» Define formalisation as effective access to rights and benefits, not only legal registration or contract status.<br>» Assess whether workers have the devices, connectivity, transport, payment access, safety equipment and field infrastructure required to use those benefits.<br>» For mobile workforce roles, enabling assets are core conditions for participation, protection and progression. |
| 4 | **Diagnose turnover mechanisms before designing retention strategies:**<br>» Treat turnover as a set of distinct mechanisms, not as a generic retention problem.<br>» Distinguish between project discontinuity, care and mobility constraints, field conditions, safety risks, income volatility and overly broad roles.<br>» Design retention responses according to the specific constraint, rather than applying one standard solution. |
| 5 | **Establish minimum field-readiness standards for mixed teams:**<br>» Define minimum operating standards for field-based and mobile work involving mixed teams.<br>» Cover core conditions such as lodging, sanitation, transport, PPE, safety protocols, grievance channels and emergency response.<br>» Integrate field-readiness standards into operational planning, budgeting and supervisor accountability. |

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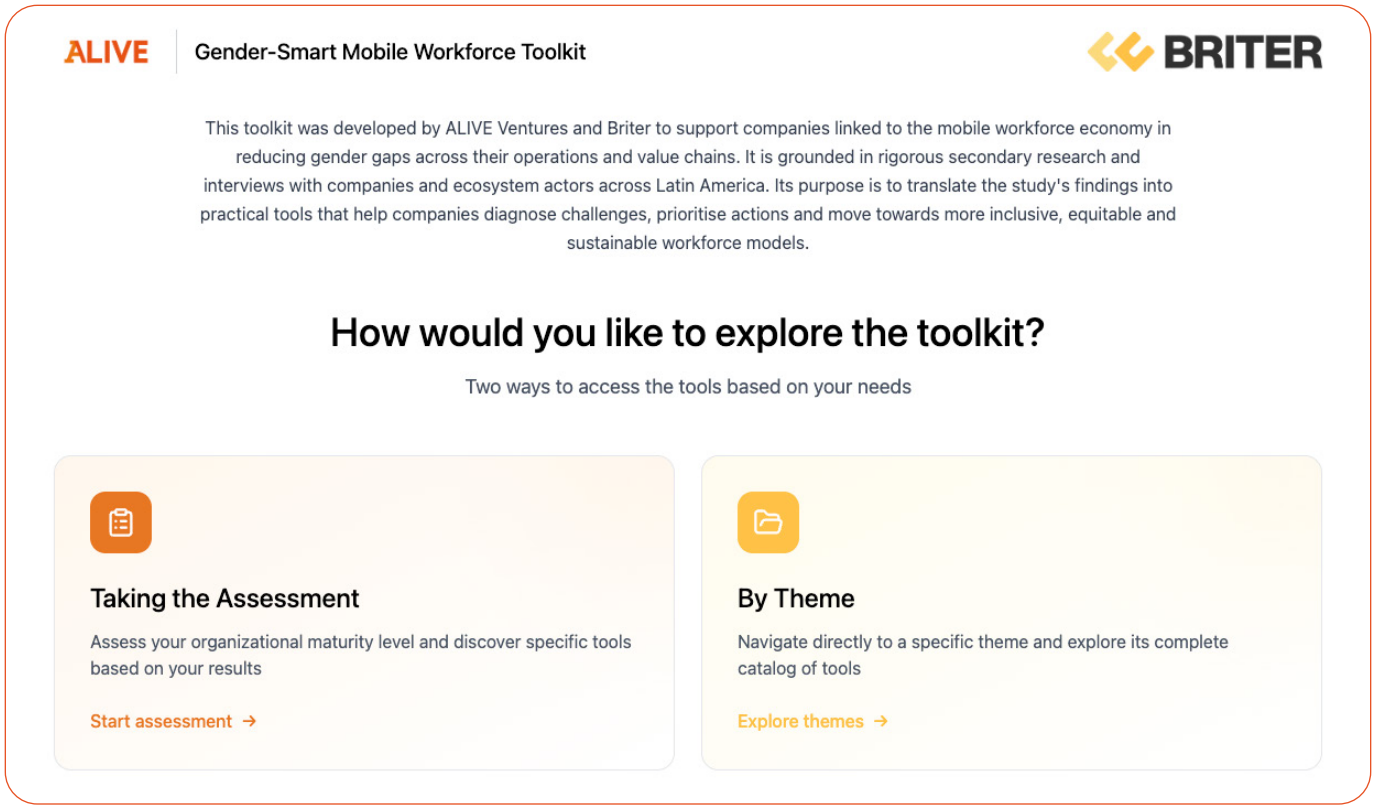
| 6 | **Map certification and technical talent pipelines before assuming talent scarcity:**<br>» Map where certified women are located and which training institutions produce female technical talent.<br>» Assess whether low female participation reflects certification access, geographic availability, recruitment channels or role requirements.<br>» Build partnerships, apprenticeships and entry-level technical pathways where the female talent pipeline needs to be strengthened. |
| 7 | **Create documented progression pathways into higher-value roles:**<br>» Make advancement criteria explicit, auditable and linked to technical and supervisory progression.<br>» Define competency requirements, salary bands, certification needs, mentoring pathways and role transition steps.<br>» Track whether women move from support or community-facing roles into technical, field-based, supervisory and asset-linked positions. |
| 8 | **Distinguish between low-cost operational corrections and investment-dependent barriers:**<br>» Classify barriers according to the type of response required: management action, technical support or financing.<br>» Address low-cost barriers through neutral recruitment language, clearer job descriptions, better outreach and documented advancement criteria.<br>» Prioritise investment where barriers require devices, transport, adapted equipment, field infrastructure, role splitting or training partnerships. |
| 9 | **Build ecosystem partnerships where constraints sit beyond the company:**<br>» Separate barriers that can be redesigned internally from those that require ecosystem-level action.<br>» Use partnerships to address constraints linked to training pipelines, certification availability, local talent distribution and supplier practices.<br>» Engage training institutions, workforce intermediaries, suppliers, buyers and sector platforms to strengthen access to job-ready female talent. |
| 10 | **Embed gender inclusion into workforce design:**<br>» Treat gender inclusion as part of workforce design, not as a standalone awareness or compliance activity.<br>» Redesign how work is structured, allocated, supported, monitored and rewarded.<br>» Integrate gender-smart practices into role design, recruitment, contracts, field logistics, safety systems, progression pathways and operational data. |

The final output of this engagement is the Gender-Smart Mobile Workforce Toolkit, an interactive tool designed to translate the research into practical action for companies and the funds or ecosystem partners that support them. The toolkit has two entry points. The Self-Diagnostic Pathway helps companies identify where their main gender-related barriers or opportunities sit across eight dimensions, including role distribution, care-responsive job design, effective labour protection, retention and progression, supply-chain inclusion, gender-disaggregated data, access to work-enabling tools and anchor buyer leverage.

The second entry point is the Thematic Catalogue. This is designed for companies that already know which area they want to improve. Through this pathway, users can navigate directly by theme and access the full set of tools associated with that area. The toolkit is organised around four core themes: Employment Cycle, Value Chain, Data & Governance, and Leadership. Within each theme, companies can access practical tools, templates, checklists, matrices and protocols designed for direct use by company teams.

The toolkit is the bridge between evidence and implementation. It helps newly founded organizations, secondary funds and ecosystem partners move from broad commitments to practical workforce redesign.



Part 1

# Purpose and scope

## 1. Purpose and Research Questions

ALIVE Ventures commissioned this study to understand how gender dynamics affect the participation, retention and progression of women in the mobile workforce economy in Latin America, with a particular emphasis on Colombia and Peru, and to identify practical strategies that companies and investors can adopt to reduce gender gaps in their operations and value chains.

**The research was organised around five questions:**

- How do gender dynamics differ across the value chains?
- What barriers limit women's ability to access, acquire, retain and advance in mobile workforce roles across sectors and operational contexts?
- How do ecosystem actors, including suppliers, contractors, training institutions and anchor companies, influence these dynamics?
- Which gender-smart business practices are most viable across different sectors and value chains?
- What mechanisms enable companies to adopt, internalise and scale gender-smart practices across their operations?

## 2. The Mobile Workforce Economy: Operational Scope

The mobile workforce economy refers to economic activities in which workers must physically move, operate in field-based environments or perform tasks outside centralised workplaces to execute their roles. It includes infrastructure services, distributed energy systems, agricultural value chains, logistics networks, field-based technical services and community-level service provision.

**These roles share three defining features:**

- geographic mobility,
- decentralised operations
- direct engagement with physical assets, infrastructure, customers or ecosystems in the field.

For a comprehensive description of the methodology please refer to **Annex C.**

Part 2

# Findings: Structural Patterns and Operational Validation

## 3. Structural Patterns Across the Mobile Workforce Economy

The secondary research identified ten recurring patterns through which gender inequality is reproduced in mobile workforce systems. They are not isolated barriers but mutually reinforcing components across the mobile workforce value chain. They can be read in three clusters.

| Pattern | Pattern |
|---|---|
| **1. Role-track concentration and capital exclusion** | Women are often present in mobile workforce systems, but concentrated in roles with lower income, lower authority and limited access to assets. They are less represented in technical, supervisory, asset-owning or decision-making positions. |
| **2. Digital access and literacy as entry barriers** | Digital access is often the gateway to work: applications, task allocation, payments and benefits increasingly depend on devices and connectivity. Women who lack reliable access or digital literacy may be excluded before skills or performance are even assessed. |
| **3. Availability penalties and care-driven turnover** | Many mobile workforce systems reward constant availability and rapid task acceptance. When care responsibilities interrupt availability, the system may treat this as poor performance rather than a structural constraint. |
| **4. Gendered occupational steering at onboarding** | Women and men can be channelled into different roles from the moment they enter a platform, company or onboarding process. This can place women in customer-facing or support roles while men move into technical or asset-based roles. |
| **5. Safety and harassment risks in field-based work** | Women working in homes, isolated sites or low-supervision environments may face safety, harassment or violence risks. These risks are often underreported and may appear indirectly as turnover rather than as safety incidents. |

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| **6. Mobility safety tax and income compression** | Women may avoid certain routes, hours or locations because of safety concerns. These rational choices can reduce earnings, task volume or rankings when systems interpret them as lower availability or lower productivity. |
| **7. Ergonomic and PPE mismatch in field operations** | Tools, uniforms, equipment and safety standards are often designed around male physical norms. This can make field-based work less safe, less comfortable or less accessible for women. |
| **8. Performance monitoring that misreads interruptions** | Platforms and companies may track availability, speed, ratings and task completion without capturing the reasons behind interruptions. As a result, care, safety or mobility constraints can be misread as performance problems. |
| **9. Contractor classification and social protection gaps** | When workers are classified as independent contractors, they may lack access to benefits, protections, leave, insurance or grievance mechanisms. This can disproportionately affect women, especially where care responsibilities and health protection are critical. |
| **10. Weak data and governance systems** | Many companies do not collect gender-disaggregated data on roles, retention, pay, promotion, safety or contractor status. Without this data, gender-related risks remain invisible and difficult to manage. |

### Cluster 1: Role design, entry and value capture

The first cluster concerns who enters the system, where they are placed once they do, and what they can ultimately capture. Women are present but largely absent from higher-value roles, decision-making authority and asset ownership (role-track concentration and capital exclusion). Segregation does not always begin at hiring: platforms and onboarding systems regularly steer workers into role categories already structured along gender lines (gendered occupational steering at registration). These two mechanisms make it possible for a company to record extensive female participation while simultaneously displaying the same persistent gap between presence and power. In last-mile distribution this cluster appears as women dominating community-facing sales and service roles while warehouse, logistics and field-supervisory roles remain male. In distributed energy and climate infrastructure it appears as women concentrated in customer onboarding, awareness raising and after-sales support while installation, maintenance and technical specification stay with men. In agricultural value chains it appears as women providing the bulk of unpaid family labour and seasonal harvest work while ownership of land, equipment and certified producer status remains predominantly male. Across all three, the pattern is the same: women are present, but less so in roles that are more well paid, involve ownership, or require advanced certification.

### Cluster 2: Operational design, monitoring and the care-availability penalty

The second cluster concerns the day-to-day mechanics of how work is allocated and evaluated. Many mobile workforce systems reward continuous availability and rapid task acceptance. This can disproportionately affect women, who often spend more time on family and care responsibilities, because interruptions reduce their ability to remain constantly available or accept tasks at short notice. In these systems, care-related interruptions may be recorded as lower performance rather than as a structural constraint.

When complex labour conditions are simplified into platform metrics, scheduling constraints, safety-related route avoidance and care interruptions are routinely registered as performance failures rather than contextual factors (surveillance systems and psychosocial stress from penalised interruptions). The mobility safety tax compounds this: women restrict routes, hours or territories to manage risk, and these rational decisions are read by management systems as signals of lower availability or reduced productivity.

This cluster is particularly visible in platform-mediated work, where a woman who declines a late-night task or avoids a high-risk neighbourhood may see her platform ranking and future task allocation fall as a consequence. It is equally visible in field-based maintenance work, where extended deployments without scheduled rotation become incompatible with care responsibilities and contribute to turnover the company reads as a recruitment problem rather than a design one.

The underlying point is that these systems are not gender-neutral: they are built for a worker without care responsibilities and penalise anyone who fails to match it.

### Cluster 3: Infrastructure, contracts and governance

The third cluster concerns the conditions in which work is delivered and the legal and data systems that wrap around it. Digital access functions as a structural entry barrier where work, coordination and payment all run through devices the worker may not own. Tools, equipment and safety standards continue to be built around male physical norms, producing ergonomic and PPE mismatch in field operations and elevated injury risk.

Service and product delivery to private homes or low-supervision sites generates safety and harassment exposure that is rarely captured by standard monitoring. Contractor misclassification limits access to labour protections. Platform opacity and weak data systems make these gendered barriers invisible and self-reinforcing.

This cluster carries the most consequential investor blind spots. A company can run a formally compliant labour system in which the absence of sanitary facilities in remote field camps, the absence of properly sized PPE, or the absence of grievance channels for harassment by clients in private homes drives women out faster than any recruitment effort can bring them in.

Because the resulting attrition is rarely tagged as gender-related, the company experiences it as a workforce cost, not as a structural condition. The same logic applies to contractor-based models, where ostensible formalisation through registration

can leave large portions of the workforce outside effective access to social protection. The data systems that should flag these conditions typically do not capture them.

Taken together, the ten patterns make the same argument: gender inequality in the mobile workforce economy is structural, operational and embedded in the design of roles, contracts, assets, data systems and value chains. It is not the residue of individual decisions, and it is not addressable by participation metrics alone.

## 4. Operational Validation Through Primary Research

The primary research phase tested whether the patterns appear in the operational practice of real companies. The evidence provides strong qualitative support for the four hypotheses derived from the secondary review, and surfaces a set of findings that are the most actionable layer of the entire study.

| Hypothesis | What it tested | Main finding from the interviews | Practical implication |
|---|---|---|---|
| **H1: Role-track concentration** | Whether women are concentrated in lower-value roles. | Women are present in the workforce, but are more often found in customer service, administration, community-facing and support roles. Men are more concentrated in technical, installation, field and higher-value roles. | Companies need to look beyond overall female participation and assess where women are positioned across roles, income levels and progression pathways. |
| **H2: Formalisation as a protection gap** | Whether formalisation alone guarantees access to labour protections. | Formal registration does not always mean workers can access benefits. Without enabling assets such as phones, connectivity, transport or digital access, workers may be formally included but practically excluded. | Companies should track effective access to benefits, not only formal registration. This is especially important when payroll, healthcare, digital wallets or work allocation depend on digital tools. |

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| **H3: Turnover as a design issue** | Whether women's exits are driven by operational design rather than individual preference. | Turnover was linked to different mechanisms, including project discontinuity, care and mobility constraints, inadequate field conditions, lack of sanitation infrastructure and overloaded multi-function roles. | Retention should not be treated as a single problem. Companies need to diagnose the specific reason women are leaving before designing retention strategies. |
| **H4: Certification as a gate to high-er-value roles** | Whether certification systems determine access to technical and higher-value positions. | Barriers appear before, during and after training: gendered career choices, biased training environments, institutional delays and uneven geographic access to certified female talent. | Companies should map where certified female talent exists and work with training institutions, rather than assuming that qualified women are not available. |

### 4.1 The four hypotheses, qualitatively supported

**H1 · Role-track concentration.** Supported across the dataset. Women are concentrated in customer service, administration and support roles; men hold technical installation, field and higher-value positions.

The deepest insight is that segregation begins before hiring. Evidence from a technical training institution shows it occurs upstream, at the point of vocational career choice around ages 15–16. Female enrolment at public vocational training agencies sits at approximately 22–23% and concentrates in a narrow band of programmes such as IT, administration, garment and design. The implication is that a recruitment-only response is insufficient.

> "If you look at the technical segment, it is easily an 80/20 or 70/30 between men and women. The most important salary and career advancement opportunities are in the technical field, which women access far less."
>
> **Director, Cleantech Company**

Practical implication for companies and investors. Because segregation is upstream of hiring, no mobile workforce company can solve it through recruitment alone. Companies in technical sectors that wish to increase female participation will need to combine recruitment with intentional sourcing partnerships, deliberate engagement with vocational training institutions in their operating geographies, and as later evidence will show deliberate redesign of how roles are split and described.

**H2 · Formalisation is necessary but not sufficient.** Supported and meaningfully reframed by the primary research. Legal access to labour benefits does not guarantee effective access if workers lack the enabling assets that activate those benefits. The device gap is the most important primary finding: one company reported that only around 10% of approximately 14,000 registered workers owned a mobile phone. Without a device, workers cannot access digital wallets, electronic payroll, medical records or other benefits to which they are nominally entitled. This points to two cascading layers of exclusion — legal and asset-based — of which only the first is currently captured by standard frameworks.

> "Only around 10% of the 14,000 registered workers receive their payroll through a digital wallet, which suggests that they have access to their own phone number or device. Many workers still rely on a child's or family member's phone, but accessing payroll, medical appointments and social security benefits increasingly requires them to keep their own data updated and use their own digital access."
>
> **Founder, HR Tech Company**

Practical implication for companies and investors. Formalisation indicators that count registered workers without testing whether those workers can in fact reach the benefits associated with their registration overstate the achieved impact.

The dataset suggests that the most consequential gender indicator a fund can adopt in this domain is not the legal formalisation rate but the effective benefit-access rate, disaggregated by gender.

**H3 · Turnover is linked to operational design.** Supported, and disaggregated into four distinct mechanisms: end of project with no continuity; geographic and care incompatibility; absence of sanitary infrastructure in the field; and budget constraints that force a jack-of-all-trades role.

A company that loses women because projects end without continuity needs a different response from a company that loses them because field camps lack basic facilities. A toolkit that treats retention as a single problem will produce the wrong recommendations for most of the cases observed.

Practical implication for companies and investors. A company with strong project-based delivery in a

sector where contracts are inherently time-bound is not, by virtue of high turnover, failing on gender; it may simply be operating without long-term labour conditions. Conversely, a company with steady-state operations and high female turnover should be diagnosed for the specific mechanism at work before any retention intervention is designed.

**H4 · Certification as a gate to higher-value roles.** Supported. Barriers operate before training (gendered career choice from adolescence, biased instructors), during training (institutional bureaucracy that slows new curricula), and after training (uneven geographic coverage of certified female talent).

The pre-training barrier overlaps with the upstream segregation observed under the role-track concentration hypothesis, which showed that women are often channelled into lower-value roles before they enter the workforce. Certification as a capital gate adds a second layer: even when women pursue technical training, institutional and geographic factors can still limit their access to higher-value roles. A generic "train more women" recommendation cannot succeed without first mapping where certified female talent already exists and where the pipeline still needs to be built.

Practical implication for companies and investors. This is the hypothesis with the strongest territorial dimension. Where institutions such as Colombia's SENA have engaged with a given community, a certified female pipeline exists and is locatable. Where they have not, generic recruitment cannot create supply where institutional supply does not exist.

### 4.2 Additional findings from the interviews: the most actionable layer

Six findings emerged from the primary research that the original hypotheses did not predict. They are the most operationally precise material in the study because, in most cases, the problem, the solution and the blocker are visible together.

- Efficiency without retention. One organisation documented that women were 2.5 times more efficient than men under extreme physical and field conditions. However, the high-performing team was dissolved at the end of the project because there was no plan to provide continuity after the project ended. This shows that strong performance does not automatically lead to retention if work is organised around short-term projects without follow-on opportunities.
- Redesigning broad roles to create entry points for women. Some early-stage companies know that splitting a broad multi-task role into more specific functions could create more realistic entry points for women. However, they often cannot afford the additional headcount. In these cases, the company may already understand both the problem and the solution, but lack the budget or technical support to implement it.

> "We need one person to cover two or three different activities. Splitting the roles would be great, but I cannot pay another person just for that function."
>
> **CEO, Cleantech Company**

- Neutral recruitment language. Replacing "installer" with "technical person" in job postings changed the composition of one company's candidate pipeline at zero cost. The effect is well documented at the company level and represents the lowest-friction intervention identified in the study.
- Occupational safety and health as an existing lever. Occupational Safety and Health (OSH) regulations already require field infrastructure conditions that, correctly applied, oblige companies to adapt for mixed teams. The lever exists; it is simply not being framed and used as a gender inclusion argument.
- Large buyers and tender requirements as primary levers. Requirements from large clients or tenders increased women's participation in field roles in several cases observed. The most powerful lever is often not the direct recommendation to the company, but the contract condition imposed by the buyer or funder.
- The device gap is a measurement gap. The lack of mobile devices is not adequately captured by 2X or SDG-aligned frameworks, creating a clear opportunity for custom metrics that measures effective, rather than formal, access to formalisation benefits.

### 4.3 Three strategic messages

- The issue is not whether women are present, but where they are positioned in the value chain. Across the companies engaged, women are present — but concentrated in lower-value roles with limited access to income, assets, technical progression or authority.
- Reported formalisation and real impact are different. A worker can be formally registered and still be unable to access digital benefits, payroll, healthcare or protection without enabling assets such as a phone, transport, connectivity or PPE.
- The right intervention depends on the company profile. Some companies need diagnosis and visibility. Others have already identified the problem and need methodological support. A third group knows the solution and is constrained by budget or technical capacity. The toolkit and investor-led technical assistance must reflect these three profiles.

Part 3

# Implications and Recommendations

## 5. Recommendations for Companies

The research findings demonstrate that many of the gender gaps observed in the mobile workforce economy are produced through everyday operational decisions rather than through explicit exclusion. Across sectors, women participate in workforce systems but often remain concentrated in lower-value roles, face barriers to technical and field-based positions, experience higher exposure to operational constraints, and encounter limited pathways for progression. These outcomes are shaped by how work is designed, allocated, supported, and monitored within companies.

The following recommendations translate the research findings into practical actions that companies can take to strengthen workforce inclusion and performance. Rather than focusing on standalone gender initiatives, they address the operational systems that influence access to opportunity, retention, productivity, and advancement. Together, they provide a roadmap for companies seeking to identify and correct barriers within their workforce is organised while improving business performance and long-term talent development.

| Recommendations | |
|---|---|
| 1 | **Move from participation metrics to value-chain positioning analysis**<br>Companies should assess gender inclusion by examining where women are positioned across the value chain, not only by counting the number or percentage of women in the workforce. This requires mapping women's and men's distribution across role type, income level, contract modality, asset access, supervision, technical responsibility, and advancement opportunities. The analysis should identify whether women are concentrated in lower-value roles or whether they have access to the roles that generate higher income, skill accumulation, operational authority, and long-term mobility. |
| 2 | **Review recruitment, onboarding, and role allocation systems**<br>Companies should examine how recruitment language, job titles, role descriptions, onboarding pathways, and supervisor assumptions may reinforce occupational segregation. A first operational step is to use neutral, skills-based language in job postings, especially for technical, installation, field, maintenance, and supervisory roles. Companies should also review whether women are being routed toward support, administrative, or customer-facing roles while men are directed toward technical or asset-linked positions. Where female applications are low, companies should not assume lack of interest or capacity. They should assess whether recruitment channels, role requirements, or pipeline visibility are limiting access. |

| | |
|---|---|
| 3 | **Treat enabling assets as part of effective formalization**<br>Companies should define formalization as effective access to rights and benefits, not only legal registration or contract status. This means assessing whether workers have the devices, connectivity, transport, payment access, safety equipment, and field infrastructure required to actually use payroll systems, digital wallets, healthcare records, training platforms, and employment benefits. For mobile workforce roles, enabling assets may include mobile phones, data access, transport support, motorcycles or riding courses where relevant, adapted PPE, tools, sanitary facilities, and safe field logistics. |
| 4 | **Diagnose turnover mechanisms before designing retention strategies**<br>Companies should not address turnover as a generic retention problem. They should first identify the mechanism producing exit, reduced participation, or inability to remain in the role.<br>At minimum, turnover diagnostics should distinguish between project discontinuity, care or geographic incompatibility, inadequate field conditions, lack of sanitary infrastructure, safety risks, income volatility, and budget constraints that force overly broad role profiles.<br>Each mechanism requires a different response. Continuity planning, local deployment, care-compatible scheduling, field infrastructure, role splitting, and transport support address different constraints and should not be treated as interchangeable solutions. |
| 5 | **Establish minimum field-readiness standards for mixed teams**<br>Companies should define and enforce minimum operating standards for field-based and mobile work involving mixed teams. These standards should cover safe lodging, sanitary infrastructure, transport, route-risk management, emergency response, privacy, adapted PPE, harassment prevention, grievance channels, and escalation protocols. Field conditions are core requirements for safe participation in technical and mobile roles and should be integrated into operational planning, budgeting, and supervisor accountability.. |
| 6 | **Map certification and technical talent pipelines before assuming talent scarcity**<br>Companies should map where certified women are located, which training institutions produce female technical talent, and which recruitment channels are most effective for reaching them.<br>Before concluding that female technical talent is unavailable, companies should examine whether the issue is certification access, geographic availability, weak outreach, role requirements, institutional bias, or poor visibility of existing candidates. Where the pipeline is weak, companies should build partnerships with technical training institutions, develop apprenticeships, support certification pathways, and create entry-level technical roles that allow women to transition into higher-value positions. |

| | |
|---|---|
| 7 | **Create documented progression pathways into higher-value roles**<br>Companies should make advancement criteria explicit, auditable, and linked to technical and supervisory progression. This includes defining competency requirements, salary bands, certification requirements, promotion criteria, mentoring pathways, role transition steps, and review protocols. Companies should track movement from support, administrative, or community-facing roles into technical, field-based, supervisory, and asset-linked roles. Where advancement remains informal, exclusion also remains informal. Documented criteria are necessary to make progression visible, measurable, and correctable. |
| 8 | **Distinguish between low-cost operational corrections and investment-dependent barriers**<br>Companies should classify barriers according to the type of response required. Some barriers can be addressed immediately through low-cost operational changes, including neutral recruitment language, clearer job descriptions, better outreach channels, use of existing occupational safety standards, documented advancement criteria, and improved turnover diagnostics. Other barriers require investment, including provision of devices, transport, adapted equipment, field infrastructure, role splitting, or formal training partnerships. Companies should identify which constraints can be corrected through management practice and which require financing, phased implementation, or external support. |
| 9 | **Build ecosystem partnerships where constraints sit beyond the company**<br>Companies should distinguish between barriers they can redesign internally and constraints that require ecosystem-level action. Internal barriers include recruitment language, role allocation, field conditions, enabling assets, grievance systems, turnover diagnostics, and advancement criteria. Ecosystem constraints include technical training pipelines, certification availability, geographic distribution of female talent, social norms around technical careers, and supplier or subcontractor practices. Where the constraint sits outside the company, the appropriate response is partnership. Companies should engage training institutions, local workforce intermediaries, suppliers, buyers, community actors, and sector platforms to strengthen access to certified and job-ready female talent. |

| | |
|---|---|
| 10 | **Embed gender inclusion into workforce design**<br>Companies should treat gender inclusion as an operational design issue, not as a standalone awareness or compliance activity. The priority is to redesign how work is structured, allocated, supported, monitored, and rewarded. This includes role design, recruitment, onboarding, contracts, enabling assets, field logistics, safety systems, turnover diagnostics, progression pathways, and gender-disaggregated operational data. Training may be useful where the barrier is a skills or certification gap. It should not be the default intervention when the barrier is role design, asset access, field conditions, informal advancement, safety infrastructure, or project continuity. Together, these recommendations position gender inclusion as part of company performance, workforce resilience, and value-chain design. |

Taken together, these recommendations position gender inclusion as a workforce and operational management issue rather than a compliance, reporting, or awareness exercise. The findings suggest that many of the barriers limiting women's participation and progression are neither inevitable nor external to the company. They are often embedded in recruitment systems, role allocation practices, field conditions, certification pathways, access to enabling assets, and advancement structures that can be reviewed and improved over time. While some constraints require broader ecosystem action, many can be addressed through relatively straightforward operational changes. Companies that systematically assess workforce structure and manage, strengthen access pathways, improve working conditions, formalize progression mechanisms, and use gender-disaggregated data to inform decision-making will be better positioned to attract, retain, and develop talent across their workforce. Ultimately, reducing gender gaps in the mobile workforce economy requires moving beyond counting participation and toward actively managing the systems that shape who can access, create, and capture value.

## 6. How Investors and Ecosystem Partners can support Gender-Smart Mobile Workforce Models

Building on this risk lens, investors, funders and ecosystem partners have an important role to play in helping companies operating in the mobile workforce economy reduce gender gaps. While many of the relevant changes happen inside companies, across recruitment, onboarding, role design, field operations, data systems and supplier relationships, investors can create the conditions for these changes to be identified, prioritised and implemented.

| Risk | How it appears in the portfolio |
|---|---|
| **Operational performance risk** | Turnover costs, coverage gaps, reduced productivity, supplier fragility and underutilised talent. These are the costs that most directly hit company P&L and are usually not coded as gender-related. |
| **Segment pattern risk** | Where the same gender-linked costs recur across multiple companies within a single investment segment, the issue is no longer firm-specific. It becomes a segment-level dynamic that requires a response beyond individual company action. |
| **ESG and reputational risk** | Exposure under ESG audit, DFI review, LP reporting or public accountability, particularly where standard frameworks are referenced in marketing or impact reports but structural issues remain unmeasured. This is where the gap between reported formalisation and effective access becomes a reputational liability. |
| **Portfolio governance risk** | Capital allocation, risk modelling and reporting systems that fail to price in structural conditions that are measurable and material. This risk operates at portfolio strategy level and is often the most material for fund managers. |

These risks are not isolated findings; they indicate where investors and ecosystem partners can most effectively intervene. By recognising how gender gaps translate into operational costs, supplier fragility, retention challenges and measurement gaps, investors can move from risk identification to practical portfolio support.

Investors, funders and ecosystem partners have an important role to play in helping companies operating in the mobile workforce economy reduce gender gaps. While many of the relevant changes happen inside companies, in recruitment, onboarding, role design, field operations, data systems and supplier relationships, investors can create the conditions for these changes to be identified, prioritised and implemented.

The recommendations below are designed to complement existing investment, portfolio support and technical assistance processes. They do not require investors to build parallel gender systems. Rather, they suggest practical ways to ask sharper questions, improve post-investment monitoring, target technical assistance and support companies in addressing the operational barriers that limit women's participation, retention and progression in mobile workforce roles.

### R1 · Use guiding gender questions during screening and early analysis

Investors can incorporate a concise set of gender-related questions into screening, due diligence or impact assessment processes. These questions help investment teams move beyond aggregate female participation and assess where women are positioned across the company's operations, value chain and higher-value roles.

**Indicative questions include:**

- Where are women positioned across the company's roles and value chain?
- Are women present in technical, field-based, supervisory or higher-income roles?
- Are there differences in retention, progression or income between women and men?
- What barriers may limit women's access to higher-value roles?
- What data does the company already collect that could help monitor these dynamics over time?

These questions should not function as exclusionary criteria. They provide an analytical lens to identify areas requiring deeper due diligence, targeted technical assistance or post-investment support.

### R2 · Track effective access to formalisation benefits

Investors can complement conventional formalisation indicators with a metric that tracks whether workers can effectively access the benefits linked to formalisation. In mobile workforce models, legal registration does not always ensure access to payroll, healthcare, digital wallets, task allocation systems or other benefits, particularly when these depend on mobile devices, connectivity or digital platforms.

A practical indicator is the percentage of formally registered workers with active access to the relevant benefit channel, such as payroll account activity, digital wallet activation, healthcare platform access or system usage. Where possible, this should be disaggregated by gender and role type to identify gaps between formal inclusion and effective access.

### R3 · Use value-chain influence to encourage gender-smart practices

Investors can support companies in using their value-chain relationships to advance gender-smart practices beyond their direct workforce. In mobile workforce models, workers are often distributed across suppliers, contractors, distributors, agents or local service providers, making these relationships an important lever for inclusion.

Companies can introduce light-touch expectations such as gender-disaggregated workforce data, inclusive recruitment language, minimum safety standards, access to enabling assets and gradual improvements in women's participation in field-based or technical roles.

This approach promotes practical measurement,

accountability and action across the broader workforce linked to the company's operations, without creating disproportionate contractual burdens.

### R4 · Differentiate technical assistance by company profile

Companies operating in the mobile workforce economy are not all starting from the same point. Some have not yet identified the gendered barriers in their operations. Others recognise the issue but have not designed a response. A third group already understands the solution but lacks the budget, technical capacity or implementation support to act.

For this reason, investors and ecosystem partners should avoid offering one-size-fits-all gender support. Technical assistance is more effective when it is matched to the company's maturity, constraints and operating model.

**A practical typology can distinguish between:**

- Diagnostic profile: companies that need visibility into where gender barriers exist.
- Design profile: companies that recognise the issue but need support translating it into
- operational changes.
- Implementation profile: companies that know what needs to change but require budget, technical capacity or partnerships to implement it.

Implementation note: Each profile requires a different type of support. Diagnostic companies may benefit from assessment tools and data templates. Design-stage companies may need role redesign support, HR tools, safety protocols or supplier engagement guidance. Implementation-stage companies may require co-financing, technical assistance, peer learning or targeted partnerships.

### R5 · Support companies with intelligence on certified female talent

Investors and ecosystem partners should tailor gender-related technical assistance to each company's maturity, constraints and operating model. Companies in the mobile workforce economy are not starting from the same point: some need to identify where barriers exist, others need to translate findings into operational changes, and others require support to implement known solutions.

**A practical typology can distinguish between:**

- Diagnostic profile: companies requiring visibility into gender barriers.
- Design profile: companies that recognise the issue but need support defining operational responses.
- Implementation profile: companies that know what needs to change but require budget, technical capacity, partnerships or co-financing.

This approach avoids generic support and ensures that technical assistance is aligned with the company's actual stage of readiness.

### R6 · Help companies move from participation metrics to operational indicators

Many companies already track the number or percentage of women in their workforce. While useful, this metric is insufficient on its own. For mobile workforce models, investors should encourage companies to track where women are located in the value chain, what roles they occupy, whether they remain, whether they progress, and whether they capture income, assets or authority over time.

**Relevant operational indicators may include:**

- Women's distribution across role types and seniority levels.
- Gender-disaggregated retention and turnover by role.
- Share of women in technical, field-based, supervisory or higher-income positions.
- Effective access to enabling assets such as devices, PPE, transport or connectivity.
- Gender-disaggregated access to training, certification and promotion pathways.
- Share of women-led or women-owned suppliers in relevant procurement categories.

### R7 · Use the toolkit as a shared implementation instrument

The Gender-Smart Mobile Workforce Toolkit provides a practical framework for investors, technical assistance providers and companies to diagnose gender gaps and prioritise action.

Investors can use it to structure portfolio conversations, inform technical assistance and identify where additional support is required. Companies can use it to assess their maturity and apply practical tools across employment, value chains, data, governance and leadership.

The toolkit should be applied collaboratively, starting either with the self-diagnostic pathway or with the thematic catalogue when the priority area is already clear.

## 7. Preparing the Ground for the Toolkit

The research points to a clear implementation gap. Companies operating in the mobile workforce economy often know that gender gaps exist, but they do not always know where those gaps sit within their operating model, which mechanisms are driving them, or which practical intervention should come first. This is why the final output of this work is not only a research report, but a practical toolkit designed to help companies move from diagnosis to action.

The primary and secondary research generated several design principles for the toolkit.
First, companies need a diagnostic instrument before intervention. Not every company is facing the same type of gender barrier. Some have not yet identified the problem; others recognise it but have not designed a response; others know what needs to change but lack the budget, technical capacity or internal mandate to act. The toolkit therefore starts with a self-assessment pathway for companies that do not yet know where to begin.

Second, recruitment language can be a first, zero-cost step. The primary research showed that small changes in how roles are described can affect who applies, particularly for technical and field-based positions. This makes job description language one of the lowest-friction entry points for action.

Third, enabling assets should be treated as part of effective formalisation. In mobile workforce models, a contract alone does not guarantee access to benefits or effective participation. Devices, connectivity, transport, PPE, tools, sanitary infrastructure and safe field conditions can determine whether workers can actually access the benefits and opportunities linked to their role.

Fourth, turnover mechanisms must be diagnosed before retention strategies are designed. The research identified different drivers of turnover, including project discontinuity, care and mobility constraints, field conditions, lack of sanitary infrastructure and budget limitations that force companies to combine too many functions into a single role. A generic retention playbook will miss these differences.

Fifth, progression into technical and higher-value roles requires documented and auditable criteria. Without clear pathways, women may remain concentrated in support, administrative, customer-facing or community-based roles, even when they have the capacity to move into technical, supervisory or higher-income positions.

Finally, supply-chain relationships can be used as practical inclusion levers. Many mobile workforce companies rely on suppliers, contractors, agents, distributors or local service providers. Gender-smart practice therefore needs to extend beyond direct employment into the broader value chain.
Based on these principles, the Gender-Smart Mobile Workforce Toolkit was structured around two entry points.

The first entry point is the Self-Diagnostic Pathway, designed for companies that are not yet sure which gender-related barriers are most relevant to their operations. Through this pathway, companies complete an assessment across eight dimensions: gender distribution across roles and decision-making power; job design in relation to care responsibilities; informality and effective labour protection; female retention and progression; inclusion within the supply chain;

gender-disaggregated data as a governance input; effective access to work-enabling tools; and the use of anchor buyers as a driver of change. The assessment produces a maturity level that helps the company identify which tools are most relevant to its current stage.

The second entry point is the Thematic Catalogue, designed for companies that already know which area they want to improve. Through this pathway, users can navigate directly into one of four themes: Employment Cycle, Supply Chain, Data & Governance, and Leadership. Across these four themes, the toolkit includes 20 practical tools.

**Under Employment Cycle, the toolkit includes eight tools focused on how companies attract, hire, onboard, retain and promote workers in mobile workforce roles:**

- Job Description Language Audit
- Enabling Assets Protocol
- Occupational Selection Diagnosis
- Auditable Promotion Criteria
- Four Turnover Mechanisms Diagnostic
- Access to Work Tools Audit
- Technical Progression Pathways
- Gender-Disaggregated Exit Dashboard

These tools respond directly to the evidence that gender gaps often emerge across the full employment journey: before hiring, during onboarding, in access to field tools, through retention failures and in blocked progression into technical or supervisory roles.

**Under Supply Chain, the toolkit includes four tools focused on extending gender-smart practice beyond the company's direct workforce:**

- Gender Matrix in the Supply Chain
- Gender Criteria in Procurement
- Supplier Contract Clauses
- Supply Chain Dashboard

These tools are designed for companies whose impact depends on suppliers, contractors, distributors, agents or local service providers. They help companies identify where gender gaps sit across the broader value chain and introduce light-touch mechanisms for measurement, accountability and inclusion.

**Under Data & Governance, the toolkit includes three tools focused on making gender gaps visible and actionable within company decision-making:**

- Data Maturity Matrix
- Data Architecture Canvas
- Quarterly Gender Report Template for the Board

These tools are designed for companies whose impact depends on suppliers, contractors, distributors, agents or local service providers. They help companies identify where gender gaps sit across the broader value chain and introduce light-touch mechanisms for measurement, accountability and inclusion.

**Under Leadership, the toolkit includes five tools focused on helping senior teams understand the business relevance of gender gaps and systematise what works::**

- Company Profile Identification Conversation Guide
- Gender Gap Cost Calculator
- Board-Level Gender Governance Checklist
- Proven Practices Coding Protocol
- Peer-to-Peer Transfer Tool

These tools are designed to support leadership teams, boards, investors and ecosystem partners in moving beyond isolated initiatives towards repeatable, evidence-based practice.

Taken together, the toolkit translates the research into a practical operating system for companies in the mobile workforce economy. It does not assume that every company is ready for the same intervention. Instead, it allows companies to diagnose their starting point, select the most relevant theme, and apply tools that are specific enough to be implemented but flexible enough to adapt across sectors.

The toolkit is therefore the bridge between evidence and implementation. The research made the underlying patterns visible and showed how they appear in real company operations. The toolkit converts this evidence into practical tools that companies, investors and partners can use to reduce gender gaps in mobile workforce systems.

## 8. Final Integrated Conclusions

This study points to a clear conclusion: reducing gender gaps in the mobile workforce economy requires moving from representation to operational redesign.

Across the evidence, women are not absent from mobile workforce systems. They are often present, but concentrated in roles with lower income, lower authority, limited access to assets and weaker progression pathways. The central challenge is therefore not only how many women participate, but where they are positioned, whether they can remain, and whether they can move into roles where value is created and captured.

The findings also show that many barriers are embedded in ordinary business systems. Recruitment language, onboarding pathways, role allocation, access to devices and equipment, field conditions, certification requirements, contract structures, supplier relationships and data systems all shape whether women can participate safely and progress meaningfully. These are not peripheral gender issues; they are workforce design, operational performance and value-chain management issues.

This has important implications for companies. Gender-smart practice should not be treated as a standalone initiative, but as part of how companies structure work, manage talent, design roles, monitor performance, support field operations and build progression pathways. Some changes can be implemented quickly, such as clearer job descriptions, gender-disaggregated data, neutral recruitment language and documented promotion criteria. Others require investment, partnerships or technical assistance, including enabling assets, field infrastructure, certified talent pipelines and supplier engagement.

For investors and ecosystem partners, the opportunity is to help companies identify where gender-related barriers sit within their operating models and support the right type of response. This means asking sharper questions, tracking effective access rather than formal inclusion alone, aligning technical assistance with company maturity, and using portfolio and value-chain relationships to encourage practical gender-smart standards.

The Gender-Smart Mobile Workforce Toolkit translates these conclusions into an implementation pathway. It provides companies, investors and partners with a shared structure to diagnose barriers, prioritise action and apply practical tools across employment, supply chains, data, governance and leadership.

Overall, the results suggest that gender gaps in the mobile workforce economy are visible, measurable and addressable. They are not only inclusion challenges, but operational issues that affect workforce participation, retention, progression and value capture. The next step is to translate these findings into company practice, portfolio support and ecosystem collaboration.

# Annex A. Glossary of key terms

This glossary collects the operational definitions used in this report. It is intended as a working reference for companies, investors, technical assistance providers and ecosystem partners using the report and toolkit.

| Term | Definition |
|---|---|
| **Mobile workforce economy** | Economic activities in which workers must physically move, operate in field-based environments or perform tasks outside centralised workplaces. Includes infrastructure services, distributed energy, agricultural value chains, logistics, field-based technical services and community-level service provision. |
| **Gender-Informed Workforce Matrix** | A tool developed for this study to organise evidence on where gender gaps appear across different mobile workforce models.. A matrix that organises labour configurations across twelve dimensions, allowing structured comparison of gender dynamics across sectors and stages of the value chain. See Annex B for variable definitions. |
| **Funnel Model** | Five-stage analytical model running from access to value capture, used to describe how women's participation narrows across the labour relationship. |
| **Value capture** | The accumulation of assets, margin, certification or authority by a worker within a labour system. Distinct from participation (presence) or operational relevance (functional importance). |
| **Continuum position** | A configuration's position along a gender continuum running from "blind" and "accommodating" models, in which participation may rise without structural change, through to "transformative" models, in which contracts, assets and governance shift. |
| **Effective access to benefits** | The proportion of formally registered workers who can in practice access the benefits associated with their formalisation, conditioned on the enabling assets (device, connectivity, transport, PPE) required to activate those benefits. |
| **Device gap** | The gap between the share of workers formally registered in a workforce system and the share who own the digital device required to access the benefits linked to that registration. The primary finding underpinning Recommendation R2. |

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| **Role splitting** | The redesign of a single multi-task role (e.g. "installer, maintenance technician and customer service agent") into specialised roles, often creating entry points for women in specific tasks. Identified in the primary research as a practical way to create more realistic entry points for women in mobile workforce roles. |
| **Algorithmic availability penalty** | A structural mechanism by which workforce management systems that reward continuous availability and rapid task acceptance penalise workers, disproportionately women, whose care responsibilities produce interruptions in availability. |
| **Mobility safety tax** | The compression of earnings and platform ranking that results when women restrict routes, hours or territories to manage safety risk, and those decisions are interpreted by workforce management systems as performance failures. |
| **Enabling assets** | Operational tools — mobile devices, connectivity, transport, PPE, sanitary infrastructure, training credentials — required for a worker to access the benefits of formalisation or to perform within higher-value roles. |
| **Gendered occupational steering** | The mechanism by which platform interfaces, onboarding processes and recruitment language direct workers into role categories already structured along gender lines, before any performance information exists. |
| **Severity gradient** | The observed variation in gender-linked operational exposure across different sectors. |
| **Three-profile typology** | Three distinct company profiles surfaced in the primary research: (i) companies that have not identified the problem; (ii) companies that have identified the problem but lack a methodology; (iii) companies that know the solution but lack budget or technical capacity. The basis for differentiated technical assistance under R4. |
| **Gender-Smart Mobile Workforce Toolkit** | Company- and investor-facing instrument set developed in parallel to this study, designed to convert the evidence base into operational tools for diagnosis, role redesign, retention, progression, supply-chain engagement and investor support. |

# Annex B. Gender-Informed Workforce Matrix: Variable Definitions

The following definitions accompany the Gender-Informed Workforce Matrix introduced in Section 3.1. Each variable supplies one structured question that, applied across labour configurations, makes gender dynamics comparable across sectors and stages of the value chain. The matrix is the connective tissue between this report and the toolkit's diagnostic instruments.

| Variable | Operational definition |
|---|---|
| **Value chain stage** | The point in the value chain at which the labour configuration sits (e.g. input supply, production, processing, distribution, last-mile delivery, after-sales). |
| **Workforce touchpoint** | The set of moments at which the worker interacts with the company's operating model: onboarding, task allocation, supervision, payment, progression, exit. |
| **Work location** | Whether work is performed at fixed sites, distributed in the field, in private homes, on platforms or via hybrid configurations. |
| **Labour organisation and intermediation** | Whether workers are employees, contractors, platform workers, agents, cooperative members or other configurations; and which intermediaries sit between the worker and the company. |
| **Control modality** | How the work is allocated, monitored and evaluated: through direct supervision, algorithmic management, performance metrics, peer evaluation or none. |
| **Gendered access and entry conditions** | The conditions and signals that determine which workers enter the configuration, including job posting language, referral networks, credential requirements and onboarding pathways. |
| **Gendered risk exposure** | The differential risks to which workers are exposed, including safety in transit and on site, harassment in service delivery contexts, ergonomic and PPE mismatch, and exposure to gender-based violence. |

| | |
|---|---|
| **Time, care and mobility constraints** | Constraints on availability and movement that interact with care responsibilities and safety considerations, including scheduling rigidity, deployment duration and geographic coverage. |
| **Retention and progression dynamics** | The mechanisms by which workers remain in the configuration and move into higher-value roles, including contract continuity, training pathways and visible progression criteria. |
| **Income, assets and value capture** | Whether and how workers accumulate earnings, productive assets, margin and certified status within the configuration. |
| **Voice, agency and power** | The extent to which workers can influence the conditions of their work, access grievance mechanisms and participate in collective decisions. |
| **Company or platform gender response** | The company's observable response across recruitment, role design, infrastructure, monitoring and progression: blind, accommodating, responsive or transformative. |

Applied consistently, these variables generate a comparable reading of any labour configuration in the portfolio. The toolkit's diagnostic instrument is built on this same set of variables, enabling continuity between the analytical framework of this report and the operational tools that follow it.

# Annex C. Methodological Approach

## 1. Secondary research

The secondary research phase was designed to establish a structured evidence base on gender dynamics within the mobile workforce economy. It reviewed a broad range of sources, including academic literature, international policy research, labour market studies, sectoral reports, multilateral publications, gender-lens investment documentation, and impact measurement frameworks relevant to decentralised, field-based and mobile work.

Rather than summarising these sources descriptively, the analysis used established gender frameworks as analytical inputs. These included the Harvard Analytical Framework, the Gender Analysis Matrix, the Moser Gender Planning Framework, the Social Relations Framework, Gender at Work and Women's Economic Empowerment frameworks. It also reviewed the 2X Criteria, the Impact Management Project and SDG-aligned indicators to understand how gender is currently measured and reported within impact investment practice.

Based on these inputs, the study developed two made-for-purpose analytical tools. First, a Gender-Informed Workforce Matrix was created to organise the secondary evidence across comparable variables, including value-chain stage, workforce touchpoint, work location, labour organisation, control modality, gendered entry conditions, risk exposure, care and mobility constraints, retention, progression, value capture and company response. This matrix allowed the research to move beyond sector-by-sector observations and identify recurring structural mechanisms across different mobile workforce configurations.

Second, a Funnel Model was developed to synthesise where women's participation narrows across the labour relationship: from access and participation to retention, advancement and value capture.

Together, the matrix and the funnel provided the analytical architecture for the secondary research, enabling the study to identify cross-cutting patterns, compare their severity across investment segments, and distinguish participation from actual economic agency and value capture. This approach follows the secondary brief's methodology, which explicitly moves from a broad evidence review to a purpose-built matrix and funnel model for organising the research findings

### 1.1 Gender-Informed Workforce Matrix

The Gender-Informed Workforce Matrix was developed to organise the evidence gathered during the secondary research in a clear and comparable way. Its purpose was to help identify where gender-related barriers appear across different types of mobile workforce models.
Rather than looking only at sectors, the matrix looks at how work is organised in practice. It examines where workers enter the system, what roles they perform, where the work takes place, what tools or

assets are required, how workers are supervised, how they are paid, and whether they can progress into better-paid or more technical positions.

This approach is particularly important in the mobile workforce economy because gender gaps do not only appear at the point of hiring. They can emerge before a person applies for a role, during onboarding, in how tasks are assigned, in access to equipment or transport, in field safety conditions, in payment systems, in promotion pathways, or in the way workers can raise concerns.

The matrix therefore helped to move beyond the question of whether women are present in the workforce. It asked more specific questions: where are women positioned, what type of work are they doing, what risks do they face, what tools do they need, what income or assets can they access, and how much influence do they have over their working conditions?

For example, the matrix helped make visible how women may be channelled into asset-light or customer-facing roles, while men remain concentrated in installation, maintenance, logistics, supervision or other higher-value technical positions. It also helped identify how care responsibilities, safety concerns, lack of adequate equipment, weak grievance mechanisms or limited access to digital tools can affect women's retention and progression.

In this sense, the matrix served as a bridge between the evidence review and the findings of the report. It provided a structured way to identify recurring patterns across sectors and to show that gender gaps in mobile workforce systems are often embedded in the design of roles, tools, contracts, supervision, data systems and value-chain relationships.

| Pattern | Short description |
|---|---|
| **1. Role-track concentration and capital exclusion** | Women are often present in mobile workforce systems, but concentrated in roles with lower income, lower authority and limited access to assets. They are less represented in technical, supervisory, asset-owning or decision-making positions. |
| **2. Digital access and literacy as entry barriers** | Digital access is often the gateway to work: applications, task allocation, payments and benefits increasingly depend on devices and connectivity. Women who lack reliable access or digital literacy may be excluded before skills or performance are even assessed. |
| **3. Availability penalties and care-driven turnover** | Many mobile workforce systems reward constant availability and rapid task acceptance. When care responsibilities interrupt availability, the system may treat this as poor performance rather than a structural constraint. |

| | |
|---|---|
| **4. Gendered occupational steering at onboarding** | Women and men can be channelled into different roles from the moment they enter a platform, company or onboarding process. This can place women in customer-facing or support roles while men move into technical or asset-based roles. |
| **5. Safety and harassment risks in field-based work** | Women working in homes, isolated sites or low-supervision environments may face safety, harassment or violence risks. These risks are often underreported and may appear indirectly as turnover rather than as safety incidents. |
| **6. Mobility safety tax and income compression** | Women may avoid certain routes, hours or locations because of safety concerns. These rational choices can reduce earnings, task volume or rankings when systems interpret them as lower availability or lower productivity. |
| **7. Ergonomic and PPE mismatch in field operations** | Tools, uniforms, equipment and safety standards are often designed around male physical norms. This can make field-based work less safe, less comfortable or less accessible for women. |
| **8. Performance monitoring that misreads interruptions** | Platforms and companies may track availability, speed, ratings and task completion without capturing the reasons behind interruptions. As a result, care, safety or mobility constraints can be misread as performance problems. |
| **9. Contractor classification and social protection gaps** | When workers are classified as independent contractors, they may lack access to benefits, protections, leave, insurance or grievance mechanisms. This can disproportionately affect women, especially where care responsibilities and health protection are critical. |
| **10. Weak data and governance systems** | Many companies do not collect gender-disaggregated data on roles, retention, pay, promotion, safety or contractor status. Without this data, gender-related risks remain invisible and difficult to manage. |

### 1.2 Funnel Model

The Funnel Model synthesises how women's participation narrows across five stages of the labour relationship:

- Access: whether women can enter the system at all.
- Participation: the roles they actually occupy once they enter.
- Retention: the conditions that allow them to remain.
- Advancement: their movement into technical, supervisory or higher-value positions.
- Value capture: whether they accumulate assets, margin, certification or authority within the system.

The funnel helps the analysis move beyond women's participation, asking whether women can remain in the system, progress within it, and capture value from it.

Read across these stages, the evidence resolves into four layers that recur in every sector studied:

| Layer | What the evidence shows |
|---|---|
| **Presence** | Women enter mobile workforce systems primarily through localised, relational and lower-authority roles.<br>Entry frequently occurs via informal, seasonal, subcontracted or commission-based pathways. |
| **Operational relevance** | Female mobile labour becomes operationally central where service delivery depends on trust, behavioural change and repeated community engagement. Operational indispensability, however, does not automatically translate into authority, asset control or income progression. |
| **Value capture** | The biggest gaps appear in roles linked to assets, certifications, technical authority or larger territories. Women are often present where work is delivered, but less present where value, income and decision-making are concentrated. |
| **Continuum position** | Most models remain either gender-blind or only partially responsive to gender barriers. Interventions may increase women's participation, but deeper change requires shifts in contracts, assets, governance and decision-making. |

## 2 Primary research

The primary research phase was designed to test four hypotheses derived from the secondary research against the lived operational realities of companies and ecosystem actors working in mobile workforce systems.

**The four hypotheses tested were:**

- H1 · Role-track concentration, examining whether women are concentrated in lower-value roles;
- H2 · Informality as a protection gap, assessing whether formalisation alone guarantees effective access to labour protections;
- H3 · Turnover as design failure, exploring whether retention challenges are driven by operational design rather than individual preference;
- H4 · Certification as a capital gate, analysing whether certification systems determine access to higher-value technical roles.

Thirteen qualitative interviews were conducted with ALIVE portfolio companies, comparable firms, ecosystem actors and technical training institutions across Colombia, Peru and Guatemala. The dataset covered companies and actors linked to a number of different sectors, including Education, Climate, and Technology, among others.

**The interview analysis looked for evidence across five main areas:**

- Women's position in the value chain: where women and men are located across roles, and whether women are concentrated in lower-value or support functions.
- Formalisation and access to work-enabling assets: whether workers have access not only to contracts or benefits, but also to the tools needed to use them, such as phones, connectivity, transport or protective equipment.
- Turnover and operational design: whether women's exits are linked to how work is structured, including project discontinuity, care responsibilities, mobility constraints, safety risks or inadequate field conditions.
- Certification and progression pathways: whether women can access the training, certification and career routes required to move into technical or higher-value roles.
- Field conditions and safety: whether women face specific barriers related to mobility, infrastructure, harassment, personal safety or working conditions in the field.

A second layer of analysis captured findings that were not part of the original hypotheses but emerged strongly from the interviews. These included:

- Limited access to mobile phones and digital tools, which can prevent workers from accessing payroll, digital wallets, health services or other benefits linked to formalisation.
- Role redesign as an inclusion lever, where splitting broad multi-task roles into more specific functions can create more realistic entry points for women.
- Inclusive recruitment language, where small changes in job descriptions can affect who applies for technical or field-based roles.
- Occupational safety and health requirements, which can be used to improve field conditions, protective equipment and infrastructure for mixed teams.
- Large buyers and tenders as drivers of change, where client or contract requirements can encourage companies and suppliers to hire and retain more women.
- Geographic gaps in certified female talent, where the issue is not always the absence of qualified women, but limited visibility on where trained women are located and how to reach them.

This approach allowed the research to identify practical mechanisms that were not fully visible in the secondary research but are highly relevant for implementation.

**The five-step research process consisted of:**

- Specifying hypotheses from the secondary research;
- Designing interviews and identifying stakeholders across portfolio and comparable firms;
- Coding each transcript against the hypothesis framework;
- Conducting an inductive review for unexpected findings;
- Synthesising the evidence across all interviews to identify recurring patterns, points of divergence and key analytical tensions.

This approach ensured that each primary finding could be traced back to specific interview evidence while still allowing new operational insights to emerge.

Because the dataset is qualitative and based on thirteen interviews, the report uses careful language such as “supported by the evidence” or “demonstrated across interviews”, rather than treating the findings as statistically representative. The value of the primary research lies in showing how the structural patterns identified in the secondary research appear in real company operations, and which mechanisms are actionable through company practice, investor support or the toolkit.