



Psychological Empowerment in Strengthening Women's Human Resources in the Gig Economy Sector: A Critical Study of Female Online Motorcycle Taxi Drivers in Indonesia

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Abstract. *The development of the digital platform-based gig economy has created flexible work opportunities, including for female online motorcycle taxi drivers in Indonesia. However, behind this flexibility, various vulnerabilities persist, such as income uncertainty, algorithmic control, weak social protection, and complex gender-related issues. This study aims to analyse how psychological empowerment can serve as a foundation for strengthening women's human resources in the gig economy sector, particularly among female online motorcycle taxi drivers. This study employs a qualitative approach using library research and applies critical-interpretative content analysis based on four dimensions of psychological empowerment: meaning, competence, self-determination, and impact. The findings show that female online motorcycle taxi drivers interpret their work not only as a source of livelihood, but also as a space for self-actualization and resistance against gender stigma. In terms of competence, women require multidimensional abilities, including digital literacy, navigation, service communication, occupational safety, and income management. In the self-determination dimension, the work flexibility offered by platforms is paradoxical because it remains constrained by algorithmic control, rating systems, and platform policies. Meanwhile, in the impact dimension, online motorcycle taxi work contributes to increased self-confidence, family economic contribution, and changes in social perceptions of women's roles. Nevertheless, these positive impacts are not fully sustainable without adequate systemic support. Therefore, strengthening women's human resources in the gig economy needs to be directed toward substantive empowerment through competence development, gender-based labour protection, platform transparency, community support, and adaptive regulation. This study contributes to shifting the perspective of women's empowerment from merely economic empowerment toward psychological empowerment within the context of digital work.*

Keywords: *Gig economy; Human resources; Online motorcycle taxi; Psychological empowerment; Women.*

1. INTRODUCTION

The development of the digital economy has transformed employment relations from conventional work systems into platform-based work arrangements that are more flexible, rapid, and oriented toward market demand. One manifestation of this transformation is the growth of the gig economy, namely a work model based on tasks, projects, or temporary services mediated by digital applications. In this context, workers are not always bound by formal employment relationships; instead, they participate as partners, drivers, couriers, freelancers, or application-based service providers. On the one hand, the gig economy offers time flexibility, income opportunities, and broader access to work. On the other hand, this work model also raises concerns regarding income uncertainty, weak social protection, and new power relations between workers and digital platforms. Putri et al. (2023) show that gig workers in Indonesia experience both benefits and serious challenges related to net income, long working hours, employment status, social protection, and limited worker voice within platform systems.

The complexity of the gig economy is not only related to economic aspects but also to the psychological and social dimensions of workers. In an international study, Taylor et al. (2023) found that gig work entails various physical and psychological hazards, including safety risks, platform control, job insecurity, issues of autonomy, flexibility, and worker identity. The study emphasizes that many risks in the gig economy do not merely originate from individual workers but stem from the systemic level, particularly platform companies and digital work mechanisms. This finding is important because it demonstrates that gig workers require not only access to employment but also working conditions that support a sense of security, self-control, recognition, and the ability to derive meaning from their work. Therefore, discussions on the quality of human resources in the gig economy cannot be separated from the psychological dimensions of workers.

In Indonesia, one of the most prominent forms of the gig economy is online transportation services, particularly motorcycle ride-hailing. Working as an online motorcycle taxi driver has become a source of livelihood for many people because it offers low entry barriers, time flexibility, and opportunities to earn daily income. However, the experiences of online motorcycle taxi drivers also reveal distinctive vulnerabilities, such as dependence on application algorithms, incentive systems, customer ratings, order cancellations, personal operational costs, and unclear employment status. Putri et al. (2023) emphasize that the platform-based transportation sector in Indonesia reflects a combination of economic opportunities and decent work challenges, particularly in relation to net wages, long working hours, and weak social protection. This condition indicates that strengthening the human resources of online motorcycle taxi drivers should not be understood merely as increasing income, but should also be directed toward enhancing workers' capacity, autonomy, psychological safety, and bargaining position.

The phenomenon of female online motorcycle taxi drivers presents more specific issues because this occupation operates within a work sphere that has traditionally been more closely associated with men. Prasetyo et al. (2025) found that women working as online motorcycle taxi drivers in Indonesia enter this sector primarily due to time flexibility and economic necessity, yet they also face social stigma, gender discrimination, safety concerns, and fluctuating income. Mursalina et al. (2023) further show that the presence of women as online motorcycle taxi drivers represents an expansion of gender equality, as women are able to generate income, make decisions, and develop potential that was previously perceived as being more closely linked to male roles. However, such equality has not fully liberated women from patriarchal social structures, domestic burdens, and negative societal judgments.

Therefore, female online motorcycle taxi drivers occupy an ambivalent position: they gain access to work, yet continue to face structural and cultural vulnerabilities.

In the context of human resource management, the presence of female online motorcycle taxi drivers should be understood not merely as a phenomenon of labour participation, but also as an issue concerning the quality of women's human resources in responding to transformations in the digital world of work. Work flexibility is often regarded as a key advantage of the gig economy; however, for women, such flexibility may turn into a burden when they have to deal simultaneously with work demands, road-related risks, domestic responsibilities, and psychological pressure. Isaroh et al. (2025) found that work flexibility is associated with the mental health and job satisfaction of female drivers, indicating that psychological aspects are important factors in understanding their work experiences. This finding strengthens the argument that women's empowerment in the online motorcycle taxi sector should not be measured solely by their ability to generate income, but also by the extent to which women feel capable, empowered, in control, and able to experience positive impacts from their work.

Previous studies have made important contributions to understanding the gig economy and female online motorcycle taxi drivers; however, each study remains limited in its specific focus. Putri et al. (2023) place greater emphasis on labour justice and decent work principles for gig workers in Indonesia. Taylor et al. (2023) examine physical and psychological hazards within the gig economy system more broadly. Prasetyo et al. (2025) highlight the participation of female online motorcycle taxi drivers as part of gender equality. Mursalina et al. (2023) focus on the existence and gender equality of female online motorcycle taxi drivers in Pontianak. Isaroh et al. (2025) discuss work flexibility, mental health, and job satisfaction among female drivers. Meanwhile, Juyumaya (2022) examines psychological empowerment in relation to performance and work engagement, while Lin et al. (2025) connects algorithmic control, psychological empowerment, and work engagement among gig workers. This comparison indicates that studies specifically integrating psychological empowerment, the strengthening of women's human resources, a critical gender perspective, and the context of female online motorcycle taxi drivers in Indonesia remain limited.

Theoretically, psychological empowerment is relevant for examining the quality of women's human resources in the gig economy because this concept does not merely view workers as economic labour, but as subjects who possess meaning, competence, autonomy, and influence in their work. Juyumaya (2022), referring to Spreitzer's framework, explains that psychological empowerment consists of four main dimensions: meaning, competence, self-

determination, and impact. These four dimensions can be used to understand whether female online motorcycle taxi drivers perceive their work as meaningful, feel competent in performing digital platform-based work, possess autonomy in making work-related decisions, and experience the impact of their work on themselves, their families, and their social environment. Lin et al. (2025) also show that, in the context of gig workers, psychological empowerment can serve as an important mechanism linking workers' experiences to work engagement, particularly within work systems shaped by algorithmic control.

Based on the above discussion, this study is important because there is a need to shift the perspective on women's empowerment in the gig economy from merely economic empowerment toward psychological empowerment and the strengthening of human resource quality. The novelty of this study lies in its attempt to examine female online motorcycle taxi drivers in Indonesia through the perspective of psychological empowerment, encompassing the dimensions of meaning, competence, self-determination, and impact, strengthened by Self-Determination Theory and a critical gender perspective. Unlike previous studies, which have mostly discussed work flexibility, job satisfaction, gender equality, work-related risks, or platform justice separately, this study offers a conceptual synthesis that views female online motorcycle taxi drivers as empowered human resource subjects while simultaneously positioning them within a vulnerable and unequal digital work structure. Using a qualitative literature-based method and critical-interpretative content analysis, this study aims to analyse how psychological empowerment can serve as a basis for strengthening women's human resources in the gig economy sector, particularly among female online motorcycle taxi drivers in Indonesia.

The main novelty of this study is the development of a conceptual synthesis on strengthening the human resources of female online motorcycle taxi drivers through psychological empowerment, rather than merely through economic indicators, work flexibility, or participatory equality. This study positions female online motorcycle taxi drivers as subjects who need to be examined in terms of work meaning, digital competence, autonomy within algorithmic systems, and the socio-psychological impacts of work.

2. METHOD

This study employs a qualitative approach using library research. A qualitative approach was selected because this study does not aim to statistically measure relationships among variables, but rather to understand, interpret, and develop a conceptual synthesis of psychological empowerment in strengthening women's human resources within the gig

economy sector. Library research was used because the primary data were derived from scientific journals, academic books, reputable articles, and relevant documents discussing women's empowerment, gig workers, online motorcycle taxis, gender, and human resource psychology. Sari and Asmendri (2020) explain that library research is conducted through the examination of various relevant written sources in order to obtain theoretical foundations and address research problems. Meanwhile, Kraus et al. (2022) emphasize that a literature review can stand as an independent study that analyzes, evaluates, and synthesizes existing knowledge.

The data sources in this study consist of primary and secondary library sources. The primary library sources include national and international journal articles published between 2022 and 2026 that discuss the gig economy, female online motorcycle taxi drivers, women's empowerment, psychological empowerment, algorithmic control, and gender relations in digital work. The secondary library sources include scholarly books, institutional reports, and academic documents that support the theoretical discussion. The sources were selected purposively based on the following criteria: relevance to the research focus, publication within a recent period, academic credibility, and inclusion of issues related to women, human resources, and the platform economy. Kraus et al. (2020) emphasize the importance of a structured literature selection process to ensure that a literature review provides a clear scientific contribution. Similarly, Kraus et al. (2022) explain that literature reviews need to consider their type, focus, considerations, methods, and contribution so that they do not merely become summaries of existing sources.

Data collection was conducted through literature searching, identification, selection, critical reading, note-taking, and classification. The literature was searched through academic databases such as Google Scholar, ScienceDirect, Springer, SINTA, Garuda, and relevant national and international journal portals. The keywords used included *psychological empowerment*, *women gig workers*, *female online motorcycle drivers*, *gig economy Indonesia*, *platform work*, *gender and gig economy*, *female online motorcycle taxi drivers*, *women's empowerment*, and *women's human resources*. Each identified source was then selected based on thematic suitability, year of publication, source quality, and contribution to the discussion.

The data analysis technique used in this study is content analysis with a critical-interpretative approach. The analysis was conducted by reading the contents of the literature, identifying units of meaning, coding themes, grouping categories, and interpreting the relationships among concepts based on Spreitzer's Psychological Empowerment theory, which comprises four dimensions: meaning, competence, self-determination, and impact. These four dimensions were used as the main analytical categories and were further strengthened by Self-

Determination Theory and a critical gender perspective to examine power relations within the structure of digital work.

3. RESULTS AND DISCUSSION

Mapping the Vulnerabilities and Opportunities of Female Online Motorcycle Taxi Drivers within Indonesia's Gig Economy

The development of the gig economy in Indonesia demonstrates an ambivalent dynamic for application-based transportation workers, including female online motorcycle taxi drivers. On the one hand, digital platforms provide relatively easier access to work because they do not always require higher educational qualifications, lengthy formal recruitment processes, or conventional employment ties. Workers can enter the labour market through applications, manage their working hours more flexibly, and obtain opportunities for daily income. This finding is consistent with the systematic review by Alauddin et al. (2024), which shows that digital platforms offer benefits such as low entry barriers, application-based task allocation, and work flexibility; at the same time, however, they also create challenges in the form of weak social protection, algorithmic control, intensive competition, and downward pressure on wages (Alauddin et al., 2024).

In the context of online motorcycle taxis, work flexibility becomes one of the main attractions because drivers can determine when to start and stop working, choose their operational areas, and adjust their work to personal and family needs. For women, this flexibility holds significant meaning because it enables them to continue participating in economic activities without completely abandoning domestic responsibilities. However, such flexibility is not always synonymous with full autonomy. Workers remain dependent on order distribution, incentive systems, customer ratings, and platform policies that may change at any time. Thus, work opportunities in the gig economy need to be critically understood as opportunities accompanied by structural dependence on digital systems.

The first prominent vulnerability is the uncertainty of employment status. In the platform system, online motorcycle taxi drivers are generally positioned as “partners” rather than formal employees. This position makes the employment relationship between drivers and application companies ambiguous. Muhyiddin et al. (2024) emphasize that the absence of explicit regulation regarding the status of gig workers in Indonesia places drivers in a vulnerable condition, without guarantees of social protection, minimum wage security, and collective bargaining rights (Muhyiddin et al., 2024). This unclear status directly affects drivers' bargaining position because they bear work-related risks individually, while

platforms retain substantial power in determining fare systems, order distribution, ranking mechanisms, and sanction procedures.

The second vulnerability relates to algorithmic control. In online motorcycle taxi work, applications do not merely function as intermediaries between drivers and customers, but also operate as instruments of supervision, control, and work evaluation. Isbah (2022), through in-depth interviews with Go-Jek and Grab drivers in Yogyakarta, Kediri, and Jakarta from June 2020 to June 2021, found that algorithmic management functions as a mechanism for controlling and monitoring work. Feedback systems, customer ratings, and platform ratings are used to monitor drivers' performance (Isbah, 2022). In this position, drivers may appear to work independently, yet their work practices remain governed by digital systems that are not always transparent. This creates a new form of vulnerability, as drivers are required to continuously maintain their performance, respond appropriately to customers, endure rating pressures, and adapt to the service standards imposed by platforms.

The third vulnerability concerns income uncertainty and workload. The income of online motorcycle taxi drivers is strongly influenced by the number of orders, working hours, work location, incentives, platform deductions, fuel costs, vehicle maintenance, and competition among drivers. This means that the income earned is not merely the result of the length of time spent working, but is also determined by digital mechanisms that are beyond drivers' full control. Under these conditions, drivers may be encouraged to extend their working hours in order to achieve daily income targets. For women, this situation becomes more complex because working time on the road must be negotiated with domestic responsibilities, personal safety, and social expectations regarding women's roles within the family.

The fourth vulnerability is related to the gender dimension. Female online motorcycle taxi drivers face issues that are not necessarily experienced in the same way by male drivers. Alifina (2021), in a study on female online motorcycle taxi drivers in Surabaya, shows that women's involvement in online motorcycle taxi services is related to efforts to meet family needs, yet they also have to face gendered challenges within the app-based transportation work environment (Alifina, 2021). These challenges may include stereotypes that driving on the road is more appropriate for men, customers' doubts about women's driving abilities, and social pressure because women are perceived as entering a masculine work sphere. Thus, women's participation in online motorcycle taxi work does not only indicate economic involvement, but also reflects a negotiation of gender norms that remain deeply embedded in society.

In addition to social stigma, safety is an important aspect of the work experiences of female online motorcycle taxi drivers. Setianingrum et al. (2026) explain that the digitalization of public transportation creates opportunities for women to become online motorcycle taxi drivers and enter public spaces through work. However, women's presence in public spaces also reveals layers of vulnerability, such as inadequate welfare and safety guarantees, exposure to harassment, and economic pressure within the partnership scheme of the gig economy (Setianingrum et al., 2026). This condition indicates that female online motorcycle taxi drivers do not only encounter general work-related risks such as accidents, fatigue, and fluctuating income, but also gender-based risks, including verbal harassment, feelings of insecurity when accepting certain orders, and restrictions on mobility caused by social norms.

This mapping of the literature shows that female online motorcycle taxi drivers occupy a paradoxical position. They gain economic opportunities, time flexibility, and access to digital workspaces, yet at the same time they face structural, psychological, and cultural vulnerabilities. Structurally, they encounter unclear employment status, limited social protection, and platform dominance in regulating work. Psychologically, they experience rating pressure, service demands, income uncertainty, and risks related to feelings of insecurity. Culturally, they face stigma, gender stereotypes, and persistent domestic burdens. Therefore, female online motorcycle taxi drivers cannot be understood merely as flexible workers who obtain economic opportunities, but should also be viewed as women human resource subjects who strive to build resilience, capacity, and bargaining power within a digital work structure that is not yet fully equitable.

Based on this mapping, the opportunities and vulnerabilities of female online motorcycle taxi drivers can be summarized as follows.

Table 1. Mapping the Opportunities and Vulnerabilities of Female Online Motorcycle Taxi Drivers within the Gig Economy.

Aspect	Emerging Opportunities	Emerging Vulnerabilities	References
Digital work access	Platforms provide access to work with relatively low entry barriers and enable workers to obtain app-based jobs.	Access to work is not always accompanied by adequate social protection, income security, and employment guarantees.	Alauddin et al. (2024)
Time flexibility	Drivers can adjust their working hours according to personal and family needs.	Flexibility may turn into uncertainty because income depends on orders, incentives, and competition among drivers.	Alauddin et al. (2024); Muhyiddin et al. (2024)

Employment status	The partnership scheme provides work opportunities outside formal employment relationships.	The status of “partner” prevents drivers from fully obtaining minimum wage guarantees, social protection, and collective rights.	Muhyiddin et al. (2024)
Algorithmic control and ratings	Applications facilitate order distribution, navigation, and driver–customer interactions.	Algorithms, customer ratings, and platform evaluation systems function as instruments of work control and monitoring.	Isbah (2022)
Women’s participation	Women are able to enter the digital transportation sector and contribute to the family economy.	Women face gendered challenges, stereotypes, social stigma, safety concerns, and domestic burdens.	Alifina (2021); Setianingrum et al. (2026)
Public space and safety	Online motorcycle taxi work enables women to be more actively present in public spaces.	Women’s presence in public spaces is accompanied by risks of harassment, feelings of insecurity, and weak protection guarantees.	Setianingrum et al. (2026)

Thus, the results of this mapping provide an important basis for moving into the discussion of psychological empowerment. If female online motorcycle taxi drivers are viewed only in terms of work access and income, the analysis will stop at economic empowerment. However, their experiences reveal broader issues, namely how women give meaning to their work, feel competent within digital systems, gain autonomy amid algorithmic control, and experience the impact of their work on themselves, their families, and their social environment. Therefore, the following subsection needs to discuss the dimensions of meaning, competence, self-determination, and impact as a framework for understanding the strengthening of women’s human resources in the gig economy more comprehensively.

The Meaning Dimension: Work as a Source of Livelihood, Identity, and Resistance to Gender Stigma

The meaning dimension in psychological empowerment indicates that work is not merely understood as an economic activity, but also as a subjective experience that contains value, purpose, and a connection to workers’ self-identity. In the context of female online motorcycle taxi drivers, the meaning of work cannot be reduced solely to the issue of earning income. Work as an online motorcycle taxi driver reveals more complex layers of meaning, namely as a survival strategy, a space for self-affirmation, a form of women’s participation in public spaces, and a form of resistance against the social construction that street-based transportation work belongs to men. Wu and Wang’s (2025) study on gig workers shows that meaningful work is associated with the career sustainability of gig workers, as

perceptions of work meaning can influence thriving at work and workers' ability to develop employability within digital platform systems (Wu & Wang, 2025).

First, female online motorcycle taxi drivers interpret this work as a source of livelihood and an economic survival strategy. The decision to become an online motorcycle taxi driver emerges from the need to earn income, support the family, and sustain household life. However, this economic meaning does not stand alone. In Savira's (2024) study, female online motorcycle taxi drivers are understood as subjects who have the right to choose their work, not merely as housewives or passive actors within the family structure. The article explains that women have the right to support themselves, including as a response to the feminization of poverty, making work a choice through which they maintain economic and social empowerment (Savira, 2024). Thus, online motorcycle taxi work for women is not merely an income-generating activity, but also a way to affirm their personal capacity in facing economic constraints.

Second, working as an online motorcycle taxi driver becomes a space for identity formation and women's self-actualization. Women working in this sector do not only perform productive roles, but also construct a self-image as independent individuals who are capable of making decisions and are not entirely dependent on domestic roles. Savira (2024) explicitly emphasizes that economic factors are not the only reason women choose to become online motorcycle taxi drivers; there are also factors of independence, the desire to fight for rights, and the need for self-actualization and existence as part of their struggle for life (Savira, 2024). This interpretation is important because it shows that female online motorcycle taxi drivers do not view work merely as an economic solution, but also as a process of building self-esteem, courage, and social legitimacy in a world of work that has long been more closely associated with men.

Third, online motorcycle taxi work is interpreted as a form of women's participation in public spaces. Roads, transportation, and mobility-based work have often been constructed as masculine spaces. The presence of women as online motorcycle taxi drivers demonstrates a shift in the boundaries between domestic and public spaces. Haudi (2025), in a study on female online motorcycle taxi drivers in Sawojajar, Malang City, found that female online motorcycle taxi drivers do not only perform the role of breadwinners, but also develop leadership from the household to the public sphere. This leadership is reflected in their ability to manage time, maintain mental resilience, develop work strategies, and build social relations in public spaces (Haudi, 2025). This means that online motorcycle taxi

work provides opportunities for women to be present, mobile, and able to negotiate within social spaces that were previously more dominated by men.

Fourth, working as an online motorcycle taxi driver can be understood as a form of resistance against gender stigma. This resistance emerges because women enter a profession that is often considered incompatible with traditional constructions of femininity. Astuti, Suharidadi, and Setijaningrum (2026), in their study on female ride-hailing drivers in Surabaya, show that digital platforms have reconfigured Indonesia's labour economy while bringing technology into contact with gender constructions that restrict women's mobility and economic agency. The article emphasizes that female ride-hailing drivers negotiate and redefine Javanese womanhood through digital platform work, including through technological appropriation, collective resistance strategies, and identity reformulation (Astuti et al., 2026). In this context, female online motorcycle taxi drivers do not work solely to earn income, but also to challenge the assumption that roads, vehicles, and transportation services are workspaces that are "naturally" more appropriate for men.

Fifth, the meaning of work among female online motorcycle taxi drivers is ambivalent. On the one hand, this work generates positive experiences, such as economic independence, self-confidence, public participation, and identity transformation. On the other hand, women continue to face stigma, harassment, discrimination, and social judgment. Hisyam et al. (2025), through a case study of female online motorcycle taxi drivers in East Jakarta, found that digital transformation in the transportation sector has opened new opportunities for women to work as online motorcycle taxi drivers; however, their presence in public spaces also exposes their vulnerability to misogynistic practices rooted in patriarchal culture (Hisyam et al., 2025). This finding indicates that public spaces are not yet fully safe and equal for women. Female online motorcycle taxi drivers must therefore construct the meaning of their work amid the tension between empowerment and vulnerability.

This ambivalence is also evident in everyday social experiences. Hisyam et al. (2025) found that female online motorcycle taxi drivers experience verbal and non-verbal harassment, gender stereotypes, and symbolic marginalization in public spaces. The strategies they employ include subtle forms of refusal, the use of digital safety features, community solidarity, and self-image management as forms of resistance against unequal power relations (Hisyam et al., 2025). This shows that the meaning of work among female online motorcycle taxi drivers is shaped not only by economic benefits, but also by their

ability to endure, resist discriminatory treatment, and maintain personal dignity in work that is gender-vulnerable.

Thus, the meaning dimension in the experiences of female online motorcycle taxi drivers shows that gig work is not only a means of earning income, but also an arena for identity formation, independence, and social resistance. Female online motorcycle taxi drivers interpret their work as a space to demonstrate their abilities, expand public participation, and challenge the stigma that women are not suitable for street-based transportation work. However, this meaning is not entirely free from contradiction, as they continue to face harassment, domestic burdens, discrimination, and moral judgment from society. Therefore, strengthening women's human resources in the gig economy needs to position the meaning of work as an important psychological foundation: women do not only need access to work, but also need to be recognized as subjects with dignity, identity, capacity, and the right to be safely present in both digital workspaces and public spaces.

The Competence Dimension: Digital Competence, Platform Adaptation, and Work Capacity among Female Online Motorcycle Taxi Drivers

Table 2. Synthesis of Competencies of Female Online Motorcycle Taxi Drivers Based on the Literature.

Competency Aspect	Required Forms of Ability	Data/Literature Findings	References
Digital application literacy	Using applications, accepting orders, reading notifications, using digital payments, and understanding application features.	A study of 75 Go-Jek drivers showed that mastery of digital information technology has a positive and significant effect on driver performance.	Mauludi & Wispandono (2024)
Navigation and time management	Reading digital maps, selecting the fastest routes, adjusting trips to traffic conditions, and avoiding delays.	Some drivers experienced difficulties in navigation and time management, which could lead to delays in finding customers' addresses and reduce customer satisfaction.	Mauludi & Wispandono (2024)
Algorithmic and rating adaptation	Understanding order distribution, customer ratings, performance evaluation, and the consequences of digital systems.	A Go-Jek study based on 19 interviews showed that algorithms are related to work assignment, performance systems, ratings, and legal and ethical issues.	Basukie et al. (2020)
Occupational safety and service	Riding safely, maintaining vehicles, selecting safe routes, using safety features, and managing customer-related risks.	A survey of 499 users in nine major Indonesian cities showed that service quality influences perceptions of safety, satisfaction, and loyalty.	Ricardianto et al. (2024)

Customer communication	Maintaining friendliness, professionalism, communication ethics, and responsiveness to customer complaints.	Driver work quality includes riding safety, communication with customers, compliance, attitudes, and professionalism.	Mauludi & Wispandono (2024)
Income and work management	Managing time, operational costs, daily income, performance, relationships with platforms, and work pressure.	Management knowledge has a significant effect on driver performance, with t-count 3.769 > t-table 1.66629 and significance 0.000 < 0.05.	Mauludi & Wispandono (2024)
Technological support and productivity	Using technology to manage workload, productivity, and work-life balance.	A study of 400 gig workers in Indonesia showed that technological support strengthens the effectiveness of work-life balance on productivity and job satisfaction.	Parman et al. (2025)
Competency-based training	Digital training, safety training, service training, risk management, and psychological strengthening.	Zhang's systematic review showed that gig worker training has largely focused on competency and economic rationality, while employment relationship aspects remain underexplored.	Zhang (2025)

The competence dimension in psychological empowerment refers to an individual's belief that they possess the abilities, skills, and capacity to perform their work effectively. In the context of female online motorcycle taxi drivers, competence cannot be understood merely as the ability to ride a motorcycle. Online motorcycle taxi work is a form of digital platform-based labour that requires a combination of technical skills, digital literacy, algorithmic adaptation, risk management, service communication, riding safety, and daily income management. Therefore, strengthening the human resources of female online motorcycle taxi drivers needs to be positioned as a multidimensional process of enhancing work capacity, rather than merely as economic training or the provision of access to applications.

The first competence required by female online motorcycle taxi drivers is mastery of digital information technology. Drivers must be able to use applications, accept and manage orders, read digital maps, understand time estimates, utilize digital payment features, and follow system notifications and updates. Mauludi and Wispandono (2024), in their study of 75 Go-Jek drivers in the Oktouber Community of Surabaya, found that mastery of digital information technology has a positive and significant effect on driver performance. The study stated that Go-Jek drivers use various technologies, such as mobile applications, mapping and navigation systems, order management systems, digital payments, customer communication, ratings and reviews, training, customer support, mobile internet, and application-specific

features (Mauludi & Wispandono, 2024). This finding shows that the competence of female online motorcycle taxi drivers lies not only in physical riding skills, but also in the ability to operate digital technology as the primary means of work production.

In practice, the ability to use applications is not a simple matter. Female online motorcycle taxi drivers must understand how applications connect them with customers, how orders are received, how routes are read, and how work performance is evaluated. Mauludi and Wispandono (2024) explain that technology in online motorcycle taxi platforms enables drivers to connect with customers through applications, facilitates ordering, navigation, and payment processes, and provides features such as real-time mapping, estimated arrival times, and user ratings (Mauludi & Wispandono, 2024). Thus, digital literacy becomes an essential prerequisite for female drivers to work efficiently, reduce route errors, manage orders, and maintain service quality in front of customers.

The second competence is the ability to adapt to algorithmic systems and customer ratings. In platform-based work, applications do not only function as work media, but also as control systems that determine order distribution, performance evaluation, and driver reputation. Basukie et al. (2020), through an in-depth case study of Go-Jek in Indonesia involving 19 semi-structured interviews with drivers, consumers, data scientists, and regulators, show that big data and algorithm governance on ride-sharing platforms are related to work assignment, performance systems, ratings, as well as legal and ethical issues (Basukie et al., 2020). This means that female online motorcycle taxi drivers need to develop the competence to read platform work patterns, understand the consequences of ratings, maintain responsiveness toward customers, and adjust their work strategies to digital rules that are often not fully transparent.

The ability to understand ratings is highly important because customer ratings can affect drivers' reputation, opportunities to receive orders, and work continuity on the platform. For women, rating pressure may become a double burden because they are not only required to provide fast and professional services, but also have to face possible gender bias, customer stereotypes, or unfair assessments. Therefore, competence in dealing with rating systems includes the ability to maintain service quality, manage emotions when facing difficult customers, avoid conflict, and maintain professionalism. In this context, competence is not only technical, but also psychological and social.

The third competence is navigation ability, time management, and route adaptation. Online motorcycle taxi drivers work in dynamic, congested, and risky urban spaces. They must be able to read digital maps, choose the fastest routes, adjust trips to traffic conditions, and

estimate travel time so that customers are not disappointed. Mauludi and Wispandono (2024) emphasize that Go-Jek drivers' abilities include time management, navigation skills, and the ability to adapt to route changes or traffic conditions. The study also notes that some drivers still lack skills in navigation and time management, causing difficulties in finding customers' addresses or choosing the fastest routes, which may result in delays and customer dissatisfaction (Mauludi & Wispandono, 2024). This indicates that training for female online motorcycle taxi drivers should include digital navigation, map reading, route selection strategies, and working time management.

The fourth competence is riding safety and work-risk management. In ride-hailing services, safety is not only a technical matter related to vehicles, but also part of service quality and customer trust. Ricardianto et al. (2024), in a study involving 499 ride-hailing users in nine major cities in Indonesia using the PLS-SEM method, found that ride-hailing service quality has a positive effect on perceived safety, satisfaction, and attitudinal loyalty among customers. The study also emphasizes that building a sense of safety is an important aspect of the ride-hailing industry because it can determine customer satisfaction and loyalty (Ricardianto et al., 2024). For female online motorcycle taxi drivers, this finding is important because it shows that safety is not only related to self-protection, but also forms part of service competence.

Work safety among female online motorcycle taxi drivers has its own complexity. They must be able to maintain their vehicles, comply with traffic regulations, choose relatively safe work locations, avoid risky times and areas, and use digital safety features when facing uncomfortable situations. Safety competence also includes the ability to make quick decisions, such as rejecting suspicious orders, avoiding unsafe routes, or contacting driver communities when encountering problems. Therefore, strengthening the human resources of female online motorcycle taxi drivers needs to include riding safety training, risk literacy, gender-based safety awareness, and the use of emergency features in applications.

The fifth competence is service communication and customer relationship management. Online motorcycle taxi drivers work in a service sector that relies heavily on direct interaction with customers. Communication quality, friendliness, information accuracy, responsiveness to complaints, and service ethics can influence customer evaluations. Mauludi and Wispandono (2024) state that the work quality of Go-Jek drivers can be observed through riding safety, communication skills with customers, and compliance with traffic regulations. A positive, friendly, and professional attitude can also affect customer satisfaction, positive ratings, and opportunities to receive more orders (Mauludi & Wispandono, 2024). In the context of female online motorcycle taxi drivers, communication skills become increasingly

important because they often have to maintain professional boundaries, avoid verbal harassment, and manage their self-image as competent service workers.

The sixth competence is daily income management and personal management literacy. Online motorcycle taxi work generates fluctuating income; therefore, drivers must be able to manage daily earnings, fuel costs, vehicle maintenance, internet data, food expenses, savings, and family needs. Mauludi & Wispandono (2024) show that management knowledge has a positive and significant effect on Go-Jek driver performance. The study found that the t-count value of 3.769 was greater than the t-table value of 1.66629, with a significance value of $0.000 < 0.05$ for the effect of management knowledge on driver performance. Meanwhile, mastery of digital information technology and management knowledge simultaneously showed a significant effect, with an F-count value of 18.993 greater than the F-table value of 3.124 and a significance value of $0.000 < 0.05$ (Mauludi & Wispandono, 2024). These data indicate that managerial competence, such as managing time, costs, performance, and income, is an important part of the human resource quality of online motorcycle taxi drivers.

Strengthening the competence of female online motorcycle taxi drivers also needs to be linked to technological support from platforms. Parman et al. (2025), through a study of 400 gig workers in Indonesia on platforms such as Gojek, Grab, Shopee, and Freelancer.com, found that work-life balance initiatives have a positive impact on productivity, with job satisfaction acting as a mediator. This effectiveness becomes stronger when workers experience low work intensity, stable gig roles, and strong technological support (Parman et al., 2025). This finding is relevant to female online motorcycle taxi drivers because individual competence will not be optimal without a technological ecosystem that is user-friendly, stable, transparent, and supportive in helping workers manage their workload.

From the perspective of human resource training, strengthening gig workers' competence needs to be designed more systematically. Zhang (2025), in a systematic review of gig worker training, found that studies on gig worker training have so far largely employed competence-based and economic rationalities, while the employment relationship rationality commonly found in traditional training remains relatively absent (Zhang, 2025). This finding is important because female online motorcycle taxi drivers do not only need training to become more productive and generate income, but also need training that strengthens their self-confidence, psychological safety, relational abilities, and bargaining position within the platform ecosystem.

Thus, the competence dimension shows that strengthening the human resources of female online motorcycle taxi drivers cannot be achieved merely through access to work or

economic encouragement. Female online motorcycle taxi drivers require digital competence to use applications and understand platform systems, navigation competence to manage routes and time, service competence to communicate with customers, safety competence to reduce work-related risks, and managerial competence to manage daily income. These competencies must also be supported by gender-responsive training, inclusive technological features, supportive communities, and transparent and safe platform mechanisms. In other words, female online motorcycle taxi drivers can be considered psychologically empowered when they are not only able to work, but also feel capable, confident, adaptive, and able to independently manage the challenges of digital work.

The Self-Determination Dimension: Women's Work Autonomy under Algorithmic Control

The self-determination dimension in psychological empowerment relates to the extent to which workers feel that they have freedom, control, and choice in determining how they perform their work. In the context of female online motorcycle taxi drivers, this dimension is highly important because the gig economy is often promoted as a flexible and independent work arrangement. Formally, female online motorcycle taxi drivers appear to have the freedom to choose their working hours, determine their operational areas, regulate their work intensity, and decide when to accept or stop taking orders. However, in practice, this freedom is not fully autonomous because their work remains constrained by algorithmic systems, incentives, customer ratings, order cancellations, performance targets, order distribution, and the risk of account deactivation. Thus, autonomy in the gig economy needs to be understood as paradoxical autonomy: it appears free on the surface, yet is structurally controlled by digital platforms.

From the perspective of Self-Determination Theory, or SDT, autonomy is one of the basic psychological needs that determines workers' motivation, performance, and well-being. Gagné et al. (2022) explain that SDT positions three basic psychological needs, namely autonomy, competence, and relatedness, as essential foundations for work motivation and well-being. The article also emphasizes that technological changes, including algorithmic management, can alter work design and affect the satisfaction of workers' psychological needs (Gagné et al., 2022). Therefore, when female online motorcycle taxi drivers do not fully understand how orders are distributed, how ratings affect their accounts, or how incentives are calculated, their psychological needs for autonomy, competence, and social relatedness may be disrupted.

The autonomy paradox in the gig economy can be seen in the way platforms simultaneously provide flexibility and control. Jarrahi et al. (2020), in their study on platformic management, show that digital platforms are often described as tools that enhance gig workers' autonomy and flexibility. However, their findings indicate that platforms also function as control mechanisms that regulate work processes, keep transactions within the platform, and restrict workers' room for manoeuvre. Jarrahi et al. (2020) state that platforms have a paradoxical nature because, on the one hand, they enable the autonomy desired by workers, while on the other hand, they serve as control instruments to protect platform interests (Jarrahi et al., 2020). In the context of female online motorcycle taxi drivers, this paradox becomes evident when they are free to turn the application on or off, yet their chances of receiving orders remain dependent on the distribution system determined by the platform.

Algorithmic control is also evident in managerial functions that were previously performed by humans but are now executed by digital systems. Parent-Rocheleau and Parker (2022) explain that algorithmic management can perform six main functions: monitoring, goal setting, performance management, scheduling, compensation, and job termination (Parent-Rocheleau & Parker, 2022). These six functions are highly relevant to the experiences of online motorcycle taxi drivers. Monitoring appears through the tracking of location and work activities. Goal setting is reflected in performance targets and incentives. Performance management occurs through customer ratings, order acceptance rates, cancellations, and account evaluation. Scheduling is evident in peak-hour patterns and order distribution. Compensation appears in fares, bonuses, deductions, and incentives. Meanwhile, job termination may occur in the form of account access restrictions, suspension, or reduced account priority. This means that although female online motorcycle taxi drivers appear to work without direct supervisors, managerial functions remain present through algorithms.

For female online motorcycle taxi drivers, this situation creates a form of autonomy that is not entirely stable. They may choose their working hours, but this choice is often influenced by peak hours, income targets, incentives, and the need to adjust work to domestic responsibilities. They may choose their work areas, but these areas are also shaped by order potential, safety considerations, travel distance, and customer-related risks. They may accept or reject orders, but such decisions can affect account performance, ratings, or opportunities to receive subsequent orders. Thus, the work autonomy of female online motorcycle taxi drivers cannot be understood merely as individual freedom, but rather as the result of negotiation among economic needs, platform rules, gender conditions, and work-related risks in public spaces.

Wiener et al. (2023) show that algorithmic control in platform work is not always perceived uniformly as negative; instead, its impact depends on how workers assess the legitimacy of such control. Through a survey of 621 Uber drivers, the study found that micro-level legitimacy judgments mediate the relationship between drivers' perceptions of different forms of algorithmic control and their intentions to continue working or use workaround strategies. The study also found that guiding algorithmic control may be positively associated with legitimacy judgments, whereas other forms of control may trigger resistance or strategies to circumvent the system (Wiener et al., 2023). This finding is important for understanding the experiences of female online motorcycle taxi drivers because algorithms may be perceived as helpful when they provide navigation, estimates, or work guidance, but may become a source of pressure when they function as tools of evaluation, punishment, or restriction of work access.

In the context of female online motorcycle taxi drivers, algorithmic control affects not only the technical aspects of work but also psychological conditions. Customer ratings, order cancellations, and performance targets may create pressure to remain friendly, fast, and responsive, even when workers face safety risks, harassment, or fatigue. Female online motorcycle taxi drivers may also experience dilemmas when they have to reject orders for safety reasons while simultaneously worrying that such decisions may affect their account performance. This is where the paradox of self-determination becomes evident: workers have choices, but those choices often carry digital consequences that are not fully under their control.

Work autonomy is also closely related to psychological well-being. Rizal and Utami (2025), in a quantitative study of 160 millennial workers aged 22–40 using PLS-SEM analysis, found that gig work orientation and work autonomy have a significant positive effect on psychological well-being, both directly and through the mediation of job crafting (Rizal & Utami, 2025). This finding indicates that autonomy can indeed strengthen the well-being of gig workers when workers are able to proactively shape their work. However, this finding also needs to be critically interpreted in the context of female online motorcycle taxi drivers, because autonomy will not lead to well-being if it is constrained by non-transparent algorithmic control, income pressure, gender stigma, and safety risks.

Based on Self-Determination Theory, autonomy cannot be separated from competence and social relatedness. Female online motorcycle taxi drivers may feel more autonomous when they understand how the application works, are able to read order patterns, can manage risks, and receive support from fellow driver communities. Conversely, autonomy weakens when workers do not understand platform rules, lack fair complaint mechanisms, receive no protection when experiencing harassment, or feel isolated in facing work pressure.

Therefore, autonomy in the context of female online motorcycle taxi drivers is not merely a matter of being “free to choose working hours,” but also concerns access to information, algorithmic transparency, fairness in rating systems, work safety, and social support.

Thus, the self-determination dimension shows that work flexibility in the gig economy does not always mean full empowerment. Female online motorcycle taxi drivers do have opportunities to regulate their working time, work areas, and work intensity, but this freedom exists under the shadow of algorithmic control. Platforms regulate work through incentive systems, customer ratings, order cancellations, performance targets, order distribution, and the risk of account restrictions. Therefore, strengthening women's human resources in the online motorcycle taxi sector needs to be directed toward the creation of substantive autonomy, rather than merely formal autonomy. Substantive autonomy means that women are not only given the freedom to access the application, but also receive system transparency, protection from gender-based risks, fair grievance mechanisms, community support, and space to make work-related decisions without fear of losing access to their livelihood.

The Impact Dimension: Psychological Empowerment and the Strengthening of Women's Human Resources in the Gig Economy

The impact dimension in psychological empowerment refers to the extent to which individuals feel that their work has a tangible influence on themselves, their families, their social environment, and broader structures of life. In the context of female online motorcycle taxi drivers, this dimension is important because online motorcycle taxi work does not only generate income, but also shapes self-confidence, courage in decision-making, economic capacity, bargaining position within the family, and changes in social perceptions of women's roles in the digital transportation sector. Therefore, the impact of online motorcycle taxi work needs to be understood at three main levels: the individual level, the family level, and the social level

At the individual level, working as an online motorcycle taxi driver provides women with space to develop economic independence and the courage to make decisions. Women who have previously been more closely associated with domestic roles are able to enter public workspaces, manage applications, interact with customers, determine their working hours, and earn their own income. Alamianti et al. (2022) found that women's motives for becoming online motorcycle taxi drivers are related to family economic conditions, flexible working time, marital status, educational background, and encouragement from friends. The study also shows that women's goals in working as online motorcycle taxi drivers include motives to change their lives, meet needs, survive, manage time, and build social relations (Alamianti et al., 2022).

This finding indicates that the impact of online motorcycle taxi work on women is not limited to the economic sphere, but also extends to the psychological sphere, as women develop life orientations, survival strategies, and awareness of their own capacities.

This individual impact can be understood as a form of improvement in the quality of women's human resources because women are not merely recipients of work opportunities, but also active subjects who manage risks and opportunities within digital work systems. When women are able to earn income, organize their working hours, use applications, deal with customers, and maintain the continuity of their work, they experience psychological outcomes such as a sense of capability, self-confidence, and courage in making decisions. However, this positive impact remains ambivalent because online motorcycle taxi work still takes place within a work environment that is not always stable, particularly due to fluctuating orders, rating pressure, operational costs, and safety risks in public spaces.

At the family level, the impact of online motorcycle taxi work is reflected in income contribution and the strengthening of women's bargaining position within the household. Herudiati (2023), through a phenomenological study of four women working as online motorcycle taxi drivers, found that working as an online motorcycle taxi driver was undertaken to help families meet their economic needs. The study also emphasizes that women must be able to divide their time between family and work (Herudiati, 2023). This finding shows that online motorcycle taxi work functions as a family economic strategy, rather than merely as an individual occupation. Women take on productive roles to support household needs, while at the same time continuing to bear domestic responsibilities.

From the perspective of human resource strengthening, women's economic contribution within the family can enhance their bargaining position, particularly in household decision-making. When women have their own income, they no longer act merely as economically dependent individuals, but also as actors who contribute to family stability. This is supported by Daraz et al. (2025), who show that women's participation in gig work significantly predicts increased digital access, greater income contribution, and stronger household decision-making power. The study also found that these changes contribute to a shift in gender ideology toward more egalitarian norms and a partial reversal of traditional gender roles, particularly in the division of household labour (Daraz et al., 2025).

At the social level, the presence of female online motorcycle taxi drivers has a symbolic impact on changing public perceptions. Street-based transportation work has long been constructed as masculine work; therefore, women working as online motorcycle taxi drivers can disrupt the traditional boundaries between men's and women's work. Alamianti et

al. (2022) explain that there is a social construction that identifies online motorcycle taxi drivers with men, yet this profession continues to attract women, although their number remains relatively small. The study also mentions the communication experiences of female online motorcycle taxi drivers with customers and the HDBR community, or *Himpunan Driver Bandung Raya* (Alamianti et al., 2022). This means that female online motorcycle taxi drivers do not only work for themselves, but also emerge as social representations that women are capable of entering work sectors based on mobility, technology, and public service.

However, this social impact cannot yet be understood as full empowerment. Changes in public perception continue to take place within a patriarchal social field. Female online motorcycle taxi drivers may still face stigma, customer doubt, order cancellations, and social judgment because they are perceived as entering work that does not conform to traditional gender constructions. Therefore, the impact dimension in psychological empowerment needs to be understood critically: women do experience capacity strengthening and social recognition, but these impacts still depend on the presence of a safe, fair, and inclusive work ecosystem.

In the context of the gig economy, the impact of psychological empowerment is also strongly influenced by social and institutional support. Zhao et al. (2025) show that platform organizational support, customer review support, and family emotional support indirectly influence gig workers' performance through work engagement and burnout. The study also found that customer and family support can help reduce burnout, while platform support can increase work engagement (Zhao et al., 2025). This finding is relevant for female online motorcycle taxi drivers because the positive impact of work does not arise solely from individual willingness, but also from support provided by families, communities, customers, and platforms.

Thus, strengthening the human resources of female online motorcycle taxi drivers should not merely emphasize the ability to work or earn income. Such strengthening needs to be supported by driver communities, digital skills training, occupational safety training, psychological assistance, and protection mechanisms provided by platforms. In the context of fragmented work that does not always have a formal organizational structure, community support becomes important because it can serve as a space for sharing information, providing informal protection, and building solidarity when women face risks on the road, problematic customers, or pressures from application systems.

In addition to community and platform support, strengthening women's human resources in the gig economy also requires regulatory certainty. Wardhana and Rasji (2025)

show that gig workers in Indonesia fulfill the substantive elements of work, wages, and command, yet they remain excluded from protections related to minimum income, social security, occupational safety, and industrial dispute resolution. The study also emphasizes that algorithmic management creates digital subordination and economic dependence; therefore, regulatory reform is needed to ensure fair protection standards for platform workers (Wardhana & Rasji, 2025).

Based on this synthesis, the impact dimension shows that online motorcycle taxi work can strengthen women's human resources through three pathways. First, at the individual level, women gain income, self-confidence, decision-making capacity, and experience in managing digital work. Second, at the family level, women contribute to the household economy and strengthen their bargaining position in decision-making. Third, at the social level, female online motorcycle taxi drivers help shift the perception that digital transportation work can only be performed by men. However, these three impacts are not sufficient to claim that women are fully empowered if they are not accompanied by platform protection, community support, continuous training, adaptive labour regulation, and a safe and gender-inclusive work ecosystem.

Thus, the main argument of this study is that psychological empowerment can serve as a basis for strengthening women's human resources in the gig economy when empowerment is not merely understood as access to work, but also as women's ability to experience tangible impacts from their work on themselves, their families, and society. Female online motorcycle taxi drivers do not only need work opportunities, but also recognition, protection, social support, and platform systems that do not position them as flexible workers without security. Therefore, strengthening women's human resources in the online motorcycle taxi sector must be directed toward substantive empowerment: women are able to work, feel empowered, possess bargaining power, are protected from work-related risks, and are recognized as important actors in Indonesia's digital economic transformation.

4. CONCLUSION AND RECOMMENDATIONS

This study concludes that psychological empowerment is a relevant approach for understanding and strengthening the quality of women's human resources in the gig economy sector, particularly among female online motorcycle taxi drivers in Indonesia. Female online motorcycle taxi drivers do not merely act as app-based workers who obtain economic opportunities, but also as subjects who construct the meaning of work, develop digital competence, negotiate autonomy within algorithmic systems, and generate impacts at the

individual, family, and social levels. The findings indicate that women's empowerment in the gig economy cannot be reduced to income-related aspects, but must be understood as a multidimensional process encompassing psychological, social, and structural dimensions.

In the meaning dimension, female online motorcycle taxi drivers interpret their work as a survival strategy, a space for self-actualization, and a form of resistance against gender stigma, although they continue to exist within ambivalent conditions shaped by social pressure and work-related risks. In the competence dimension, women require multidimensional abilities, including digital literacy, navigation, service communication, occupational safety, and income management. Meanwhile, in the self-determination dimension, the work flexibility offered by platforms does not fully generate autonomy, as it remains constrained by algorithmic control, rating systems, incentives, and platform policies. In the impact dimension, online motorcycle taxi work produces positive effects on self-confidence, family economic contribution, and shifts in social perceptions; however, these impacts are not fully sustainable without adequate systemic support.

Based on these findings, the strengthening of human resources among female online motorcycle taxi drivers needs to be directed toward substantive empowerment, rather than merely providing access to work. This includes the need for platform system transparency, protection against gender-based work risks, improvement of digital literacy and occupational safety, and the strengthening of community support as a space for solidarity and informal protection. On the other hand, the government needs to establish regulations that are adaptive to the gig economy, particularly regarding employment status, social security, income standards, and labour protection, so that women do not remain in vulnerable positions within a digital work system that is flexible but not entirely secure.

As practical and academic implications, this study recommends the development of psychological empowerment-based training programs that integrate technical competence, occupational safety, mental health, and the strengthening of women's bargaining position within the platform ecosystem. In addition, future research should expand the approach through empirical field studies to capture the direct experiences of female online motorcycle taxi drivers across different regional contexts. Thus, the gig economy should not only serve as a flexible alternative workspace, but also develop into a fair, inclusive, and sustainable work system that supports the empowerment of women's human resources in the digital economy era.

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