

The Impact of Platform Enterprise Algorithm Gamification on Gig Value Creation

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Abstract: *The gig economy, powered by internet platforms, empowers workers to autonomously choose their work schedules, locations, and methods, enabling instant matching between supply and demand. Through algorithm-driven performance metrics like points systems, badge rewards, and team collaboration challenges, platform companies quantify worker value. This study examines how algorithm-driven gamification practices in work environments influence gig workers' sustained platform engagement and co-creation of value, drawing from theories such as co-creation theory and self-determination theory.*

Keywords: *Platform Enterprise Algorithm, Gig Value, Workers*

1. Introduction

Platform economy represents a new form of economic growth, serving not only as a significant embodiment and carrier of high-quality productive forces but also providing innovative channels for employment and entrepreneurship while offering enhanced support for public services. The most distinctive feature of platform enterprises in managing gig workers lies in their adoption of algorithmic systems to replace traditional organizational control. Through AI-powered algorithms, these platforms can monitor, track, evaluate, and incentivize workers' entire work processes in real-time, with precision and on a large scale. This virtualized monitoring system seamlessly connects platform operators, laborers, producers, and consumers. In terms of labor assessment mechanisms, platform algorithms employ a "differential hierarchy" management approach to gamify incentives for gig workers. By transforming work processes into simulated gaming experiences through computational analysis, the algorithmic system operates like leveling up in a virtual world. The pervasive influence of these algorithms extends beyond replacing manual HR tasks to encompass diversified management mechanisms for mobile populations. However, studies highlight that platform algorithms subject delivery riders to "catch-up-style domination" [7-8], forcing them to endure physical exhaustion, mental stress, and safety risks alone in their work environments. In the eyes of riders, the algorithm is an invisible and intangible "black box". The data of riders running orders promotes the machine learning and self-evolution of the algorithm, while the excessive pursuit of efficiency by the algorithm leads to more improper behaviors of riders to avoid punishment measures for "on-time delivery", which damages the legitimate rights and interests of workers.

2. Double effect and internal tension: The specific impact mechanism of platform algorithm management on the value creation of gig workers

Platform companies employ algorithmic gamification to manage gig workers, which is not merely a one-dimensional application of technology. The algorithmic governance mechanisms embedded in these platforms' design inherently reflect their managerial intentions and commercial objectives. These systems deeply intervene in and reshape the labor processes, behavioral patterns, and value perceptions of gig workers. Their core influence manifests through a distinct "dual-effect" dynamic: On one hand, they effectively stimulate workers' participation motivation and service output through sophisticated incentive designs, thereby promoting value creation. On the other hand, their pervasive data monitoring and behavioral discipline establish new digital control systems that may erode workers' autonomy and well-being, ultimately threatening the sustainability of value creation. These two effects are not isolated but interwoven and dialectically unified, forming a complex scenario where incentives and control coexist yet contradict each other. This article will delve into the specific mechanisms by analyzing three dimensions: the "incentive effect," the "control effect," and their dialectical relationship.

2.1 Incentive effect and its promoting effect on value creation

A core design philosophy of platform algorithmic gamification involves leveraging elements and mechanisms from video games. This approach transforms monotonous, repetitive gig work into a "game experience" with instant feedback, clear objectives, and continuous challenges, thereby unleashing powerful motivational effects. These incentives directly or indirectly boost gig workers' value-creation activities through multiple pathways, specifically manifested in the following aspects.

2.1.1 Goal setting and instant feedback: the driving force of performance improvement

The most intuitive motivational approach in algorithmic gamification is to guide and strengthen workers' behavior by establishing clear, quantifiable goal systems and providing frequent instant feedback. Traditional work performance evaluations are often cyclical and lagging, whereas platforms use gamified elements like points, rankings, leaderboards, and achievement walls to break down long-term goals into actionable short-term tasks[1]. Each task completion and positive behavior (such as receiving positive reviews or staying online during peak hours) receives immediate data-driven feedback. For instance, food delivery riders' "order bonus" feature sets clear order progression tiers. Every completed order updates the progress bar on the app interface, delivering a sense of achievement akin to leveling up in a game. This mechanism promotes value creation across multiple dimensions. First, it significantly enhances work efficiency and engagement. Clear goals (like "Earn 20 yuan by completing 3 more orders") provide workers with actionable roadmaps, while instant feedback continuously reinforces their motivation to invest more time and effort toward objectives. Research shows that gamified performance systems offer gig workers clear improvement directions and sustained fulfillment, thereby motivating them to invest more effort [3]. Second, it optimizes the platform's overall resource allocation. By dynamically adjusting the "points" or "rewards" weight of tasks, the platform effectively guides large numbers of workers to actively participate during specific times (such as peak meal hours) and in specific areas (such as regions with scarce transportation capacity). This approach resolves the transportation matching challenges caused by tidal effects, thereby enhancing the platform's service quality and user satisfaction. This itself represents a form of value creation at the macro level.

2.1.2 Achievement and social comparison: Catalysts for job engagement

Beyond material incentives, algorithmic gamification excels at cultivating non-material psychological motivations. Features like leaderboards, tier systems, and honor medals create a virtual recognition framework that fulfills workers' psychological needs for achievement, social validation, and status symbols. When a ride-hailing driver sees their service score rank among the top in the city, or a food delivery rider earns the "Rainstorm Rider" special badge, this emotional fulfillment often transforms into powerful intrinsic motivation. This social comparison-based incentive mechanism significantly enhances workers' job engagement. Job engagement refers to an individual's psychological identification with their work and their perception of how performance contributes to self-worth. Research by Liu Shanshi et al. (2023) found that while algorithmic control may negatively impact working hours, the mediating variable of "job engagement" indirectly promotes increased online work duration. Game-based mechanisms play a crucial moderating role here, significantly amplifying the positive impact of algorithmic control on job engagement. In other words, gamification allows workers to immerse themselves more deeply in the platform's "game," internalizing its performance goals as personal aspirations. This leads to voluntary extensions of working hours, improved service standards, and direct contributions to value creation.

2.1.3 Virtual career ladder and skill development: Human capital enhancement

While the gig economy is often criticized for lacking traditional career advancement pathways, algorithmic gamification has partially simulated and constructed a virtual career development system. Platform tier systems (such as Bronze, Silver, Gold, and King Rider) not only symbolize honor but are also closely tied to tangible benefits like higher task fees, priority assignment rights, and more flexible appeal channels. This design outlines a clear "upgrading" path for workers, motivating them to invest in self-improvement and skill enhancement for career growth. To advance their ranks, workers consciously learn optimal route planning, efficient communication techniques for positive reviews, and emergency response strategies. Platforms may also introduce official online training courses linked to tier progression or specific skill badges. While informal, this "training through competition" and "learning through evaluation" approach objectively promotes human capital accumulation. Workers with more refined skills and experience naturally demonstrate greater value creation per unit time. Thus, gamification mechanisms create a virtuous cycle of "skill enhancement → rank advancement →

income growth," not only incentivizing current service output but also investing in and nurturing workers' future value creation potential. In conclusion, algorithmic gamification effectively transforms platform business objectives into employees' personal aspirations through diversified approaches including goal orientation, instant feedback, psychological satisfaction, and social comparison. This methodology not only enhances workers' immediate performance and work engagement but also promotes skill development to a certain extent, thereby holistically driving value creation within the platform-centric ecosystem.

2.2 Control effect and its erosion effect on value creation

While algorithmic gamification unleashes tremendous motivational power, it conceals a sophisticated yet subtle control mechanism. This regulatory effect stems from algorithms' comprehensive monitoring, opaque decision-making processes, and deep integration into labor workflows. While boosting efficiency, it may undermine gig workers' autonomy, mental well-being, and professional dignity, ultimately eroding the foundation of value creation in the long run.

2.2.1 Deprivation of autonomy: From "Collaborators" to "Digital Assembly Line Workers"

One of the core attractions of the gig economy was its promise of high work autonomy—allowing workers to freely choose when, where, and what tasks they undertook [5]. However, algorithmic gamification systematically erodes this autonomy. Platforms automate task assignments, enforce rigid scheduling, and standardize service processes through algorithms, drastically compressing workers' decision-making space. While nominally free, gig workers are compelled to comply with algorithmic directives to achieve optimal earnings and maintain favorable "account data". This loss of autonomy transforms independent micro-entrepreneurs into standardized laborers on digital assembly lines. Empirical studies confirm a significant negative correlation between algorithmic control and work autonomy. When workers perceive themselves as mere algorithmic tools rather than professionals with independent judgment, their job satisfaction and intrinsic motivation diminish. This suppression dampens their willingness to deliver creative, personalized services, ultimately undermining high-value-added service creation [2].

2.2.2 Intensified workload and physical/mental exhaustion

The algorithm-driven gamification of work creates a "never-ending" competitive arena that rapidly escalates labor intensity and causes physical/mental exhaustion among workers. To chase ever-updating leaderboard rankings, time-limited order incentives, and maintain high service ratings, workers are often forced into prolonged, high-intensity labor. Algorithms precisely calculate task completion deadlines and apply continuous time pressure through countdowns. This persistent monitoring and performance pressure serves as a major root cause of stress, anxiety, and burnout. Research indicates that algorithmic management features such as unsupported interactions, algorithmic inequities, and job insecurity significantly contribute to occupational burnout among gig workers [6]. In the long run, this high-intensity work environment leads to worker burnout and high attrition rates. Platforms will inevitably incur higher costs to recruit and train new hires, resulting in a net loss of value.

2.2.3 Data monitoring and algorithmic punishment: Escalating instability and insecurity

All incentive mechanisms in algorithmic gamification are built upon comprehensive and continuous monitoring of workers' behavioral data. Every order accepted, driving trajectory, service duration, and user ratings are meticulously recorded and quantified, forming the basis for algorithms to evaluate workers' "value." A single negative review, overtime, or user complaint can lead to score deductions, reduced earnings, or even account "devaluation" or permanent bans. This algorithmically enforced "digital punishment"—with virtually no appeal channels—creates significant job insecurity and income volatility for workers. Research indicates that occupational insecurity is a key factor contributing to job burnout and turnover among gig workers. When constantly fearing severe algorithmic penalties from uncontrollable factors (such as malicious negative reviews or adverse weather), workers may adopt risk-averse behaviors like excessive compliance rather than proactively creating value [4]. Income instability also makes long-term financial planning difficult, trapping workers in a cycle of "halted livelihoods and silenced voices." The fragile, algorithm-controlled labor relationship fundamentally undermines the collaborative foundation of safety and trust required for value creation. In summary, algorithmic gamification's control effects—through deprivation of autonomy, intensified workloads, and enforced digital monitoring and punishment—have profoundly impacted the occupational ecology of gig workers. These effects not only harm the well-being of

workers themselves, but also substantially erode the sustainability of value creation by reducing job satisfaction, increasing physical and mental exhaustion, and increasing insecurity.

3. Conclusions and recommendations

The core conclusion of this study reveals that the impact of platform algorithmic gamification on gig workers' value creation manifests a classic "double-edged sword" effect. This phenomenon originates from the dialectical unity of conflicting forces: motivation and control. More than just an application of technological tools, it represents a novel management paradigm that fundamentally reshapes labor processes, value distribution, and power dynamics.

In order to build a more fair, sustainable platform economic ecology that takes into account efficiency and humanistic care, this study puts forward the following multi-dimensional and systematic countermeasures and suggestions, and looks forward to the future research direction.

(1) At the macro governance level: Establishing an institutional framework for "algorithmic benevolence" through implementing algorithmic auditing and transparency principles. Regulatory bodies should establish mandatory algorithm registration and audit systems, particularly for core algorithms involving worker compensation, task allocation, rewards, and punishments. Third-party independent institutions should be introduced to conduct regular reviews of platform algorithms' fairness, discrimination, and compliance, with audit reports publicly disclosed. Simultaneously, legislation should require platforms to clearly explain core algorithm mechanisms in plain language, safeguarding workers' "right to information" and "right to explanation," thereby breaking down the "algorithmic black box." Innovating labor rights protection systems. Given the unique characteristics of gig workers, we should transcend traditional dual employment frameworks by establishing a "third-category worker" or "dependent contract worker" category. This group should receive social security matching their workload and contributions, including minimum hourly wage guarantees, work injury insurance, and pension participation mechanisms.

(2) Platform Enterprise Level: Implementing "Human-Centric" Algorithm Ethics through Participatory Algorithm Design. When designing and iterating algorithmic rules, platforms should establish regular channels for worker consultation and feedback. An "Algorithm Ethics Committee" composed of frontline workers, product managers, algorithm engineers, and external experts should be formed to jointly assess potential impacts of algorithmic changes, integrating workers' practical experience and needs into technical design – marking a shift from "designing for workers" to "co-designing with workers". Platforms must create efficient human customer service teams to handle disputes arising from algorithmic misjudgments or unfair rules. For major penalties like account bans, more rigorous manual review procedures should be implemented to safeguard workers' appeal rights. Algorithmic objective functions should not solely focus on order completion rates or platform revenue maximization, but should incorporate indicators such as workers' income stability, job satisfaction, and physical/mental health.

(3) At the worker and social organization level: Enhancing agency and collective power through digital literacy and skills training. Trade unions, industry associations, and NGOs should proactively provide gig workers with training on platform algorithms, labor regulations, and financial management to help them better understand the rules of the game, protect their rights, and plan for long-term development. We establishing new collaborative networks. Encourage and support gig workers to build information-sharing, experience-exchange, and risk-sharing mutual aid networks through online communities and offline cooperatives. These innovative collective organizations can not only serve as bargaining units against platforms but also explore new collaboration models like crowdsourcing and co-creation, thereby enhancing the overall bargaining power and market competitiveness of the worker community.

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References

- [1] Deterding S, Dixon D, Khaled R, et al. *From game design elements to gamefulness: defining "gamification"*[C]. *Proceedings of the 15th International Academic MindTrek Conference*, 2011: 9-15.
- [2] Hamari J, Koivisto J, Sarsa H. *Does Gamification Work? — A Literature Review of Empirical Studies on Gamification*[J]. *IEEE Transactions on HCI*, 2014, 47(2): 1-19.
- [3] Béhl A, Jayawardena N, Ishizaka A, et al. *Gamification and gigification: A multidimensional theoretical approach*[J]. *Journal of Business Research*, 2022, 139: 1378–1393.
- [4] Mohlmann M, Zalmanson L, Henfridsson O, et al. *Algorithmic Management of Work on Online Labor Platforms: When Matching Meets Control*[J]. *MIS Quarterly*, 2021, 45(4): 1999–2022.
- [5] Lee M K, Kusbit D, Metsky E, et al. *Working with Machines: The Impact of Algorithmic and Data-Driven Management on Human Workers*[C]. *Proceedings of the CHI Conference on Human Factors in Computing Systems*, 2015: 1603-1612.
- [6] Gautier, A .Lamesch, J. *Mergers in The Digital Economy*[J].*Information Economics and Policy*, 2021, (54): No.100890.
- [7] Koivisto J, Hamari J. *Demographic differences in perceived benefits from gamification*[J]. *Computers in Human Behavior*, 2014, 35: 179-188.
- [8] Woodcock J, Johnson M R. *Gamification: What it is, and how to fight it*[J]. *The Sociological Review*, 2018, 66(3): 542-558.