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Digital Technology and Work Discipline Effects on MSME Work Motivation, West Jakarta

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Abstract

Purpose: The COVID-19 pandemic forced Indonesian MSMEs to rapidly adopt digital tools while disrupting conventional work discipline routines. This study examines the effects of digital technology (X_1) and work discipline (X_2) on work motivation (Y) among MSME operators in Kebon Jeruk Sub-District, West Jakarta, and tests the effect of digital technology on work discipline.

Methodology: A quantitative correlational survey design was employed using simple random sampling on 975 registered MSME operators, yielding a sample of 103 respondents. Data were collected through structured Likert-scale questionnaires and analyzed using IBM SPSS Statistics version 22, incorporating validity and reliability testing, Kolmogorov-Smirnov normality testing, Pearson correlation, and simple linear regression.

Results: Digital technology positively and significantly affects work motivation (r = 0.334, p = .001) and work discipline (r = 0.403, p = .0001). Work discipline does not significantly affect work motivation (r = 0.187, p = .059).

Conclusions: Digital technology is the dominant driver of both work motivation and work discipline in this pandemic context.

Limitations: The study covers one sub-district during the pandemic, limiting generalizability, and omits control variables including leadership quality and compensation.

Contributions: This study provides empirical evidence on the dual motivational and disciplinary function of digital technology for Indonesian MSMEs during forced digital transformation, informing evidence-based digital literacy policy for small business operators.

Keywords: *Digital Technology, MSMEs, Work Discipline, Work Motivation*

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1. Introduction

The COVID-19 pandemic constituted one of the most severe economic shocks in recent Indonesian history, and Micro, Small, and Medium Enterprises (MSMEs) bore a disproportionate share of the damage. MSMEs are the structural backbone of the Indonesian economy. The Ministry of Cooperatives and SMEs reported that 64.2 million MSME units are registered in Indonesia, accounting for 99.9% of all business entities, absorbing approximately 117 million workers, or 97% of total national business employment, and contributing 61.1% of national gross domestic product. The

abrupt imposition of Large-Scale Social Restrictions (PSBB) in 2020 eliminated foot traffic, severed informal supply chains, restricted mobility, and compressed consumer spending precisely in the market segments where MSME operators are most concentrated. The social and economic magnitude of this disruption demanded a rapid, adaptive response from MSME operators, and digital technology quickly emerged as the most accessible and scalable mechanism for business continuity (Islam, 2020).

Digital technology adoption among MSMEs had been progressing steadily before the pandemic, but the crisis accelerated it dramatically. The Indonesian Internet Service Provider Association reported that Indonesian internet penetration reached 73% by late 2020, and digital platforms such as Tokopedia, Shopee, GoPay, OVO, and WhatsApp Business became critical operational infrastructure for small business operators seeking to maintain customer relationships and revenue streams under mobility restrictions. Beyond its purely commercial function, digital technology also altered the psychological experience of MSME operation: the ability to continue transacting, communicating, and marketing through digital channels provided operators with a sense of agency and purpose that was difficult to sustain through physical channels alone. This psychological dimension of digital technology adoption, its capacity to sustain or reinvigorate work motivation under adverse conditions, constitutes the primary theoretical focus of this study (Giones, & Brem, 2017; Elia, Margherita, & Passiante, 2020; Purwana, Rahmi, & Aditya, 2017).

Work motivation is the internal engine that drives sustained effort, directs goal-oriented behavior, and determines the quality of task engagement in any professional context (Mangkunegara, 2018; Hasibuan, 2017). For MSME operators, who typically lack the organizational support systems available to employees of large corporations, intrinsic motivation, the personal drive to build and sustain a business, is particularly consequential. When pandemic-related disruptions eroded the external rewards of MSME operation, such as customer interactions, market visibility, and social recognition, operators' work motivation depended increasingly on their capacity to find alternative sources of engagement and purpose. Digital technology, by opening new channels for business activity, provided exactly such an alternative (Darmawan, Mardikaningsih, & Sinambela, 2020; Chen, & Li, 2023). At the same time, the pandemic also disrupted conventional work discipline patterns, the regular routines, attendance habits, and procedural compliance behaviors that normally structure daily business operation. Understanding whether work discipline, under these psychologically stressed conditions, retains its conventional positive relationship with work motivation is an empirical question with direct implications for MSME human resource management during crisis periods (Jayaraman & Yunus, 2022).

Kebon Jeruk Sub-District in West Jakarta is an administratively dense urban area encompassing five kelurahan: Sukabumi Utara, Kelapa Dua, Kebon Jeruk, Kedoya Utara, and Duri Kepa. The sub-district office registered 975 MSME operators at the time of this study, representing a diverse cross-section of sectors including food and beverage, fashion, agriculture-based products, electronics retail, furniture, and personal services. This population provides a representative and manageable sample frame for examining digital technology and work discipline effects on work motivation in the pandemic context.

2. Literature Review and Hypothesis/es Development

2.1 Work Motivation: Theoretical Foundations and Dimensions

Work motivation is broadly understood as the set of intrinsic and extrinsic forces that initiate, direct, sustain, and determine the intensity and persistence of behavior oriented toward achieving work-related goals (Emda, 2018; Mangkunegara, 2018). This definition encompasses both the cognitive processes through which individuals evaluate the desirability of work outcomes and the emotional energies that drive sustained engagement even in the face of obstacles or adverse conditions. The distinction between intrinsic and extrinsic motivation is foundational in the motivation literature: intrinsic motivation originates within the individual and includes task enjoyment, creative engagement, a sense of organizational belonging, and the desire for social recognition and status, while extrinsic motivation derives from environmental rewards such as salary, career advancement opportunities, positive

interpersonal relationships, and organizational recognition and promotion (Kristine, 2017; Lusri, 2017).

Mangkunegara (2018) adds a third psychological dimension to this framework, encompassing the individual's perceptions of task competence, the perceived value of the activity, and the sense of life security generated by stable employment or business ownership. This psychological dimension is particularly relevant for MSME operators, whose business ownership status creates a distinctive motivational profile in which the psychological rewards of autonomy, creative control, and the sense of building something meaningful are often as important as financial returns. Hasibuan (2017) identifies ten organizational functions of work motivation, including improving employee morale, increasing productivity, retaining employee stability, improving discipline, optimizing employee acquisition, creating positive work relationships, increasing loyalty and creativity, improving welfare, raising responsibility, and enhancing resource efficiency. This multi-function characterization reflects motivation as the enabling force through which other management functions, including discipline, achieve their intended outcomes.

In the MSME context, work motivation also carries a strategic dimension that goes beyond individual performance. MSME operators who maintain high work motivation are more likely to invest in skill development, pursue market expansion, adopt new technologies, and sustain their businesses through periods of economic difficulty. Sutedjo and Mangkunegara (2018) found that work motivation has the largest direct effect on employee performance among multiple predictors including competence, confirming motivation's primacy in the MSME performance chain. Hendrawan et al. (2020) demonstrated that organizational citizenship behavior, a proxy for above-and-beyond work engagement closely related to intrinsic motivation, is positively associated with transformational leadership effectiveness, reinforcing the centrality of motivation as a mediating construct between organizational inputs and performance outputs.

2.2 Digital Technology and Work Motivation

Digital technology in the MSME context encompasses the full range of tools and platforms through which operators conduct and manage business activities: social media marketing platforms including Instagram Business and Facebook Marketplace, e-commerce platforms including Tokopedia, Shopee, and Bukalapak, digital financial services including GoPay, OVO, and QRIS payment systems, inventory and operations management applications, and digital communication platforms including WhatsApp Business. The theoretical framework most commonly applied to understand technology adoption and its motivational effects in organizational contexts is the Technology Acceptance Model (TAM). In the MSME context, Sabihaini (2016) identifies five dimensions through which digital technology utilization generates motivational and performance effects: social factors (community adoption norms that create social pressure and validation), affect (positive feelings generated by successful digital tool use), job fit (the alignment between digital tool capabilities and business task requirements), long-term consequence perception (anticipated future benefits from current technology investment), and facilitating conditions (the availability of infrastructure and environmental support for technology use).

Each of these five dimensions creates a distinct pathway through which digital technology adoption influences work motivation. The social factors dimension operates through peer validation: when MSME operators observe that their peers in the same market or community have successfully adopted digital tools and improved their business performance, the social proof of digital efficacy reinforces their own motivation to adopt and persist with digital practices (Pratama & Purnomo, 2021). The effect dimension operates through immediate emotional rewards: successful online transactions, positive customer reviews, and growing social media followings generate positive emotional feedback that reinforces operators' motivation to continue and expand their digital engagement. The job fit dimension operates through perceived competence: when digital tools make specific business tasks such as order management, payment processing, or customer communication demonstrably easier, operators experience an enhanced sense of competence that strengthens intrinsic motivation (Nguyen, Nguyen, & Nguyen, 2023). The long-term consequence dimension operates through expectancy:

operators who can envision concrete future benefits from current digital investments, such as market expansion, reduced costs, or new customer segments, are motivated by the anticipated rewards. The facilitating conditions dimension operates through reducing barriers: when internet infrastructure, device access, and technical support are available, the friction costs of digital adoption are reduced, making sustained digital engagement more motivationally feasible (Liu, Bakici, & Hartmann, 2021).

Empirically, the digital technology-motivation relationship in MSME contexts is well-documented. Purwana et al. (2017) demonstrated in a Jakarta MSME context that digital marketing technology adoption significantly expanded operators' market reach and generated positive business performance expectations, reinforcing their motivation to innovate and invest further in their businesses. Elia et al. (2020) found that digital technology adoption in entrepreneurship contexts reshapes the entire entrepreneurial process by enabling collaborative intelligence and new forms of market participation that generate motivational benefits beyond the direct productivity gains. Giones and Brem (2017) explicitly identified digital motivation as one of four core dimensions of digital entrepreneurship, establishing that the motivational dimension of digital adoption is as theoretically significant as the technical capability dimension. More recently, studies of technology adoption during the COVID-19 period have reinforced these findings by showing that MSME operators who successfully maintained digital engagement during the pandemic reported substantially higher resilience and motivation than those who could not access or effectively use digital tools (Fernandes, 2020; Strange, 2020).

2.3 Work Discipline: Definition, Dimensions, and Organizational Role

Work discipline is defined as the voluntary and internalized orientation of employees or business operators toward compliance with organizational rules, working hours, task standards, and professional ethical norms, maintained consistently over time and across varying environmental conditions (Husain, 2018; Hamali, 2018). The disciplined worker does not merely comply with rules when monitored but has internalized organizational standards sufficiently to maintain compliant behavior autonomously. Rivai (2004) operationalizes work discipline through five behavioral indicators: attendance reliability, which captures punctuality and consistency in reporting to work on schedule; compliance with work regulations, which encompasses adherence to documented procedures and organizational policies; adherence to work standards, which reflects the consistent assumption of responsibility for assigned tasks; vigilance level, which refers to the careful and efficient management of organizational resources; and ethical work behavior, which encompasses appropriate, professional conduct in interactions with customers, colleagues, and supervisors (Aldairany, Omar, & Sulaiman, 2020).

The relationship between work discipline and organizational outcomes is theoretically anchored in both human resource management theory and organizational behavior literature. Husain (2018) demonstrated in a corporate banking context that work discipline significantly influences employee performance, with highly disciplined employees showing stronger task commitment, lower absenteeism, and higher job motivation. Hasibuan and Silvya (2019) found in a multiple regression study that work discipline and work motivation jointly and significantly influence employee performance, and that disciplined work behavior increases task completion motivation by creating the psychological habit of successful task execution. The disciplinary mechanism through which motivation is reinforced operates through what might be called the discipline-competence feedback loop: regular, disciplined task completion generates cumulative competence and familiarity that make subsequent task execution more efficient and psychologically rewarding, reinforcing intrinsic motivation through the mechanism of task mastery.

However, the pandemic context introduces a critical moderating condition for the discipline-motivation relationship. Under normal operating circumstances, work discipline is sustained by a combination of organizational norms, supervisory accountability, social workplace environments, and habitual physical routines. The COVID-19 pandemic disrupted each of these conventional discipline supports simultaneously: physical workplaces were closed or restricted, supervisory presence was eliminated for many MSME operators working independently from home, social work environments dissolved, and the psychological distress generated by health anxiety, financial uncertainty, and social

isolation created conditions that were fundamentally at odds with the psychological equanimity required to sustain disciplined work behavior. Ainnisya and Susilowati (2018) noted that organizational support structures, including supervisory presence and peer accountability, are important environmental catalysts for the maintenance of work discipline, and their removal during the pandemic therefore predictably weakened discipline outcomes even among operators who maintained disciplinary intention. This theoretical backdrop provides the basis for expecting an attenuated discipline-motivation relationship in the pandemic survey period.

2.4 Digital Technology and Work Discipline

Digital technology influences work discipline through several distinct mechanisms that have become particularly important in the pandemic context. The first mechanism is structural accountability: digital productivity tools including task management applications, time-tracking software, project management platforms, and digital communication systems create visible, documented accountability structures that reinforce disciplined work behavior even in the absence of physical supervisory presence. When an MSME operator uses a digital order management system, the system creates automatic records of response times, order fulfillment rates, and customer communication patterns that function as objective performance benchmarks, enforcing a form of self-discipline through data transparency (Apriliana & Yulianti, 2022).

The second mechanism is routine reinforcement: digital platforms create habitual engagement patterns that structurally reinforce regular work activity. E-commerce platform management requires operators to regularly update product listings, respond to customer inquiries, monitor inventory, and process orders at predictable intervals, creating a digital work routine that parallels and partially substitutes for the physical work routines disrupted by the pandemic. WhatsApp Business, Instagram Business, and similar platforms similarly create regular customer engagement obligations that impose a disciplined cadence on operators' daily activities. The third mechanism is task automation: digital tools automate routine administrative tasks including payment recording, inventory tracking, and order documentation, reducing the cognitive burden of procedural compliance and making disciplined adherence to operational procedures more practically feasible. Arianto and Simanjuntak (2020) observed that technology-enabled work processes create operational structures that reinforce behavioral consistency in ways that conventional paper-based or informal systems cannot replicate. Elia et al. (2020) similarly noted that digital ecosystem participation creates accountability expectations that function as discipline-reinforcing environmental conditions.

2.5 Prior Empirical Studies

Table 1. Summary of prior studies on digital technology, work discipline, and work motivation

Author(s) & Year	Setting	Method	Key Finding
Purwana et al. (2017)	MSME operators, Malaka Sari, Jakarta	Survey	Digital marketing technology adoption significantly improved MSME market reach; digital technology use is strongly associated with increased business motivation.
Giones & Brem (2017)	Digital entrepreneurship, general	Conceptual review	Digital entrepreneurship operates through four dimensions; digital motivation is a critical enabler of sustained entrepreneurial effort.
Elia et al. (2020)	Digital entrepreneurship ecosystem	Systematic review	Digital technologies reshape the entrepreneurial process through collaborative intelligence; digital ecosystem participation increases entrepreneur motivation and innovation capacity.
Husain (2018)	PT. Bank Danamon, Bintaro	Regression	Work discipline significantly influences employee performance; disciplined employees show higher job motivation and lower absenteeism.

Author(s) & Year	Setting	Method	Key Finding
Hendrawan et al. (2020)	Organizational employees	Survey, mediation	Work motivation positively mediates the relationship between transformational leadership and organizational citizenship behavior.
Lusri (2017)	PT. Borwita Citra Prima, Surabaya	Mediation analysis	Work motivation significantly mediates the relationship between job satisfaction and employee performance; intrinsic motivation produces stronger performance effects.
Kristine (2017)	Outsourced employees, PT Mitra Karya	Path analysis	Job satisfaction and organizational commitment together influence work performance through work motivation as mediating variable.
Hasibuan & Silvya (2019)	Corporate employees	Regression	Work discipline and motivation jointly influence employee performance; disciplined work behavior increases task completion motivation.
Sutedjo & Mangkunegara (2018)	PT. Inti Kebun Sejahtera	Multiple regression	Competence and work motivation each significantly influence employee performance; work motivation has the larger direct performance effect.
Present study (2021)	MSME operators, Kebon Jeruk, West Jakarta (n = 103)	Correlational, simple regression, SPSS 22	Digital technology: significant positive effect on work motivation ($r = 0.334$, $p = .001$) and on work discipline ($r = 0.403$, $p = .0001$); Work discipline: no significant effect on work motivation ($r = 0.187$, $p = .059$).

Table 1 consolidates the key empirical contributions that inform this study. The literature reveals a consistent pattern: digital technology adoption generates positive motivational effects for MSME operators and business employees across diverse organizational contexts, while the work discipline-motivation relationship shows variability depending on the environmental conditions under which discipline is measured. The present study fills the specific empirical gap of a pandemic-period examination in the urban Jakarta MSME context, where both digital technology adoption and discipline disruption were simultaneously at peak salience.

2.6 Hypotheses

Based on the background, this study formulates three hypotheses to examine the relationships among digital technology, work discipline, and work motivation among MSME operators in Kebon Jeruk, West Jakarta.

> *H_1:* Digital Technology has a positive and significant effect on Work Motivation among MSME operators in Kebon Jeruk
>
> *H_2:* Work Discipline has a positive and significant effect on Work Motivation among MSME operators in Kebon Jeruk
>
> *H_3:* Digital Technology has a positive and significant effect on Work Discipline among MSME operators in Kebon Jeruk

3. Research Methodology

3.1 Research Design

A quantitative correlational survey design was adopted, consistent with the study's objective of testing the directional relationships between digital technology, work discipline, and work motivation across a defined MSME population (Echdar, 2017; Sekaran & Bougie, 2016). A correlational design is appropriate when the researcher's goal is to document the direction and statistical significance of

associations between variables measured simultaneously across a sample, without the researcher manipulating any variable or randomly assigning participants to experimental conditions. A cross-sectional time horizon was applied, with all data collected during the 2020-2021 pandemic period, when digital technology adoption urgency and work discipline disruption were both at peak salience for MSME operators in the Jakarta context. The cross-sectional design captures the relationships among variables at a specific point in time and is appropriate for generating descriptive and associative findings that can inform subsequent longitudinal or experimental research (Sekaran & Bougie, 2016; Sugiyono, 2018).

3.2 Population and Sample

The study population comprised 975 MSME operators registered at the official Kebon Jeruk Sub-District office, West Jakarta. These operators were distributed across five kelurahan within the sub-district: Sukabumi Utara, Kelapa Dua, Kebon Jeruk, Kedoya Utara, and Duri Kepa, and represent a cross-section of MSME sectors characteristic of dense urban Jakarta neighborhoods. Simple random sampling, a probability sampling technique, was applied, giving each registered MSME operator an equal and independent probability of selection from the sampling frame (Arikunto, 2020; Sugiyono, 2017). This approach minimizes selection bias and supports the generalizability of findings within the registered MSME population.

Following Arikunto's (2020) widely applied sampling guideline that a 20 to 25 percent sample proportion constitutes an adequate and representative sample when the population is large but manageable for structured survey administration, a target sample of 103 respondents was drawn, representing approximately 20 percent of the 975-member population. All 103 questionnaires were returned completed and usable, yielding a 100 percent response rate. The sample is approximately gender-balanced, with 55 male respondents (53.4%) and 48 female respondents (46.6%), reflecting the diverse gender profile of MSME operators in urban Jakarta. Respondents represent MSME sectors including food and beverage, fashion, agriculture-based products, electronics retail, furniture, and personal services, consistent with the multi-sector MSME ecosystem characteristic of dense urban sub-districts.

3.3 Measurement Instruments and Variable Operationalization

Table 2. Operational variable definitions and measurement dimensions

Variable	Conceptual Definition	Dimensions and Indicators
Digital Technology (X_1)	Technology tools and platforms used by MSME operators to carry out business activities, including information processing, marketing, communication, and financial management.	Social factors: perceived peer and community support for technology use; Affect: positive feelings associated with technology use; Job fit: alignment between technology tools and task requirements; Long-term consequences: perceived future benefits from current technology investment; Facilitating conditions: environmental and infrastructure support for technology use.
Work Discipline (X_2)	The degree to which MSME operators voluntarily adhere to organizational rules, working hours, and work standards, shaped by the organizational and environmental regulatory context.	Attendance: punctuality and absence frequency; Compliance with work regulations: adherence to documented procedures; Adherence to work standards: responsibility for assigned tasks; Vigilance level: careful and efficient resource use; Ethical work behavior: appropriate professional conduct with customers and colleagues.
Work Motivation (Y)	The intrinsic and extrinsic energy that sustains individuals' direction, persistence, and effort in performing work activities.	Intrinsic motivation: sense of organizational ownership, creative freedom, engaging and challenging work, social status desire; Extrinsic motivation: career advancement desire, interpersonal relationship quality, income sufficiency, rule compliance desire; Psychological dimension: task competence perception, activity interest, activity value assessment, life security perception.

Table 2 show the three constructs were measured using structured Likert-scale questionnaires developed from established theoretical frameworks. The Digital Technology scale (X_1) was adapted from Sabihaini's (2016) five-dimensional technology utilization framework covering social factors, affect, job fit, long-term consequences, and facilitating conditions. The Work Discipline scale (X_2) was adapted from Rivai's (2004) five-component discipline model covering attendance, regulatory compliance, work standard adherence, vigilance, and ethical behavior. The Work Motivation scale (Y) incorporated Kristine's (2017) three-dimensional motivation framework covering intrinsic motivation, extrinsic motivation, and the psychological dimension. All items were measured on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The full operational definitions and dimension specifications for each construct. The dimensions and indicators presented in Table 2 formed the basis for all questionnaire items. Each construct dimension was represented by multiple questionnaire items to ensure adequate content coverage and to support internal consistency assessment through Cronbach Alpha. The structured Likert-scale format was selected because it enables quantification of attitudinal variables at the interval level, which is required for the Pearson correlation and regression analyses used in hypothesis testing (Sekaran & Bougie, 2016).

3.4 Data Analysis Procedures

All data analysis procedures were conducted using IBM SPSS Statistics version 22. The analysis followed a structured sequential procedure comprising four stages. First, instrument validity was assessed using Pearson item-total correlation analysis. Items with r-count values exceeding the r-table threshold of 0.195 (corresponding to n = 100 at alpha = .05, two-tailed) were declared valid and retained in the analysis. Items falling below this threshold would have been removed or revised, though in practice all items across the three constructs exceeded the validity threshold.

Second, instrument reliability was assessed using Cronbach Alpha for each construct. The threshold for adequate reliability was set at Alpha greater than or equal to 0.60, consistent with the guidelines of Sekaran and Bougie (2016) for exploratory social science research. All three constructs achieved Alpha values exceeding this threshold, confirming adequate internal consistency. Third, the normality assumption required for parametric analysis was tested using the Kolmogorov-Smirnov goodness-of-fit test. Data distributions were considered sufficiently normal when the D-count statistic fell below the D-table critical value of 0.189 (applicable for n greater than 40 at alpha = .05). Normality was confirmed for all three variable distributions.

Fourth, hypothesis testing employed Pearson correlation analysis and simple linear regression for each of the three hypothesized relationships. Hypotheses were supported when the Sig. (2-tailed) probability value was less than 0.05 and the r-count exceeded the r-table value of 0.195. Simple linear regression provided the standardized beta coefficients that confirm the direction (positive or negative) and magnitude of each relationship. The use of simple bivariate regression for each hypothesis pair, rather than multiple regression with all predictors simultaneously, is consistent with the study's correlational design and its goal of testing each directional hypothesis independently.

4. Results and Discussions

4.1 Respondent Profile

Table 3. Respondent demographic profile (n = 103)

Category	Group	n (%)
Gender	Male	55 (53.4%)
	Female	48 (46.6%)
Business Location	Sukabumi Utara, Kelapa Dua, Kebon Jeruk, Kedoya Utara, Duri Kepa	All five kelurahan represented
Total		103 (100%)

Table 3 presents the demographic profile of the 103 respondents. The sample is approximately gender-balanced, with 55 male respondents representing 53.4% and 48 female respondents representing 46.6% of the total sample. This near balance is consistent with the broad gender distribution of

MSME ownership in urban Jakarta, where both men and women are active participants in small business operation across a wide range of sectors. The MSME sectors represented in the sample include food and beverage production and retail, fashion and textiles, agriculture-based products, electronics and accessories retail, furniture, and personal services such as laundry, repair, and beauty services. This sector diversity is characteristic of the dense, mixed-use commercial neighborhoods of West Jakarta and ensures that the study's findings reflect a cross-sectoral picture of MSME work motivation and digital technology use rather than a sector-specific pattern.

4.2 Validity, Reliability, and Normality

All questionnaire items across the Digital Technology (X_1), Work Discipline (X_2), and Work Motivation (Y) constructs achieved Pearson item-total r-count values exceeding the r-table threshold of 0.195 (n = 100, alpha = .05, two-tailed), confirming the convergent validity of all retained items. The Cronbach Alpha values for all three constructs exceeded the 0.60 reliability threshold established by Sekaran and Bougie (2016), confirming adequate internal consistency and instrument reliability. Kolmogorov-Smirnov normality testing confirmed that all three variable distributions satisfy the normality assumption, with all D-count statistics falling below the critical D-table value of 0.189. These results collectively qualify the dataset for parametric statistical analysis including Pearson correlation and simple linear regression.

4.3 Pearson Correlation Results

Table 4. Pearson correlation results: Inter-variable relationships

Variable Pair	r-count	r-table (n=100, α=.05)	Sig. (2-tailed)	Interpretation
Digital Technology (X_1) → Work Motivation (Y)	0.334	0.195	.001	Significant positive correlation
Work Discipline (X_2) → Work Motivation (Y)	0.187	0.195	.059	No significant correlation
Digital Technology (X_1) → Work Discipline (X_2)	0.403	0.195	.0001	Significant positive correlation

Table 4 presents the Pearson correlation results for all three hypothesized variable pairs. Digital technology shows a statistically significant positive correlation with work motivation (r = 0.334, p = .001), confirming that increased digital technology utilization is associated with higher work motivation among the sampled MSME operators. Digital technology also shows the strongest correlation in the study with work discipline (r = 0.403, p = .0001), indicating that greater digital tool adoption is substantially associated with more disciplined operational behavior. Work discipline, in contrast, does not show a statistically significant correlation with work motivation (r = 0.187, p = .059), as the r-count falls below the r-table critical value and the p-value exceeds the 0.05 alpha threshold.

4.4 Regression Results

Table 5 consolidates the regression results for both models. In Model 1, digital technology (X_1) is a statistically significant positive predictor of work motivation with a standardized coefficient of 0.334 (p = .001), while work discipline (X_2) is not a statistically significant predictor with a standardized coefficient of 0.187 (p = .059). In Model 2, digital technology (X_1) is a statistically significant positive predictor of work discipline with the largest coefficient in the study of 0.403 (p = .0001), confirming that digital technology adoption is more strongly associated with discipline outcomes than with motivation outcomes in this sample.

4.5 Hypothesis Testing and Discussion

Table 6. Hypothesis testing summary

Hypothesis	Statement	r-count	Sig.	Result
H_1	Digital Technology has a positive and significant effect on Work Motivation among MSME operators in Kebon Jeruk	0.334	.001	Supported

Hypothesis	Statement	r-count	Sig.	Result
H_2	Work Discipline has a positive and significant effect on Work Motivation among MSME operators in Kebon Jeruk	0.187	.059	Not Supported
H_3	Digital Technology has a positive and significant effect on Work Discipline among MSME operators in Kebon Jeruk	0.403	.0001	Supported

Table 6 summarizes the hypothesis testing outcomes H_1 and H_3 are supported, while H_2 is not supported. The following subsections provide detailed interpretation and discussion for each hypothesis result.

4.6 Effect of Digital Technology on Work Motivation (Supported) Based on Hypothesis 1

H_1 is supported to digital technology exerts a positive and statistically significant effect on work motivation among Kebon Jeruk MSME operators (r = 0.334, p = .001; r-count 0.334 greater than r-table 0.195). This finding confirms that MSME operators who more extensively utilize digital tools, including social media marketing, e-commerce platforms, digital payment systems, and digital communication platforms, report significantly higher levels of work motivation. The magnitude of the correlation (r = 0.334) indicates a moderate positive association that is practically as well as statistically meaningful in the MSME management context.

The motivational mechanism of digital technology in this context operates through multiple complementary pathways. The social factors dimension of digital technology utilization, through which operators gain validation and social encouragement from observing the successful digital practices of peers in their community and market, contributes to a social motivation effect that reinforces individual operators' commitment to digital engagement. The effect dimension contributes through the immediate emotional rewards of digital business activity: positive online transaction outcomes, growing social media engagement, and customer feedback through digital channels generate a form of real-time motivational reinforcement that was particularly valuable during the pandemic when physical business interactions were restricted. The job fit dimension contributes through the perceived competence effect: as operators develop proficiency with digital tools that genuinely simplify specific business tasks, their experience of task mastery strengthens intrinsic motivation through the mechanism of competence satisfaction.

The pandemic context amplifies the significance of this finding. During the 2020-2021 COVID-19 period, many of the conventional motivational drivers of MSME operation, including customer foot traffic, in-person market interactions, and the social energy of physical commercial environments, were substantially or entirely eliminated by mobility restrictions. MSME operators who had adopted digital tools before or during the pandemic were able to partially substitute digital channels for these physical motivational environments, maintaining business activity and the psychological engagement that sustains work motivation. Operators who lacked digital access or skills faced a more severe motivational deficit, as their primary business engagement channels were closed without digital substitutes. This context-specific mechanism reinforces the findings of Purwana et al. (2017) and Elia et al. (2020) in establishing digital technology as a primary motivational resource for MSME operators in technologically dynamic urban contexts. Fernandes (2020) and Strange (2020) both documented that MSMEs in developing economies that maintained digital engagement during the pandemic demonstrated substantially greater resilience and operational continuity, which is consistent with the motivational advantage of digital technology adoption documented in H_1.

4.7 Effect of Work Discipline on Work Motivation Based on Hypothesis 2 (Not Supported)

H_2 is not supported for work discipline does not have a statistically significant effect on work motivation in this pandemic-period sample (r = 0.187, p = .059; r-count 0.187 less than r-table 0.195). This non-significant result is both theoretically notable and contextually explicable. The conventional theoretical expectation, supported by the broader human resource management literature, is that work discipline positively reinforces work motivation through the habit formation and competence development mechanisms described in the literature review. Hasibuan and Silvya (2019) documented a significant positive discipline-motivation relationship in a standard corporate employment context, and the traditional Indonesian MSME management literature similarly treats discipline as a foundational determinant of MSME operator effectiveness and motivation.

The departure from the conventional positive relationship in this study is most convincingly explained by the COVID-19 pandemic context. The psychological distress generated by the pandemic, encompassing health anxiety, financial uncertainty, reduced social interaction, and disruption of family routines, created conditions that systematically undermined the conventional relationship between disciplinary intention and disciplinary practice. MSME operators in this sample reported through open-ended questionnaire commentary that while they maintained an orientation toward disciplined work behavior, the practical achievement of consistent discipline was substantially compromised by the psychological and environmental conditions of the pandemic. Ainnisya and Susilowati (2018) noted that organizational support structures including supervisory accountability and peer discipline norms are important environmental enablers of individual discipline, and the pandemic removed many of these supports from the MSME operating environment.

Additionally, the statistical boundary nature of the H_2 result deserves careful interpretation. The correlation coefficient of 0.187 is just below the critical r-table threshold of 0.195, and the p-value of .059 is just above the alpha threshold of .05. This proximity to significance suggests that the discipline-motivation relationship is not entirely absent in this context but is sufficiently attenuated by pandemic conditions to fail the conventional significance threshold. In a post-pandemic study with a larger sample or in different operating conditions, this relationship might recover to statistical significance. This possibility has important implications for the generalizability discussion in Section 5 and motivates the longitudinal future research recommendation for examining this relationship across pandemic and post-pandemic periods.

4.8 Effect of Digital Technology on Work Discipline Based on Hypothesis 3 (Supported)

H3 is supported with the largest correlation coefficient in the study: digital technology exerts a positive and statistically significant effect on work discipline among Kebon Jeruk MSME operators (r = 0.403, p = .0001; r-count 0.403 substantially greater than r-table 0.195). This finding demonstrates that among these MSME operators during the pandemic period, digital technology adoption was a stronger predictor of work discipline than work discipline itself was a predictor of work motivation. The practical implication is that digital technology functioned as an organizational infrastructure that partially substituted for the conventional environmental discipline supports removed by pandemic conditions.

The mechanism through which digital technology reinforces work discipline operates through the structural accountability embedded in digital tool use. E-commerce platform management creates regular performance obligations that require consistent daily attention, enforcing a form of operational discipline through the platform's customer service and order fulfillment requirements. Digital financial management systems create automatic records of business transactions that incentivize regular and accurate financial documentation practices. Task management and communication applications create visible deadlines and response time expectations that reinforce punctuality and reliability as operational norms. These digital accountability structures did not replace the motivational energy required for discipline, but they did create environmental scaffolding that made disciplined behavior more practically sustainable in the absence of the physical work environment and supervisory presence removed by the pandemic. Arianto and Simanjuntak (2020) and Elia et al. (2020) both observed that digital platforms create operational

routines and accountability expectations that reinforce disciplinary consistency in small business contexts.

The H_3 finding has a significant policy implication that extends beyond the direct digital technology-discipline relationship. When considered alongside the H_1 finding, the H_3 result establishes digital technology as a dual-outcome strategic investment for MSME development policy: digital technology adoption simultaneously improves work motivation (through the motivational pathways documented in H_1) and work discipline (through the structural accountability mechanisms documented in H_3). This dual-function mechanism provides substantially stronger economic justification for public investment in digital literacy and technology adoption programs for MSME operators than productivity arguments based on motivation alone would support. Programs such as the Ministry of Cooperatives' MSME digitalization support initiatives and Bank Indonesia digital payment ecosystem development projects can be justified not only on the basis of their direct economic productivity effects but also on the basis of their organizational development effects in improving the operational discipline and motivational orientation of small business operators.

5. Conclusions

5.1 Conclusion

This study examined the effects of digital technology and work discipline on work motivation among 103 MSME operators in Kebon Jeruk Sub-District, West Jakarta, using quantitative correlational analysis conducted during the COVID-19 pandemic period of 2020 to 2021. Three conclusions are supported by the empirical evidence.

First, digital technology positively and significantly influences work motivation ($r = 0.334$, $p = .001$; H_1 supported). Digital technology is a primary driver of work motivation maintenance for MSME operators under pandemic operating conditions, functioning through social validation, positive affect from digital business engagement, job-technology fit, long-term benefit expectation, and facilitating conditions dimensions. This finding confirms that digital technology adoption provides a motivational resource that partially compensates for the loss of conventional physical and social motivation drivers during crisis periods.

Second, work discipline does not significantly influence work motivation in this pandemic-period context ($r = 0.187$, $p = .059$; H_2 not supported). The absence of a significant discipline-motivation relationship is attributed to the COVID-19-generated psychological distress that disrupted conventional discipline-supporting environmental conditions including physical workplaces, supervisory presence, and social work environments, creating a disconnection between operators' disciplinary intentions and their realized disciplinary practices and motivational outcomes. Third, digital technology positively and significantly influences work discipline ($r = 0.403$, $p = .0001$; H_3 supported). This is the strongest relationship in the study, demonstrating that digital accountability structures embedded in technology tools reinforce operational discipline through structural routine creation, task automation, and performance transparency mechanisms.

Three practical recommendations follow from these findings. For MSME operators in Kebon Jeruk and comparable urban sub-districts, digital technology adoption should be prioritized as the primary work motivation enhancement strategy, particularly during periods when conventional motivation drivers are disrupted by external crises. For MSME development program designers at the Ministry of Cooperatives or Bank Indonesia, digital literacy programs should be designed and marketed using a dual-benefit framing that communicates digital technology's simultaneous benefits for business performance through motivation and operational quality through discipline. For post-pandemic MSME recovery planning, the non-significant discipline-motivation relationship warrants continued monitoring in normal operating conditions to determine whether the pandemic-period disruption of this conventional relationship has permanently altered MSME management dynamics in urban Jakarta or whether discipline recovers its conventional motivational role as pandemic conditions recede.

5.2 Research Limitations

Four limitations apply to this study. First, the study was conducted in a single sub-district, Kebon Jeruk in West Jakarta, during a specific and exceptional period of 2020 to 2021, restricting the temporal and geographic generalizability of the findings to MSME operators in other sub-districts, other Indonesian cities, or post-pandemic time periods. Second, only two independent variables, digital technology and work discipline, are included as predictors, and other potentially important work motivation determinants such as leadership quality, compensation adequacy, job satisfaction, work environment quality, and peer social support are not controlled for and may constitute omitted variables that affect both the direction and magnitude of the documented relationships. Third, the cross-sectional design prevents causal inference: while the correlation and regression analyses document statistically significant associations, they do not establish the temporal precedence required to confirm that digital technology adoption causally precedes and generates improvements in work motivation and work discipline. Fourth, the study relied on self-reported questionnaire data, which may be subject to social desirability bias, particularly in a pandemic context where respondents may have wished to present their work discipline and technology adoption patterns in a favorable light.

5.3 Directions and Future Study

Three research directions are recommended for future investigation. A longitudinal comparison study examining the digital technology-work motivation and work discipline-work motivation relationships in both pandemic and post-pandemic periods would provide direct empirical evidence on whether the non-significant H_2 finding is a pandemic-period contextual anomaly or a more durable structural change in MSME work psychology in urban Jakarta. Such a study would ideally track the same respondents across two or more measurement periods to enable within-subject comparisons of relationship strength under different environmental conditions.

A multi-variable study adding leadership quality, compensation adequacy, work environment, and job satisfaction as additional predictors would provide a more complete model of MSME work motivation determinants. This expanded model would enable identification of whether digital technology retains its dominant motivational role when additional predictors are controlled for, or whether its observed motivational effect in this study partially reflects its correlation with unmeasured variables such as general business sophistication or organizational capacity. The use of multiple regression or structural equation modeling would enable simultaneous testing of direct, mediated, and moderated relationships among a richer set of variables.

Comparative studies across different Indonesian regional and urban-rural contexts would assess whether the digital technology-motivation relationship identified in this study is characteristic of highly digitalized dense urban environments like West Jakarta, or whether it generalizes to peri-urban and rural MSME operators who face different digital infrastructure conditions, market structures, and cultural work norms. Indonesia extraordinary geographic and economic diversity means that findings from a single Jakarta sub-district may not be representative of the broader Indonesian MSME landscape, and comparative regional studies are essential for developing nationally applicable MSME digital transformation policy.

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Author Contributions

MRA was responsible for conceptualization, research design, data collection coordination, and drafting the original manuscript. IH contributed to questionnaire instrument development, data collection, and preliminary data analysis. EHB contributed to literature review, data analysis using IBM SPSS Statistics, and result interpretation. NS was responsible for research supervision, methodology validation, critical revision of the manuscript for important intellectual content, and final manuscript approval. All authors have read and agreed to the submitted version of the manuscript.

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