

### Digital Wellbeing at Scale: Global Assessment of Stress, Productivity, and Burnout in Hybrid Organizations

Ahmad Agus Sumarno<sup>1\*</sup>, Mira Yona<sup>2</sup>, Yannik Ariyati<sup>3</sup>, Hanafi Siregar<sup>4</sup>, and Nur Ellysiana<sup>5</sup>

<sup>1,2,3,4,5</sup> University of Riau Islands, Indonesia

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#### CORRESPONDING AUTHOR

agussumarnoahmad@gmail.com

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#### ABSTRACT

This study provides a comprehensive assessment of digital wellbeing in hybrid organizations by examining how digital stress, productivity, and burnout interact across diverse workplace contexts in Batam, Medan, and Kuala Lumpur. The research employs a quantitative design using SmartPLS to evaluate both the measurement and structural models, drawing on responses from 912 employees working within digitally mediated environments. The findings reveal that digital stress is predominantly driven by communication overload, high platform switching frequency, and prolonged screen exposure, conditions that collectively elevate cognitive strain and disrupt workflow continuity. The structural model demonstrates that digital stress has a significant negative impact on productivity, while simultaneously exerting a strong positive influence on burnout. Productivity, on the other hand, contributes to lowering emotional exhaustion, indicating its moderating role within the digital wellbeing framework. Regional comparisons further show that employees in technologically mature ecosystems, such as Kuala Lumpur, experience lower digital strain and greater productivity stability compared to those in Batam and Medan, where digital infrastructures and workflow standardization are less developed. These insights highlight the critical need for organizations to implement structured digital governance practices, optimize communication flows, and establish clear boundaries for virtual interaction to protect employee wellbeing. The study contributes significant empirical evidence for the development of integrated digital wellbeing strategies that support sustainable performance in hybrid work environments and offers a foundational reference for future research on digital labor dynamics.

#### ABSTRAK

Penelitian ini memberikan gambaran komprehensif mengenai kesejahteraan digital dalam organisasi hibrida dengan menganalisis interaksi antara stres digital, produktivitas, dan burnout pada karyawan di Batam, Medan, dan Kuala Lumpur. Pendekatan kuantitatif digunakan melalui analisis *Partial Least Squares* (SmartPLS) untuk mengevaluasi model pengukuran dan struktural berdasarkan data dari 912 responden yang bekerja dalam lingkungan kerja digital. Temuan menunjukkan bahwa stres digital terutama dipicu oleh beban komunikasi yang berlebihan, frekuensi perpindahan platform yang tinggi, serta durasi penggunaan layar yang panjang, yang secara kolektif meningkatkan tekanan kognitif dan mengganggu kesinambungan alur kerja. Hasil model struktural memperlihatkan bahwa stres digital berpengaruh negatif terhadap produktivitas dan secara signifikan meningkatkan tingkat burnout. Produktivitas ditemukan mampu menurunkan kelelahan emosional, menunjukkan perannya sebagai faktor penyeimbang dalam kerangka kesejahteraan digital. Perbandingan antarwilayah mengungkapkan bahwa karyawan di ekosistem digital yang lebih matang, seperti Kuala Lumpur, mengalami tekanan digital yang lebih rendah dan stabilitas produktivitas yang lebih tinggi dibandingkan karyawan di Batam dan Medan yang menghadapi keterbatasan infrastruktur dan kurangnya standarisasi alur kerja digital. Temuan ini menegaskan pentingnya penerapan tata kelola digital yang terstruktur, pengelolaan arus komunikasi, serta penetapan batasan interaksi virtual untuk melindungi kesejahteraan karyawan. Studi ini memberikan bukti empiris untuk pengembangan strategi kesejahteraan digital terpadu yang mendukung keberlanjutan kinerja organisasi di era kerja hibrida.

#### 1. Introduction

The evolution of digital technologies has reshaped organizational structures and accelerated the global transition toward hybrid work arrangements that integrate remote and on site interactions [1]. Earlier

studies highlight theoretical explanations for digital overload, fragmented workflows, and communication interruptions in digital environments [2], [3]. These conceptual insights emphasize the need for empirical grounding to capture real employee experiences under

technology mediated work conditions. This study addresses that need by empirically examining how digital ecosystems influence productivity, focus, and psychological resilience across hybrid workplaces, extending emerging work on digital well being in hybrid settings [4].

Field data from this research provide concrete evidence of digital overload among hybrid employees, consistent with prior work on remote working effectiveness [5]. Respondents spend an average of 7.84 hours per day on screens, participate in three to five virtual meetings, and switch between digital applications more than four times per hour. These patterns correspond with previously documented mechanisms of technostress, communication intensity, and platform switching [6], [7]. The observed digital pressures including notification density, task fragmentation, and prolonged visual exposure mirror established indicators of cognitive strain in digitally intensive work conditions [8], [9].

Cross-regional comparisons reveal that digital ecosystem maturity significantly shapes digital wellbeing outcomes. Employees in Kuala Lumpur tend to experience fewer workflow interruptions due to more robust digital infrastructures and standardized communication systems, consistent with research on remote work readiness [10]. In contrast, respondents in Batam and Medan report unstable connectivity and inconsistent workflow protocols, conditions known to heighten digital strain and burnout risk [11], [12]. These regional differences affirm that technological capacity and organizational communication norms influence the degree of digital stress experienced in hybrid settings.

Further analysis indicates that digital stress functions as a central mechanism linking hybrid work demands with psychological and performance outcomes [13]. High platform switching frequency, heavy messaging volume, and dense virtual meeting schedules correspond with increased emotional exhaustion, diminished motivation, and reduced engagement, reflecting patterns frequently reported in studies on digital overload and hybrid work [14]. These findings demonstrate that digital wellbeing is contingent not only on individual coping abilities but also on structural pressures embedded within daily digital routines [15].

By integrating empirical evidence with theoretical perspectives on digital stress, productivity, and burnout, this study provides a more comprehensive understanding of digital wellbeing within hybrid organizations [16]. The cross regional scope and multidimensional assessment contribute new insights into how digital workloads influence organizational sustainability and offer actionable direction for digital governance strategies aimed at strengthening employee resilience in technology intensive environments [17].

## **2. Research Method**

This study employs a systematic methodological framework designed to produce accurate, comparable, and reproducible findings regarding digital stress, productivity, and burnout within hybrid organizations across multiple regions. The methodological approach integrates structured data collection, controlled measurement procedures, and standardized analytical techniques to ensure the reliability of results. Emphasis is placed on capturing the complexity of hybrid work dynamics through a combination of quantitative instruments and clearly defined operational variables. The method is structured to document the scale of digital wellbeing, identify behavioral patterns, and analyze relationships among key indicators that shape employee experiences in technology mediated environments. By establishing a consistent workflow from sample selection to data analysis, the research method provides a strong foundation for interpreting global variations in digital wellbeing and understanding the conditions that influence employee performance and psychological resilience.

### **2.1. Research Context**

This study was conducted across three regional clusters representing different levels of digital maturity within hybrid work environments, namely Batam, Medan, and Kuala Lumpur. Batam reflects a rapidly developing digital industrial hub where hybrid work systems are expanding; Medan represents a semi administrative environment with moderate technological adoption; while Kuala Lumpur provides an advanced hybrid ecosystem supported by sophisticated digital infrastructures. These regions were purposely selected to depict global variations in hybrid workforce conditions, enabling a comparative understanding of how different digital ecosystems influence digital stress, productivity dynamics, and burnout tendencies. The cross regional design strengthens the global relevance of the study and supports a more comprehensive assessment of digital wellbeing across hybrid organizational contexts.

### **2.2. Respondent Characteristics**

A total of 912 hybrid employees participated in this study, representing diverse demographic and organizational backgrounds. The respondents consisted of 54.6% female and 45.4% male employees, with ages ranging from 21 to 49 years; the majority (61.8%) belonged to the 25–35 age group, which is typically associated with high digital activity in the workplace. Their tenure in hybrid work arrangements ranged from six to thirty six months. Most participants were employed in the service and education sectors (46.3%), followed by the digital technology sector (33.5%) and public administration (20.2%). On average, respondents worked between seven and ten hours daily and participated in three to five virtual meetings per day.

They relied heavily on digital platforms such as Zoom, Microsoft Teams, Google Workspace, Slack, and Trello, and approximately 72.1% reported switching between multiple applications more than four times per hour. These characteristics illustrate the intensely digital nature of hybrid work environments that shape employees' stress levels, productivity patterns, and susceptibility to burnout.

### 2.3. Data Analysis Method Using SmartPLS

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) through SmartPLS version 4 to examine the interrelationships among digital stress, productivity, and burnout on a global scale. PLS-SEM was chosen because it is suitable for predictive modelling, non normal data distribution, and complex structural models involving multiple latent variables and indicators. The data analysis procedures covered both measurement and structural model evaluations. The measurement model assessment involved testing indicator reliability, internal consistency reliability, convergent validity, and discriminant validity through factor loadings, Cronbach's Alpha, Composite Reliability, and Average Variance Extracted. Structural model evaluation included analyzing path coefficients, determining the significance of effects through a bootstrapping procedure with 5,000 resamples, and assessing R<sup>2</sup> values, effect sizes (f<sup>2</sup>), and predictive relevance (Q<sup>2</sup>). This analytical approach ensured robust and comprehensive evaluation of digital wellbeing determinants across hybrid organizational settings.

### 2.4. Research Instrument

The research employed a 24 item questionnaire that measured three dimensions of digital wellbeing associated with hybrid work systems. The first dimension, digital stress, consisted of eight items reflecting communication overload, platform switching frequencies, screen fatigue, and the cognitive pressure induced by dense virtual meeting schedules. The second dimension, productivity outcomes, included seven items assessing task completion speed, concentration stability, accuracy, workflow disruptions, and perceived efficiency in digital environments. The third dimension, burnout indicators, comprised nine items adapted from recognized emotional exhaustion, reduced motivation, and cognitive weariness measures. All items used a five point Likert scale ranging from strongly disagree to strongly agree. Prior to distribution, the instrument underwent expert validation by three specialists in industrial psychology and digital work behavior to ensure clarity, content relevance, and conceptual accuracy.

### 2.5. Reliability and Validity Results

The measurement model demonstrated strong reliability and validity across all constructs. Factor loadings for each indicator ranged from 0.61 to 0.87, exceeding the

acceptable minimum threshold of 0.60 and indicating adequate indicator reliability. Cronbach's Alpha values fell between 0.82 and 0.91, while Composite Reliability values ranged from 0.88 to 0.94, confirming high levels of internal consistency. Convergent validity was achieved, as reflected by Average Variance Extracted values between 0.57 and 0.69. Discriminant validity was supported through the Fornell Larcker criterion, in which the square root of each construct's AVE was greater than its correlations with other constructs, and cross loading patterns confirmed the distinctiveness of each dimension. These results validate the robustness of the instrument in assessing digital stress, productivity, and burnout in hybrid organizations.

## 3. Result and Discussion

The results of this study provide an integrated overview of digital wellbeing across hybrid organizations by examining patterns of digital stress, productivity behaviors, and burnout symptoms among employees in diverse regional contexts. The analysis focuses on how variations in digital maturity, communication intensity, and technological workflow structures shape employee experiences within digitally mediated work environments. Utilizing SmartPLS to evaluate both measurement and structural models, the study generates empirical evidence that captures the multidimensional nature of hybrid work dynamics at a global scale. The following subsections present the findings in a systematic manner, beginning with the descriptive trends observed across the three study regions, followed by structural model results that illustrate the relationships among digital stress, productivity, and burnout. The discussion section integrates these findings to interpret how digital workload characteristics influence employee wellbeing and performance within the hybrid organizational landscape.

### 3.1. Overview of Global Digital Wellbeing Patterns

The results on Table 1 provide a comprehensive understanding of digital wellbeing across hybrid organizations, showing substantial variations in digital stress, productivity performance, and burnout symptoms across the three regional clusters. The measurement model demonstrated high reliability and validity, ensuring that the constructs used accurately captured the multidimensional nature of digital wellbeing. Respondents from Kuala Lumpur showed higher digital stability due to better technological infrastructures, while those from Medan and Batam experienced more interruptions and cognitive fragmentation. These findings emphasize the structural differences in digital ecosystem readiness that shape employees' experiences and contribute to global variations in digital wellbeing.

Table 1. Descriptive Statistics of Main Constructs

Construct	Mean	SD	Minimum	Maximum
Digital Stress	4.12	0.71	2.80	5.00
Productivity	3.76	0.68	2.20	5.00
Burnout	3.87	0.76	2.10	5.00
Screen Time (hours)	7.84	1.93	3.00	12.00
Platform Switching/hr	5.31	1.48	1.00	9.00

### 3.2. Digital Stress Across Hybrid Work Environments

Digital stress emerged as the most dominant dimension of digital wellbeing, with respondents reporting high exposure to communication overload, platform switching, and dense virtual meeting schedules. From Table 2, communication overload was identified as the strongest contributor to digital stress, with notification frequencies ranging from eighteen to thirty six messages per hour. Respondents in Medan reported the highest levels of digital stress, largely due to unstable digital connectivity and the absence of structured communication protocols. In contrast, Kuala Lumpur respondents benefited from clearer digital workflows that reduced cognitive load. These findings confirm that digital stress is significantly influenced by digital ecosystem maturity and workflow consistency across regions.

Table 2. Digital Stress Indicators and Loading Values

Indicator Code	Description	Loading
DS1	Communication overload	0.87
DS2	Virtual meeting density	0.82
DS3	Platform switching frequency	0.79
DS4	Screen fatigue	0.76
DS5	Notification intensity	0.74
DS6	Digital multitasking pressure	0.72
DS7	Cognitive overload	0.68
DS8	Digital response speed expectations	0.61

### 3.3. Productivity Outcomes in Hybrid Organizational Settings

Productivity levels varied significantly across regions, reflecting differences in digital workflow structures. Employees who worked in digitally mature ecosystems, such as Kuala Lumpur, demonstrated higher productivity because their digital routines were predictable and supported by advanced platforms. On the other hand, respondents who frequently switched between applications more than five times per hour reported lower productivity levels due to attention fragmentation. SmartPLS structural analysis confirmed a negative relationship between digital stress and productivity ( $\beta = -0.29, p < 0.01$ ), indicating that higher digital pressure directly reduces performance.

Table 3. Productivity Indicator Loadings

Indicator Code	Description	Loading
PR1	Task completion speed	0.84
PR2	Concentration stability	0.81
PR3	Task accuracy	0.79
PR4	Workflow interruptions	0.75
PR5	Digital efficiency perception	0.73
PR6	Error frequency	0.69
PR7	Response time stability	0.66

### 3.4. Burnout Symptoms and Digital Fatigue at Scale

Burnout levels were moderate to high across all regions, with emotional exhaustion being the most prevalent symptom, as can be seen on Table 4. Respondents exposed to prolonged screen time (more than eight hours daily) reported burnout levels twenty two percent higher than respondents with lower screen exposure. The structural model further demonstrated that digital stress significantly increased burnout levels ( $\beta = 0.47, p < 0.001$ ). Respondents in Medan showed the highest burnout levels due to inconsistent digital workflows and a lack of technological support structures.

Table 4. Burnout Indicator Loadings

Indicator Code	Description	Loading
BO1	Emotional exhaustion	0.86
BO2	Reduced motivation	0.82
BO3	Cognitive weariness	0.80
BO4	Feeling drained by digital tasks	0.77
BO5	Reduced engagement	0.74
BO6	Difficulty disconnecting	0.71
BO7	Persistent digital fatigue	0.69
BO8	Lack of energy	0.66
BO9	Loss of enthusiasm	0.64

### 3.5. Structural Model Interpretation Using SmartPLS

The SmartPLS structural model demonstrates a clear interrelationship between digital stress, productivity, and burnout, as can be seen on Table 5. Digital stress was found to significantly reduce productivity while simultaneously increasing burnout. Productivity itself negatively predicted burnout, indicating that decreases in performance contribute to emotional fatigue. The model's explanatory power was strong, with  $R^2 = 0.34$  for productivity and  $R^2 = 0.52$  for burnout. These findings confirm that digital stress is the central determinant of digital wellbeing outcomes across hybrid organizations.

Table 5. Structural Path Coefficients (SmartPLS Output)

Relationship	Path Coefficient ( $\beta$ )	p-value
Digital Stress $\rightarrow$ Productivity	-0.29	<0.010
Digital Stress $\rightarrow$ Burnout	0.47	<0.001
Productivity $\rightarrow$ Burnout	-0.22	<0.050
$R^2$ (Productivity)	0.34	—
$R^2$ (Burnout)	0.52	—

### 3.6. Global Implications of Digital Wellbeing

The extended results highlight that digital wellbeing must be considered a central component of organizational sustainability, particularly as hybrid work arrangements become the global norm. Organizations with mature digital infrastructures demonstrated better outcomes, proving that technological readiness reduces cognitive strain and promotes stable productivity. Conversely, environments lacking standardized digital workflows expose employees to excessive digital pressure, leading to higher stress and burnout. The study contributes theoretically by reinforcing the framework that digital wellbeing is shaped by the interplay between

communication load, platform complexity, and digital workflow stability. Practically, it suggests that hybrid organizations should implement digital workload governance strategies, such as communication caps, screen time breaks, structured virtual meeting policies, and platform rationalization to prevent digital fatigue. These strategies are crucial for promoting employee resilience and maintaining long term organizational performance in an increasingly digital work landscape.

#### 4. Conclusion

This study shows that digital wellbeing in hybrid organizations is strongly shaped by digital stress, productivity performance, and burnout levels, which vary across regions with different digital infrastructures. Digital stress driven by communication overload, rapid platform switching, and prolonged screen exposure emerges as the primary factor influencing employee outcomes. The structural model confirms that digital stress significantly reduces productivity and increases burnout, while higher productivity helps buffer emotional exhaustion. Employees in digitally mature environments exhibit better stability, whereas those in less structured digital settings face greater disruptions and fatigue. These findings underscore the need for organizations to manage digital workloads strategically by improving communication systems, regulating digital demands, and supporting healthier digital practices. Strengthening digital ecosystems in this way is essential for promoting sustainable wellbeing and productivity in hybrid work environments.

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