



Organizational Supports and Technostress of Civil Servants: The Mediator Effects of TAM

Dian Dwi Nur Rahmah¹✉, Netty Dyan Prastika¹, Reza Wardhana², Hardiansyah¹, Firjatullah¹

¹ Psikologi, Fakultas Ilmu Sosial dan Ilmu Politik, Universitas Mulawarman, Samarinda, Indonesia

² Informatika, Fakultas Teknik, Universitas Mulawarman, Samarinda, Indonesia

✉correspondend_author_email: dian.dnr@fisip.unmul.ac.id

Abstract

The SIKAP IDAMAN application is a digital innovation in civil service management that provides access to daily performance reports (LKH), performance data, and employee discipline mapping. However, its implementation has presented psychological challenges, particularly technostress among employees. This study aims to explore the influence of perceived organizational support and technology acceptance on technostress among civil servants in the Kutai Kartanegara Regency Government. A quantitative approach was employed, involving 36 employees from the Inspectorate Office who actively use the SIKAP IDAMAN application. Mediation analysis was conducted using SmartPLS. The results of the study indicate that perceived organizational support can influence technostress through technology acceptance, with a $p=0.036$. Technology acceptance can act as a partial mediator, meaning that perceived organizational support can directly influence technostress through technology acceptance. The mediation effect in this study, with uplison (v) = 0.145, is classified as moderate. This research implies that the technical staff management strategy for civil servants should be designed with a dual approach: organizations must continue to provide real support to employees, both through policies, training, and facilities. The combination of strengthening perceptions, organizational support, and developing technology acceptance will be key to successful digital adaptation in the workplace.

Keywords: civil servants, mediator effects, perceived organizational support, technostress, technology acceptance

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1. Introduction

E-Government refers to the use of information technology by government agencies that can change relationships with citizens, businesses, and other units of government. The technology used can present a different diversity, one of which is related to more efficient government management [1]. Along with the development of e-Government in Indonesia, several districts and cities have become references for e-Government development in other regions due to the tangible benefits of implementing e-Government [2]. One of the e-Government applications that commits to adopting technology to provide services and organize government management in Kutai Kartanegara Regency, East Kalimantan Province. Kutai Kartanegara Regency in East Kalimantan Province is one of 25 districts/cities eligible to participate in the development of the 100 Smart City Movement, launched at the 2017 Smart City Summit in Makassar. The Smart City development plan, under the term Smart Regency Kutai Kartanegara, aims to realize a smart Kutai Kartanegara Regency community, with the agricultural and tourism sectors as the main drivers, supported by information technology [3]. Smart cities

cannot be separated from e-Government, which supports their successful implementation.

Innovation originating from the Government or the community in Kutai Kartanegara Regency is one of the strengths in the development of the Smart City. The form of technology adoption and innovation in the use of information technology in the public sector, such as government, has become one of the concerns of the Regent, which, since 2009, has been regulated in the Kutai Kartanegara Regent Regulation Number 44 of 2009 concerning the Development of E-Government in the Kutai Kartanegara Regency Government Environment. One of the focuses in the e-Government concept is Government to Employees (G2E), which involves creating applications to enhance the performance and welfare of civil servants working in public institutions. The application can take the form of an employee performance and career development system, as well as an integrated health insurance system [4].

This is in line with and is proven by the commitment of the Kutai Kartanegara Regency government by launching a personnel management application system, namely the Regional Apparatus Performance and Discipline Reporting Information System Application

(SIKAP) IDAMAN, which was officially launched by the Expert Staff for Government and Public Welfare of the Kutai Kartanegara Regency Government (Kukar) Didi Ramyadi together with the Inspector of Kukar (H), in the Multipurpose Room of the Kukar Regent's Office, Wednesday [5]. As part of the e-government technology development policy, the SIKAP IDAMAN application represents a form of technology adoption and innovation that is expected to provide broad access to civil servants' daily performance reports (LKH), as well as the availability of information and performance data, and the mapping of civil servants' personal discipline performance. SIKAP IDAMAN is inseparable from the vision of Kukar Idaman to run the DISAPA program, which aims to build a mindset and culture of effective, efficient, transparent, and accountable governance and public services based on information technology. Previously, civil servants' LHK (LHK) reports were conducted manually. With the introduction of the SIKAP IDAMAN application, civil servants can report their LKH in full via the app, available for download on digital devices and smartphones. The government also hopes that civil servants will be committed to its implementation and will not encounter resistance.

In its implementation, which has been running for about a year. SIKAP IDAMAN is not considered acceptable enough by all OPDs in Kutai Kartanegara Regency, as some OPDs still refuse to use it. In fact, for technology to increase productivity, it must be accepted, used, and effectively exploited by both employers and employees within the organization [6]. The existence of resistance to change behavior, a mindset that has not yet fully developed, self-efficacy in using new technology, and the perception of support from each organizational unit that is still not optimal are some factors that cause stress (technostress) during the implementation of the application. Technostress is a negative psychological state caused by technology that affects employee attitudes and behavior [7]. One aspect of technostress is Techno-uncertainty, which refers to constant changes and improvements in software and hardware that can cause stress for employees due to differences in systems that were previously conventional [9]. Technostress can also be experienced by anyone due to a mismatch in existing technology acceptance.

The Technology Acceptance Model (TAM), 2nd edition, developed by Venkatesh and Davis, posits that perceived usefulness and perceived ease of use influence user intentions to use technology [10]. Additionally, social influence variables also impact user intentions. Social influence, which combines the variables of attitude and subjective norms in the first TAM, emphasizes that social influence can affect users' intentions to use technology, both from groups or people known to them and from people considered authorities [11].

Although many previous studies have examined the relationships among perceived organizational support (POS), technology acceptance, and technostress, most have focused on the private sector, education, or organizations with high levels of digitalization. Research integrating these three variables in the context of local government in Indonesia is still very limited [6], [8], [15]. Furthermore, most previous studies examined only the direct effect of POS on technostress, without considering mediating mechanisms that could explain how organizational support influences technostress through technology acceptance. This gap indicates the need for research examining the role of technology acceptance as a mediator in the relationship between POS and technostress, particularly in the implementation of a digital-based personnel management system, such as SIKAP IDAMAN. This study combines the Technology Acceptance Model (TAM) with the concept of POS to explain technology acceptance as a mediator and to examine technology stress among civil servants, a practice rarely explored in previous literature [15], [18], [19].

This study aims to examine the influence of perceived organizational support on technostress, with technology acceptance as a mediator variable, in the Implementation of the "SIKAP IDAMAN" Personnel Management System in the Kutai Kartanegara Regency Government.

2. Methods

The population and sample in this study were all employees of the Kutai Kartanegara Regency Inspectorate who use the SIKAP IDAMAN system. A total of 36 employees participated as respondents, selected using accidental sampling, a sampling technique based on who happened to be available or encountered during data collection [12]. The accidental sampling technique was chosen because this study focuses on employees who use the SIKAP IDAMAN system in their daily work.

The data collection procedure in this study used primary data collected via a survey on a Likert-type scale: strongly agree (4), agree (3), disagree (2), and strongly disagree (1). The researcher signed the questionnaire directly, then provided the scale to the participants, explaining it first. The participants then filled it out. The instrument used to measure perceived organizational support was adapted with a reliability coefficient of 0.950 [13]. The technostress scale was adapted with a reliability of 0.750 [14]. The Technology Acceptance scale was adapted with a reliability of 0.939 [15]. All three scales used were adapted versions of the scale.

3. Results and Discussions

3.1 Description of Research Participants

Characteristics		F	(%)
Gender	Male	23	63.9%
	Female	13	36.1%
Age	20-30 Year	3	8.3%
	31-40 Year	7	19.4%
	>40 Year	26	72.2%
Last education	SMU/SMA/SMK	7	19.4%
	Diploma	4	11.1%
	S1	16	44.4%
	S2	9	25%
Length of work	0-5 Year	6	16.7%
	6-10 Year	1	2.8%
	11-15 Year	2	5.6%
	16-20 Year	13	36.1%
	21-30 Year	13	36.1%
	>31 Year	1	2.8%
Total		36	100%

Based on the respondents' characteristics, the majority of participants in this study were male (63.9%) and female (36.1%). In terms of age, the majority were over 40 years old (72.2%). The majority of respondents had a bachelor's degree (44.4%) and a master's degree (25%). The majority had worked for 16-20 years and 21-30 years (36.1%).

3.2 Evaluation of the Measurement Model Before Modification

The measurement model in this study is reflective, with the variables perceived organizational support, technology acceptance, and technostress measured reflectively. Evaluation of the reflective measurement model involves a loading factor of ≥ 0.700 [16], Cronbach's alpha, and Composite reliability of ≥ 0.700 , as well as an average variance extracted (AVE) of ≥ 0.50 . The following is the measurement model before modification.

removed from the model due to their loading factor values ≤ 0.700 . The variable's reliability was acceptable, indicated by a Cronbach's alpha of 0.949 and a CR value of ≥ 0.700 (0.960). The convergent validity level, indicated by an AVE value of $0.547 \geq 0.50$, met the requirements for good convergent validity. Overall, the variation in the measurement items contained in the perceived organizational support variable was 54.7%.

The technology acceptance variable was measured using 12 items, and two items were declared invalid due to their loading factor values ≤ 0.700 . The variable's reliability was acceptable, indicated by a Cronbach's alpha value of 0.921 and a CR value of ≥ 0.70 (0.936). The convergent validity level was indicated by an AVE value of $0.548 \geq 0.50$, which meets the requirements for good convergent validity. Overall, the variation of measurement items contained in the technology acceptance variable reached 54.8%.

The technostress variable was measured using 32 items, and 24 items were declared invalid because the loading factor value was ≤ 0.700 . The items that were not retained were TES1 to TES21, TES28, TES31, and TES32, while eight items were declared valid and maintained, namely TES22 to TES27, TES29, and TES30, because they had a loading factor value ≥ 0.700 . The acceptable level of variable reliability is indicated by the alpha value = 0.870 and $CR \geq 0.70$ (0.921). The level of convergent validity indicated by the AVE value of $0.251 \leq 0.50$ does not meet the requirements for good convergent validity. Overall, the variation of measurement items contained in the technostress variable reached 25.1%, so the analysis of the measurement model will be continued after modifying the model by removing items that do not meet the requirements. The following is the model after modification, which can be seen in the image below.

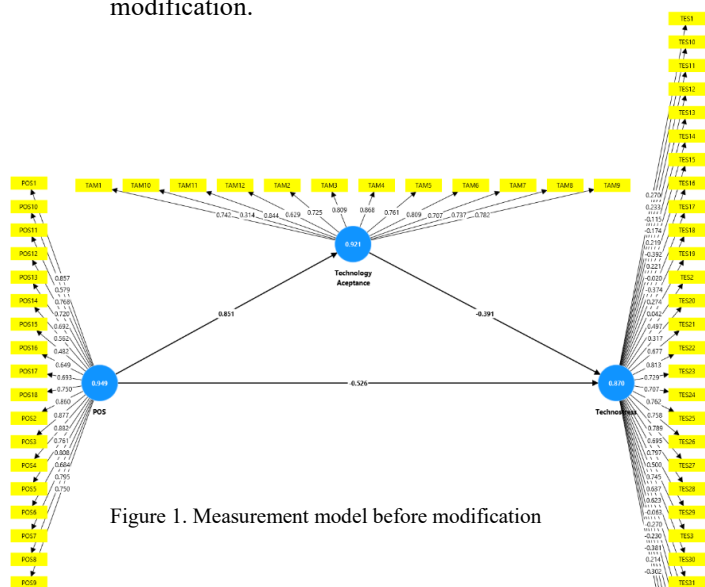


Figure 1. Measurement model before modification

Based on the analysis, Perceived Organizational Support was measured using 18 items. However, seven items were declared invalid and had to be

3.3 Evaluation of the Measurement Model After Modification

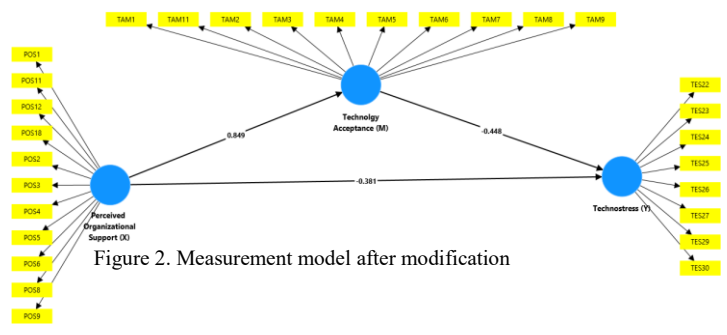


Figure 2. Measurement model after modification

Based on the modified model, it was found that Perceived Organizational Support was measured using 11 indicators

and was declared valid because it had a loading factor value of ≥ 0.700 . The level of variable reliability can be shown by Cronbach's alpha, which is 0.948 and a CR value of ≥ 0.700 (0.952). The level of convergent validity indicated by the AVE value of $0.662 \geq 0.50$ meets the requirements for good convergent validity. Overall, the variation of measurement items contained in the perceived organizational support variable is 66.2%.

The technology acceptance variable was measured using 10 indicators and was declared valid because its loading factor value was ≥ 0.700 . Acceptable reliability was demonstrated by a Cronbach's alpha value of 0.929 and a CR value of ≥ 0.70 (0.932). Convergent validity, indicated by an AVE value of $0.612 \geq 0.50$, met the requirements for good convergent validity. Overall, the variation in measurement items contained in the technology acceptance variable reached 61.2%.

The technostress variable was measured using eight indicators and was declared valid because its loading factor value was ≥ 0.700 . Acceptable reliability was demonstrated by an alpha value of 0.919 and a CR value of ≥ 0.70 (0.924). Convergent validity, indicated by an AVE value of $0.643 \geq 0.50$, met the requirements for good convergent validity. Overall, the variation in measurement items contained in the technostress variable reached 64.3%. The structural model evaluation was carried out by checking for multicollinearity between variables using the Inner VIF measure. An Inner VIF value below 5 indicates no multicollinearity between variables [16].

Table 2. Multicollinearity Analysis Results

Variabel	VIF
Perceived Organizational Support (X) -> Technology Acceptance (M)	1.000
Perceived Organizational Support (X) -> Technostress (Y)	3.584
Technology Acceptance (M) -> Technostress (Y)	3.584

The analysis results show that an inner VIF value of <5 indicates a low level of multicollinearity between variables. This result confirms the robustness of parameter estimation in SEM PLS, particularly in the mediator and moderator analysis (unbiased).

Table 3. Direct Hypothesis Testing Results

Hypothesis	Path coefficient	p-value	95% interval confidence path coefficient		F Square
			Batas bawah	Batas atas	
H1. <i>Perceived organizational support</i> (X)→ <i>Technostress</i> (Y)	-0.381	0.000	-0.716	-	0.111
H2. <i>Perceived organizational support</i> (X)→ <i>Technology</i>	0.849	0.000	0.745	0.953	2.584

Hypothesis	Path coefficient	p-value	95% interval confidence path coefficient		F Square
			Batas bawah	Batas atas	
<i>acceptance</i> (M) H3. <i>Technology acceptance</i> (M)→ <i>Technostress</i> (Y)	-0.448	0.031	-0.839	-	0.154

Based on the analysis that has been done, it was found that (H1) is accepted, namely perceived organizational support can directly influence technostress, proven by a p value <0.05 ($p = 0.000$), with a path coefficient (-0.281), the contribution of perceived organizational support can predict technostress is classified as low (f square = 0.111). Meanwhile (H2) is accepted, namely perceived organizational support can influence technology acceptance, proven by a p-value <0.05 ($p = 0.000$), with a path coefficient (0.849), the contribution of perceived organizational support can predict technology acceptance has a high category (f square = 2.584). In addition, (H3) is accepted, technology acceptance can influence technostress, proven by a p-value <0.05 ($p = 0.031$), with a path coefficient (-0.448), the contribution of technology acceptance can predict technostress, which is classified as high (f-squared = 0.154). To see the contribution of influence in a model, it can be seen from the F Square, namely 0.02 (low), 0.15 (moderate), and > 0.35 (high) [16]. The following are the results of the analysis of the technology acceptance model testing, which mediates the influence between perceived organizational support and technostress.

Table 4. Results of Hypothesis Testing Through Mediators

Hypothesis	Path coefficient	p-value	Upsilon (V)	Explanation
H4. (X)→ (M) → (Y)	-0.381	0.036	0.145	Moderate effect

4.2 Discussions

Based on the analysis conducted, it was found that perceived organizational support can influence technostress through technology acceptance, as evidenced by a p-value of <0.05 ($p=0.036$). The mediation effect in this study utilized Uplison (v), with the results classifying the mediation effect of technology acceptance as moderate. The role of technology acceptance as a partial mediator is also shown.

Based on the research results, the SIKAP IDAMAN application plays a crucial role in technology acceptance, which in turn strengthens organizational support and reduces the negative impact of technological stress. This study found that perceived organizational support has a significant influence on

technostress, mediated by technology acceptance. This research aligns with previous studies that have examined the relationship between organizational support, technology acceptance, and technological stress. High organizational support can reduce the stress caused by technology use by increasing users' acceptance of technology [17]. On the other hand, research confirms that technology acceptance strengthens the influence of factors that influence technological stress [18].

The mediation effect in this study showed a moderate influence, with technology acceptance acting as a partial mediator between perceived organizational support (POS) and technostress. In this context, the mediation effect is categorized as a medium effect; this is in line with research that found that organizational support can reduce the level of technostress experienced by employees, especially in the context of accepting new technologies [17], [19]. The study found that POS plays a role in reducing technostress among teachers by increasing their acceptance of technology. Similarly, other research indicates that POS functions as a moderating factor, reducing the negative impact of technostress on employee job safety performance [20]. Thus, strong organizational support can improve employees' experiences with new technologies, which in turn reduces technostress.

Furthermore, these findings align with the Davis Technology Acceptance Model (TAM), which suggests that perceived ease of use and usefulness of technology significantly influence the level of technology adoption. Adequate POS can reduce technostress resulting from the use of technology in distance learning and influence the intention to continue using the technology [21]. Greater attention is needed to address the role of perceived organizational support (POS) in reducing the negative impact of technostress among employees. In the context of new technologies, acceptance of technology is influenced not only by its ease of use and usefulness, but also by the support provided by the organization.

Perceived organizational support (POS) has been shown to have a significant direct effect on technostress, with a highly significant p-value ($p = 0.000$), indicating that the effect of POS on technostress is not coincidental. This finding aligns with several previous studies that have revealed that the support employees perceive from their organization helps reduce stress caused by technology. Higher support from the organization can mitigate the negative impact of technostress on individuals in the workplace. Other studies also support these findings, showing that POS affects employee well-being, as well as increasing positive orientation towards the organization and work [23].

In addition, the contribution of POS to technostress in this study was relatively low (f-square = 0.111),

suggesting that although the effect is significant, other factors may still influence or moderate the relationship. Other studies also show that factors that cause technostress can reduce user satisfaction with technology, which ultimately impacts task performance in the workplace [9]. POS has a strong positive impact on organizational commitment and job satisfaction, which contributes to reduced stress levels. Therefore, although POS is beneficial in reducing technostress, it is important for organizations to create a supportive work environment in various other aspects to mitigate the negative effects of technostress, as well as individual factors, organizational culture, and the work environment [24].

Positive organizational support can improve individuals' attitudes and intentions to use technology, such as social media, which is in line with the Technology Acceptance Model (TAM). The study found that organizational support had a significant influence on perceived ease of use, although it did not directly affect perceived effectiveness of the tool [24].

Furthermore, there is an influence of POS on technology acceptance in direct hypothesis testing with a high category. This underscores the importance of the organization's role in providing support that facilitates technology acceptance among users. Supporting this finding is previous research showing that organizational readiness, including POS, influences perceptions of usefulness and ease of use in the adoption of electronic human resource management (e-HRM) applications [25]. Therefore, POS can be seen as a very important element in supporting the adoption of new technology in organizations. In a research study on POS in three countries, including Indonesia, it was found that organizational support received by government agency employees can increase their engagement and performance, including in the use of technology [26].

Based on the results of research on the effect of technology acceptance on technostress, with a p-value < 0.05 ($p = 0.031$) and a path coefficient of -0.448 , it can be concluded that technology acceptance plays a significant role in predicting technostress. This aligns with research indicating that user acceptance of technology can be closely linked to reduced stress associated with technology use. Other research has found that a value-based acceptance model on OTT platforms can influence user satisfaction and intention to continue using digital services. In this study, technology acceptance was measured through various aspects such as convenience [22] and perceived usefulness, which influence satisfaction and continued use [27]. Research on the acceptance of smart medical devices using the Unified Theory of Acceptance and Use of Technology (UTAUT) model also found that conditions that facilitate technology use are crucial for increasing user acceptance [28]. This supports the

study, which states that technology acceptance can function as a key mediator of technostress, indicating that discomfort or inability to use technology can exacerbate perceived stress. In this case, high technology acceptance contributes to the reduction of technostress, along with a better understanding of the usefulness and convenience of the technology received. Supported by the statement that well-accepted technology has a positive impact on reducing digital stress experienced by users [29].

Research on the acceptance of the Sabah Pay digital wallet application, used in the government's digital transformation program in Sabah, Malaysia, revealed that user satisfaction was directly impacted by the acceptance of user-friendly technology [30]. This finding confirms that improving the ease of use of government-implemented technology can increase technology adoption and reduce technostress for users. Perceptions of ease of use and the usefulness of the maintenance system significantly influence users' intention to continue using the system [31].

Technology acceptance plays a significant role in mitigating the negative impact of technostress on employees, particularly with adequate organizational support and a strengthened acceptance of new technology, as seen in the implementation of the SIKAP IDAMAN personnel management system in the Kutai Kartanegara Regency Government. Previous research also indicates that POS plays a crucial role in enhancing technology acceptance and mitigating technostress, as studies suggest that organizational support can alleviate technostress among teachers by increasing their technology acceptance [19]. Organizational support can act as a buffer, reducing the adverse effects of technostress on employee work performance [21]. The Kutai Kartanegara Regency Government needs to provide suitable support in facilitating the adoption of SIKAP IDAMAN technology to mitigate the negative effects of technostress.

The mediation effect found in this study, with technology acceptance acting as a partial mediator between POS and technostress. Previous research has shown that low levels of organizational support can exacerbate the impact of technostress, while higher levels of support can improve work performance [32]. Therefore, strengthening the POS and technology acceptance aspects in the use of SIKAP IDAMAN within the Kutai Kartanegara Regency Government environment is crucial to reduce technostress and enhance employee performance and well-being. Influence the level of acceptance of technology and how organizational support can be adjusted to these characteristics.

The Kutai Kartanegara Regency Government needs to design a strategy that focuses not only on implementing the SIKAP IDAMAN system but also on

creating a work environment that supports technology adoption. This includes establishing communication and feedback forums that enable employees to share their experiences using this new system. Future research is crucial for examining the individual factors that influence technology acceptance in the local government context, including age, education level, and technology experience. This research opens up opportunities for further exploration of how employee characteristics can influence levels of technology acceptance and how organizational support can be tailored to these characteristics.

Overall, these findings suggest that successfully adopted technology will not only reduce technostress but also improve employee performance and well-being, thereby contributing to the achievement of organizational goals. Therefore, it is essential for government organizations to continually enhance their employee support strategies, encompassing both social support and adequate technical resources. A weakness of this study lies in its limited sample size, which involved only 36 employees from a single agency, namely the Kutai Kartanegara Regency Government. This may affect the generalizability of this study's findings to a broader context, due to the small sample size and its limitation to a single geographic location and institution. To increase validity, future research is recommended to expand the sample by involving more government agencies or even different private sectors. This will provide a more comprehensive picture of the dynamics between perceived organizational support, technology acceptance, and technostress in more diverse contexts.

Expanding the sample size and diversity by involving more government agencies and the private sector in various regions, thus providing a more comprehensive picture of the dynamics between perceived organizational support, technology acceptance, and technostress. Using a longitudinal design to explore the influence of organizational support and technology acceptance on technostress over a longer period of time, particularly during the technology implementation phase.

4. Conclusions

This study revealed that perceived organizational support (POS) has a significant influence on technostress both directly and through the mediation of technology acceptance. The analysis shows that POS plays an important role in influencing technostress experienced by employees, with a value ($p=0.000$). In addition, technology acceptance is proven to be a partial mediator with a moderate mediation effect (uplison v). This finding confirms that high technology acceptance can influence and even predict a decrease in stress due to technology use, especially in the implementation of the SIKAP IDAMAN employee management system. The results also show that POS

has a strong influence on technology acceptance, which underscores the importance of organizational support in encouraging the implementation of new technologies.

This study provides a theoretical contribution by strengthening the Technology Acceptance Model (TAM) in the context of local government and emphasizing the role of POS as a key factor in reducing technostress. Practically, these findings are relevant for public organizations undergoing digital transformation. Adequate organizational support not only increases technology acceptance but also serves as a buffer against the negative impacts of technostress, thereby encouraging improved employee performance and well-being. Furthermore, an organizational strategy is crucial in providing comprehensive support, such as intensive training, technical assistance, and the provision of tools that facilitate technology adaptation. This support can reduce the psychological burden arising from technological demands, enabling employees to better adapt and maintain optimal performance.

Further research is recommended to explore individual factors influencing technology acceptance, such as digital literacy, work experience, and demographic characteristics. An in-depth study of these variables will help formulate more effective strategies to reduce technostress. Thus, regional government organizations, particularly district/city governments, can create a work environment that supports the productive use of technology, improves employee psychological well-being, and strengthens the quality of public services.

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Informed Consent

In this study, the informed consent form was included in the online questionnaire used to collect data.

Ethical Approval

This study has obtained ethical approval from the Research Ethics Committee, and all research procedures were carried out in accordance with applicable moral principles.

Data Availability (mandatory)

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Author Contributions Statement

Name of Author	C	M	So	Va	Fo	I	R	D	W
Dian Dwi Nur Rahma	✓	✓	✓	✓	✓	✓	✓	✓	✓
Netty Dyan Prastika	✓		✓		✓	✓		✓	
Reza Wardhana	✓				✓	✓		✓	✓
Hardiansyah		✓	✓	✓	✓	✓			
Firjatullah		✓		✓		✓			✓

Conflict of Interest Statement

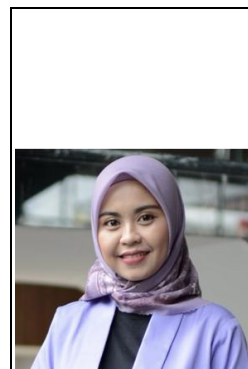
Authors state no conflict of interest

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Biographies of Authors



Dian Dwi Nur Rahmah   is a lecturer at the Psychology Study Program, Universitas Mulawarman, Samarinda, Indonesia. She is also a psychologist specializing in Industrial and Organizational Psychology with professional practice in various psychological bureaus. As both a practitioner and academic, she focuses on work behavior, technostress at workplace, employee self-development, and competency assessment. She is open to collaboration and can be contacted at

	<p>dian.dnr@fisip.unmul.ac.id..</p>		<p>secure communication protocols in distributed networks. He has contributed to peer-reviewed publications and led/participated in funded projects in security and applied AI. He maintains a Google Scholar and ORCID profile and can be reached at rezawardhana@unmul.ac.id.</p>
	<p>Netty Dyan Prastika   is a lecturer in the Psychology Study Program at Mulawarman University, Samarinda, Indonesia. She completed her master's degree in professional psychology with a focus on industrial and organizational psychology at Airlangga University. She specializes in Industrial and Organizational Psychology, focusing on work behavior, organizational citizenship behavior, innovative work behavior, and employee engagement. She is open to collaboration and can be contacted via email at nd.prastika@fisip.unmul.ac.id.</p>		<p>Hardiansyah    is a lecturer in the Psychology study program at Mulawarman University. He holds a master's degree in professional psychology with a concentration in Industrial and Organizational Psychology from the Islamic University of Indonesia. Hardiansyah's Scopus ID is 59672288400, and his research focuses on psychology, particularly industrial and organizational psychology, and psychometrics. Hardiansyah welcomes communication and collaboration, and can be reached by email at hardiansyah@fisip.unmul.ac.id</p>
	<p>Reza Wardhana    is a lecturer and IT practitioner at Mulawarman University, where he teaches courses including Cryptography, Cybersecurity, Cloud Computing, Computer Networks, Distributed Systems, and Web Services. He also serves as an external cybersecurity consultant to the Kutai Kartanegara Regency, conducting security audits and ensuring compliance with relevant standards. He earned an M.Eng. from University of Gadjah Mada and a S.Kom. from AMIKOM University Yogyakarta; his theses addressed hierarchical protocols for wireless sensor networks and MPLS over IPv6, respectively. His research interests span cryptography and cybersecurity to deep learning for threat detection and anomaly classification, as well as adversarial learning and</p>		<p>Firjatullah,   born on March 11, 2002, obtained his bachelor's degree in Psychology from the Faculty of Social and Political Sciences, Universitas Mulawarman, specializing in Industrial-Organizational and Clinical Psychology. Throughout his academic journey, he was actively involved as a teaching assistant and psychology assistant, while also contributing to scientific publications with five community service articles and one research article published in Sinta-accredited journals (Sinta 3–5). Currently, he serves as a Human Resources professional at Agung Podomoro Land Balikpapan, where he applies his academic background in psychology to organizational and people development. His academic and professional interests lie in industrial-organizational psychology, clinical psychology, and human capital development. He can be reached at firja.th2002@gmail.com</p>