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# IMPACT OF TECHNO-OVERLOAD ON WORK PERFORMANCE AND WORK ENGAGEMENT IN SEMARANG CITY SMEs

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***Abstrak***

***Background*** *– Stress caused by technology overload in the workplace is one of the main factors leading to workplace stress as well as the demand for continuous improvement in work performance which can eventually lead to feelings of pressure and work overload.*

***Aim*** *- This study is to analyze the impact of Techno-Overload on Work Performance with Work Engagement as an Intervening Variable on MSME Workforce in Semarang City.*

***Design / Methodology / Approach*** *– The method used in this research is survey methodology and respondents in the SMEs workforce in Semarang, Central Java, Indonesia. SMEs in the Food & Beverage, Handicrafts, Fashion/Clothing, Retail/Minimarket, Services, and Other sectors were sampled because the workforce requires technostress-related treatment related to the types of disorders in the workforce and organizational losses, such as fatigue, dissatisfaction, anxiety, and decreased productivity. To achieve the objectives of this study, researchers involved 315 workers from 6 sectors and distributed them to SMEs in Semarang City.*

***Findings*** *– The results of this study techno-overload as a technostress variable have a positive relationship to work performance. However, this study shows that work engagement has a significant influence in influencing work performance but the role of work engagement has no influence in mediating technological overload on work performance. This research is to provide an understanding of technostress that has a negative impact on MSMEs so that the workforce is able to take steps to overcome it and theoretically this research can be a benefit for further research.*

***Conclusion*** *- Low techno-overload in SMEs in Semarang City can improve workforce performance. The higher work engagement and the lower techno- overload in the workforce of SMEs in Semarang City can improve workforce performance*

***Research implication*** *– This research is to provide an understanding of technostress that has a negative impact on SMEs so that the workforce is able to take steps to overcome it and theoretically this research can be a benefit for further research.*

***Limitations*** *- This research solely concentrates on one primary stress variable, techno-overload, because this variable significantly affects workers within the research context. There are still many research variables that could be explored regarding the phenomenon of technostress affecting job performance. Another limitation of this study is that the researchers only conducted the study in one city.*

***Keywords:*** *Labor, SMEs, Techno-overload, Work Engagement, Work Performance.*

**Abstrak**

**Latar Belakang -** Stres yang diakibatkan oleh kelebihan teknologi di tempat kerja merupakan salah satu faktor utama yang menyebabkan stres di tempat kerja serta tuntutan peningkatan pada kinerja kerja yang terus menerus yang pada akhirnya dapat menyebabkan perasaan tertekan dan beban kerja yang berlebihan.

**Tujuan -** Penelitian ini untuk menganalisis dampak Techno-Overload terhadap Work Performance dengan Work Engagement Sebagai Variabel Intervening pada Tenaga Kerja UMKM Kota Semarang.

**Desain / Metodologi / Pendekatan -** Metode yang digunakan dalam penelitian ini adalah metodologi survei dan responden dalam penelitian ini adalah tenaga kerja UMKM di Semarang, Jawa Tengah, Indonesia. UMKM di sektor Makanan & Minuman, Kerajinan, Mode/Pakaian, Retail/Minimarket, Jasa dan Lainnya sebagai sampel karena tenaga kerja membutuhkan penanganan terkait technostress berkaitan dengan jenis gangguan pada tenaga kerja dan kerugian organisasi, seperti kelelahan, ketidakpuasan, kecemasan, dan penurunan produktivitas. Untuk mencapai tujuan penelitian ini, peneliti melibatkan 315 tenaga kerja dari 6 sektor dan didistribusikan ke UMKM yang ada di Kota Semarang.

**Temuan -** Hasil penelitian ini techno-overload sebagai variabel technostress memiliki hubungan positif terhadap kinerja kerja. Namun demikian, penelitian ini menunjukkan keterlibatan kerja memiliki pengaruh signifikan dalam mempengaruhi kinerja kerja namun peran keterlibatan kerja tidak memiliki pengaruh dalam memediasi kelebihan teknologi terhadap kinerja kerja.

**Kesimpulan -** Rendahnya techno-overload pada UKM di Kota Semarang dapat meningkatkan kinerja tenaga kerja. Semakin tinggi work engagement dan rendahnya techno-overload pada tenaga kerja UKM di Kota Semarang dapat meningkatkan kinerja tenaga kerja.

**Implikasi Penelitian -** penelitian ini memberikan pemahaman mengenai technostress yang memiliki dampak negatif terhadap UMKM sehingga tenaga kerja mampu mengambil langkah untuk mengatasinya dan secara teoritis penelitian ini dapat menjadi manfaat untuk penelitian selanjutnya.

**Batasan Penelitian -** Penelitian ini hanya berkonsentrasi pada satu variabel stres utama, yaitu techno-overload, karena variabel ini secara signifikan mempengaruhi pekerja dalam konteks penelitian. Masih banyak variabel penelitian yang dapat dieksplorasi terkait fenomena technostress yang mempengaruhi performa kerja. Keterbatasan lain dari penelitian ini adalah peneliti hanya melakukan penelitian di satu kota.

**Kata Kunci:** Tenaga Kerja, UMKM, Techno-overload, Work Engagement, Work Performance.

## INTRODUCTION

Small and medium-sized enterprises (SMEs) within Indonesia's creative economy sector are being urged to embrace technology as a means to broaden their market scope and mitigate the effects of COVID-19 on digital commerce (Adhiatma et al., 2023). However, advancements in technology also present challenges for employees in adjusting to the technological landscape, a phenomenon known as technostress, which can result in adverse effects such as reduced productivity and dissatisfaction with work (La Torre et al., 2019). While technology aims to increase effectiveness and focus on working collaboratively, the burden of technology can cause stress for the workforce (Yin et al., 2018). Therefore, SMEs need to reinvent themselves to cope with technological stress, and the workforce must take the time to adapt to the changes. (Li & Wang, 2021).

Many studies show the condition of technology stress in the workplace, one of the main factors is that technology can cause stress in the workplace as well as constant demands for attention and response, which can ultimately lead to feelings of pressure and excessive techno-overload. (Pansini et al., 2023). However, there are different views among researchers regarding the phenomenon of technostress (Yener et al., 2021);(Marchiori et al., 2019); (Fernández-Fernández et al., 2023) revealed in their findings that techno-overload has a negative effect on work performance, on the contrary (Li & Wang, 2021);(Pansini et al., 2023) revealed that techno-overload has a positive effect on work performance so it does not cause stressors. Consequently, further investigation is warranted to ascertain whether techno-overload exerts a detrimental or beneficial impact on work performance.

The use of technology can also result in sensations of loneliness and disconnection from coworkers and supervisors, impacting both individuals and organizations negatively (Pansini et al., 2023). This is also stated by previous research (La Torre et al., 2019);(Marchiori et al., 2019);(Yu et al., 2018);(Tarafdar et al., 2010);(Nisafani et al., 2020);(Tarafdar et al., 2015);(Yin et al., 2018), which shows that technostress can impact both work-related and personal aspects of individuals' lives, leading to a decline in work performance as well as various psychological and behavioral issues. Therefore, it is important to respond effectively to these changes, in which the workforce and organizations play a role in adjusting to the needs and demands of technology. (Budhiraja, 2019).

In connection with the purpose of this study is to reveal whether techno- overload negatively or positively affects work performance in the workforce of SMEs in Semarang City, the steps that need to be taken are as follows: First,, researchers collected articles with topics that discussed technostress, techno- overload, work performance, and work engagement as intervening variables, which were taken from online media and databases posted by relevant journals. Second, this research uses official data on the Semarang City umm website. (*Data UMKM Kota Semarang 2023*, n.d.) The population of registered SMEs is 29,922 and the sample taken in this study is 315 workers. Third, data were collected using a questionnaire that had been previously submitted and validated, besides that the survey was conducted directly to the SMEs workforce and also through Google Docs forms. Fourth, the analysis method used is the quantitative data analysis method using the PLS-SEM analysis tool.

This research can make important contributions. First, theoretically, this

research can add comprehensive knowledge related to the impact of technology on the workforce in SMEs. Second, practically, this research can guide the development of technology management programs in SMEs that pay attention to the psychological well-being of the workforce.

## LITERATUR REVIEW

The increasing number of information systems, devices, and applications developed to meet the communication needs of individuals and organizations, as well as the many sources of information and communication needs of the workforce, has led to a lot of burden felt by individuals (Yin et al., 2018). However, (Picazo Rodríguez et al., 2023) the researchers discovered that while technology utilization can enhance workplace efficiency, productivity, and adaptability, it can also adversely affect the cognitive well-being as well as the psychological and physical health of employees, leading to technostress. Research (Li & Wang, 2021) explains that work overload refers to a situation where the workforce is encouraged to work faster and required to work longer due to the impact of increasing technology. (Karr-Wisniewski & Lu, 2010) states that there are three components of technological overload, namely: information overload, distraction overload and system feature overload. In addition (Yin et al., 2018), the phenomenon of system feature overload arises when additional features are introduced without considering their proportional impact on technical resources and user complexity. This means that system feature overload is evident only when the features, interfaces, or functionalities of the technology surpass the user's capacity to manage or are excessively intricate for practical use. When the workforce is exposed to excessive technology, the workforce tends to feel fatigued due to excessive use of technology (Yu et al., 2018).

Work engagement entails a positive mindset, contentment, and rapport with one's job, as well as enthusiasm, commitment, and immersion (Lebrón et al., 2018). Engagement refers to how workers understand each other's role in a work environment that helps them do their jobs and also helps them reach their fullest physical, mental, and emotional potential (Anwar, 2024). (Picazo Rodríguez et al., 2023) revealed that in the public domain work engagement towards organizations shows that work engagement is essential for job well-being, which results in high job satisfaction, high commitment, low turnover rates, and high performance. Experts point out that the influence of work on work engagement becomes more visible and gains motivational potential when the workforce is faced with high work goals because work resources can help (Borst, 2018).

Peoples use technology for a multitude of purposes, including aiding in tasks across various domains such as banking, shopping, healthcare, travel, education, and transportation. Similarly, the extensive integration of technology within the workplace can enhance work performance by enabling the workforce to be more productive, efficient, and effective (Yener et al., 2021). (Azhad & Anggraeni, 2022) describes worker's performance as the result of a changing work that is used as an assessment for the organization. Technology has become an integral part of work. Along with progress, the use of technology becomes a distraction for the workforce, (Tarafdar et al., 2015) emphasize the need for more research on the adverse effects of technology, and especially the direct impact on performance achievement.

**Hypothesis**

Previous research explains that exposure to overload can lead to job fatigue, so there will be more workers who experience fatigue when using technology. (Maier et al., 2015). Research (Maier et al., 2015) said that the phenomenon of technology overload may have negative psychological and behavioral consequences. The SMEs workforce often experiences stress due to the uncertainty caused by the combination of positive and negative effects of technology. (Jena, 2015). Therefore, (Jena, 2015) also said that technological stress affects the SMEs workforce labor satisfaction and work engagement. (Bakker et al., 2011) concluded that the work engagement of an engaged workforce can generate resources to maintain the level of work engagement in the company. For this reason, researchers see that techno-overload is a factor that negatively affects work engagement.

**$H_1$.** techno-overload is the main factor of technostress that negatively affects work engagement.

Technological overload has been shown to decrease labor productivity increase feelings of stress and decrease workforce performance. (Karr-Wisniewski & Lu, 2010). Typically, in the technostress literature, (Tarafdar et al., 2010) explaining this phenomenon has been used as a construct, namely techno-overload. Therefore, (Hung et al., 2015) There is a need to extend this research to the current context of technostress and find out how to investigate technology overuse on individual stress and productivity. (Marchiori et al., 2019) identified that technological stress is triggered by techno-overload in the workplace, as it has a negative relationship with work performance.

**$H_2$.** There is a negative relationship between techno-overload and work performance.

Work engagement can be regarded as the key to driving workforce change and improving workforce performance. (Kim et

al., 2013). (Bakker et al., 2011) explains there are four reasons why an engaged workforce performs better than an unengaged workforce: a). Positive emotions, b). Better health, c). Ability to mobilize resources, d). Engagement crossover. The study (Karatepe, 2013) explains that work engagement determines performance outcomes, and also discusses whether examining work engagement can simultaneously improve workforce performance. Academics and practitioners conceptualize engagement with the common goal of identifying the antecedents and performance outcomes of engagement. Therefore as the construct of work engagement has evolved, the most common model used to study workforce performance is the JD-R model (Borst, 2018). The JD-R model (Kim et al., 2013) states that workforce performance has a positive effect on work engagement.

**$H_3$.** There is a significant relationship between work engagement and Work Performance.

Work Engagement acts as a mediator that shows a greater level of passion dedication and commitment of the workforce to work (Lebrón et al., 2018). The level of commitment to techno-overload was found to increase individual productivity as it led to a balance between the pressures of technology and the benefits provided by the technology. However, techno-overload hurts workforce performance (Li & Wang, 2021).

**$H_4$.** Work engagement mediates the negative relationship between techno-overload and work performance.

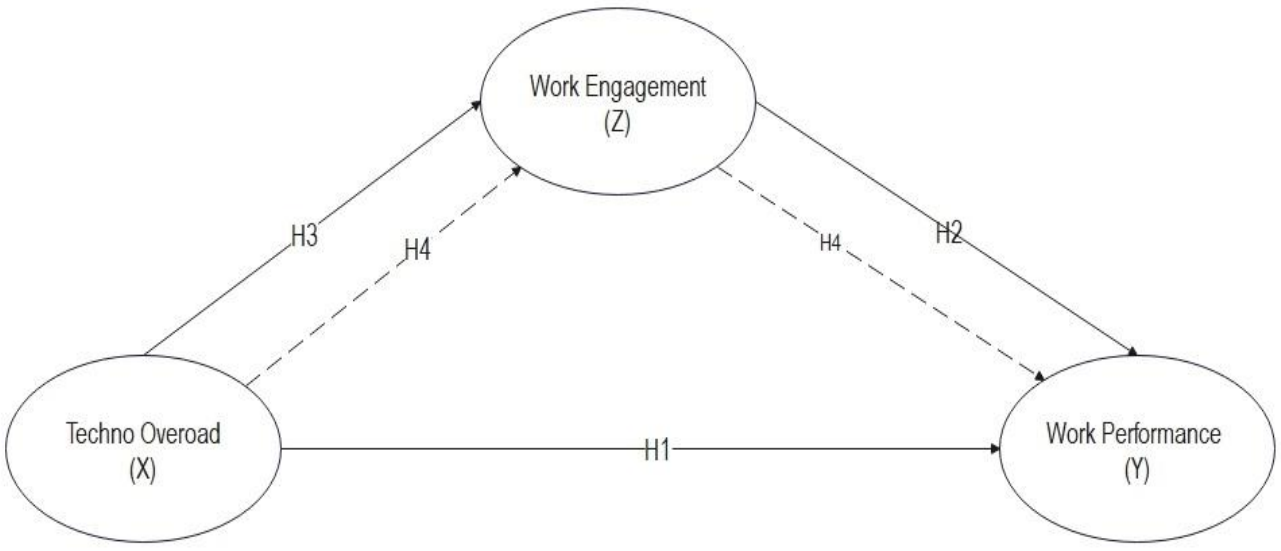


Figure 1. Conceptual Framework

## RESEARCH METHOD

This study adopts a survey sampling method that targets SMEs in Semarang City, Central Java, Indonesia, as respondents. The total number of SMEs in Semarang is 29,922 by (*Data UMKM Kota Semarang 2023*, n.d.). Therefore, the researcher identified the workforce by determining the business sectors of Food & Beverage, Crafts, Fashion/Clothing, Retail/Minimarket, Services, and Others. The researcher chose Semarang, the capital city of Central Java Province, because this region has the potential to develop small and medium enterprises (SMEs), besides Semarang is one of the cities that is quite progressive in adopting technology and the high level of competition in the SMEs sector in Semarang City encourages businesses to adopt technology. This has led to an increase in the use of technology in the SMEs sector, making Semarang a relevant city for technostress research. The respondents studied are SMEs and have problems with technology. The researcher distributed questionnaires to participants using a non-probabilistic sampling approach, namely purposive sampling and obtained 315 respondents who participated in this study by filling out the designed questionnaire, the survey results showed that, 194 MSMEs (61.587%) were found in the Food & Beverage sector, in addition 34 (10.794%) respondents in the Clothing Fashion sector, and as many as 29 (9.206%) respondents in the handicraft sector, 29 (9.206%) were in the Retail or Minimarket sector and 26 (8.254%) in the service sector and there were 3 (0.952%) in other sectors.

Technological overload refers to the impact of excessive use of technology and affects workforce performance. Technological overload is measured by 2 (two) indicators that are significant enough to show that techno-overload indicates the negative impact of excessive use of technology and labor participation for example, technology in my workplace forces me to work more than my ability. (Marchiori et al., 2019) using a five-point Likert scale that ranges from 1 (strongly disagree) to 5 (strongly agree).

The concept of performance structure describes the extent to which the workforce uses technology to improve performance and the extent to which the use of technology makes a positive contribution to the tasks of the SMEs workforce. (Tarafdar et al., 2010). Workforce performance is measured by 4 (four) indicator items for example, the technology in my workplace helps me improve the quality of my work. (Tarafdar et al., 2010) Measurement of labor performance indicators uses a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Work engagement is where the mental state of the workforce feels full of positive

energy (enthusiasm), enthusiasm for work and things that the workforce does (dedication), or is so immersed in work activities that it feels like it passes quickly. (Bakker & Demerouti, 2017). Very high levels of engagement can result in a decline in workforce health due to the stress experienced as well as caused by counterproductive work behaviors. (Lebrón et al., 2018). Work engagement is measured by 6 (six) indicator items for example, because my work uses technology, I feel happy when I work intensely. (Salmela-Aro et al., 2011). The measurement of cooperation indicators uses a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

This study uses PLS-SEM to validate the research model and is oriented towards prediction, exploration, and the goal of increasing the variance explained for the dependent variable. (Hair et al., 2019);(Li & Wang, 2021). Thus, PLS-SEM is the purpose of this study, which is to analyze the impact of techno-overload on work performance with work engagement as an intervening variable in the umkm workforce in Semarang City. In addition, the tests in this study are validity and reliability tests, and hypothesis testing.

## RESEARCH RESULT

To analyze the data, PLS-SEM ver. 4 was used as a statistical tool. This was done by evaluating the measurement model and structural model (Hair et al., 2019) After that, a multigroup comparison was conducted between SMEs workers at the technostress level who have different business sectors, gender, age, education, and tenure. The results of the research classification are presented in Table 1.

The evaluation of the measurement model encompassed assessing construct reliability, item reliability, convergent validity, and discriminant validity (Hair et al., 2019);(Li & Wang, 2021). All accepted values reached 0.70, signifying sufficient reliability in the measures of technostress and work performance. Convergent validity is achieved by meeting two criteria: (a) the combined reliability of all constructs must exceed 0.70; and (b) the average variance extracted (AVE) of each construct must be above 0.50. (Hair et al., 2019). Evaluation of the reflective model consists of outer loading factors> 0.70 composite reliability> 0.70 Cronbach's alpha and average variance extracted (AVE> 0.50) as well as evaluation of discriminant validity, namely the Fornell and Lacker criteria and HTMT (Hateroit Monotrait Ratio) below 0.9.

The TO variable is measured by two valid items with outer loading between 0.731 - 0.987, indicating the validity of the TO measurement. The level of reliability of the variables is acceptable, indicated by Cronbach's alpha and composite reliability

exceeding 0.70, indicating good reliability. The convergent validity of the variables is also met with an AVE value of 0.755 > 0.50. In total, the variation of measurement items contained in this variable reached 75.5%. Among the measurement items, TO1 has the highest outer loading (0.987), indicating a high level of excess stress, and TO has a significant effect on performance.

The WE variable is measured by six valid items with outer loadings ranging from 0.718-0.863, indicating the validity of the WE measurement. The reliability level of this variable is acceptable, represented by Cronbach's alpha and composite reliability exceeding 0.70. Convergent validity also meets good criteria with an AVE value of 0.603 > 0.50. Overall, the variation of WE measurement items reached 60.3%. Among the six measurement items, WE3 and WE2 have the highest outer loading (0.863 and 0.805), indicating the mediating effect of WE on workforce performance.

The WP variable is measured by three valid items with outer loadings between 0.782 - 0.924, reflecting the validity of the WP measurement. The reliability of this variable meets the standard, with Cronbach's alpha and composite reliability above 0.70. Convergent validity is met with an AVE value of 0.768 > 0.50. In total, the variation of measurement items contained in the variable reached 76.8%. Among the three measurement items, WP1 and WP2 have the highest outer loading (0.924 and 0.916), indicating that these items contribute greatly to the influence of WP.

Assessment of discriminant validity (see table 3) should adhere to the Fornell and Larcker criteria. The objective of discriminant validity is to ascertain that variables are distinct from one another both theoretically and empirically, as evidenced by statistical analyses. The Fornell and Lacker criteria require that the root AVE of the variable is greater than the correlation between variables. In the TO variable, the root AVE (0.869) is greater than its correlation with WE (0.086) and WP (0.120), indicating that discriminant validity for TO is met. However, according to (Hair et al., 2019) HTMT is proposed for use as it is deemed to be more responsive in identifying discriminant validity, with the recommended threshold being below 0.90. The test results show that the HTMT values for the variable pairs are below 0.90, indicating that discriminant validity is achieved. This variable demonstrates greater effectiveness in explaining the variation of the measurement item it represents compared to the variation in the other variable item.

**Structural Model Evaluation**

Evaluation of the structural model concerning hypothesis testing regarding the impact of research variables is conducted through a three-step process. Initially, multicollinearity among variables is

examined using the Inner VIF (Variance Inflated Factor). A value of Inner VIF below 5 suggests the absence of multicollinearity among variables, aligning with the criteria outlined by (Hair et al., 2019).

In the second phase, hypotheses between variables are examined through t statistics or p values. If the t statistic exceeds 1.96 (as per the t table) or if the p value from the hypothesis test is less than 0.05, it indicates a significant relationship between the variables. Furthermore, it is essential to present the outcomes and 95% confidence intervals of the estimated path coefficients.

The third stage involves measuring f square, which indicates the direct influence of variables at the structural level. The f square values are categorized as low (0.02), moderate (0.05), or high (0.35), according to the guidelines described by (Hair et al., 2019). In addition, the mediation effect is evaluated using the upsilon v statistic, which is obtained by squaring the mediation coefficient. The interpretation refers to the categories of low (0.02), medium (0.075), and high (0.175) mediation effects based on research conducted by (Lachowicz et al., 2018).

Prior to examining the hypothesis of the structural model, it is essential to assess whether there exists multicollinearity among variables, which is done using the inner VIF statistical measure. The estimation outcomes indicate that the inner VIF value is <5, indicating a low level of multicollinearity among variables. These findings reinforce the robustness and unbiased nature of the parameter estimation results in SEM PLS. Based on the aforementioned hypothesis testing results, the following conclusions can be drawn:

Hypothesis 1 is not accepted (see table 4) where there is no significant effect of TO on WE with path coefficient (0.086) and p-value (0.206 > 0.05). This is because the workforce already has skills and strategies in handling TO and can manage time, set priorities, or use technology more efficiently, in turn TO can reduce its negative impact on WE.

Hypothesis 2 is not accepted (see table 4) where there is no significant effect of TO on WP with path coefficient (0.069) and p-value (0.175 > 0.05). This is because the workforce is accustomed to high technology loads and develops adaptation strategies to manage TO. In addition, the workforce is accustomed to using time management systems to improve their efficiency and productivity, thus reducing the impact of TO. It was found that TO can increase productivity, this can occur due to the pressure exerted but technology also provides convenience benefits that increase work efficiency. (Li & Wang, 2021).

Hypothesis 3 is accepted (see table 4) where there is a significant effect of WE on WP with path coefficient (0.586) and p-value (0.000 <0.05), so there is a significant influence between WE on WP. The higher the work involvement of SMEs workers, the higher the work performance that workers have and work involvement influences labor performance. This result supports the research results (Kim et al., 2013).

Hypothesis 4 is not accepted (see table 4) where there is no significant effect of WE in mediating TO on WP. Based on research conducted by SMEs workers, it is stated that the level of work overload makes the level of labor productivity increase due to the benefits and convenience provided by technology. (Li & Wang, 2021). There are several factors that can influence why work engagement does not mediate the relationship between technology overload and work performance, the workforce of SMEs in Semarang has developed effective skills and strategies in dealing with TO, such as good time management and efficient use of technology so that they are able to deal with TO and are able to maintain their work performance well, this is in line with the findings of (Li & Wang, 2021) although pressure from technology can increase productivity because technology also provides convenience benefits that increase work efficiency. This means that TO does not directly have a negative impact on their work engagement, because they have been able to adapt to the demands of technology, in the study of (Tarafdar et al., 2015) showed that social support and organizational culture can help employees manage techno-stress and improve work engagement and performance.

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Table 1
Respondent Characteristic

| Characteristics | Criteria | Frequencies | Presentage (%) |
|---|---|---|---|
| Business Sector | Food and Beverage | 194 | 61.587 |
| | Craft | 29 | 9.206 |
| | Fashion Clothing | 34 | 10.794 |
| | Retail/Mini Market | 29 | 9.206 |
| | Services | 26 | 8.254 |
| | Others | 3 | 0.952 |
| Gender | Male | 89 | 28.25 |
| | Female | 226 | 71.75 |
| Age | 18 - 25 years | 245 | 77.78 |
| | 26 - 30 years | 34 | 10.79 |
| | 31 - 40 years | 15 | 4.76 |
| | 41 - 50 years | 10 | 3.17 |

| Characteristics | Criteria | Frequencies | Presentage (%) |
|---|---|---|---|
| | > 50 years | 11 | 3.49 |
| Education | SMA / SMK | 227 | 72.06 |
| | Bachelor | 23 | 7. 30 |
| | Master | 65 | 20. 63 |
| | Doctorate | - | - |
| Tenure | < 1 year | 152 | 48.25 |
| | 1 - 2 years | 100 | 31.75 |
| | 3 - 5 years | 41 | 13.02 |
| | 6 - 10 years | 10 | 3.17 |
| | > 10 years | 12 | 3.81 |

Source : Research Data Analysis, 2024

Table 2
Measurement Result Model

| Indicator | Loading | Alpha | CR | AVE |
|---|---|---|---|---|
| TO1 | 0,987 | 0,761 | 0,858 | 0,755 |
| TO2 | 0,731 | | | |
| WE1 | 0,718 | 0,867 | 0,901 | 0,603 |
| WE2 | 0,805 | | | |
| WE3 | 0,863 | | | |
| WE4 | 0,724 | | | |
| WE5 | 0,797 | | | |
| WE6 | 0,739 | | | |
| WP1 | 0,924 | 0,847 | 0,908 | 0,768 |
| WP2 | 0,916 | | | |
| WP3 | 0,782 | | | |

Source : Research Data Analysis, 2024

Table 3
Discriminant Validity

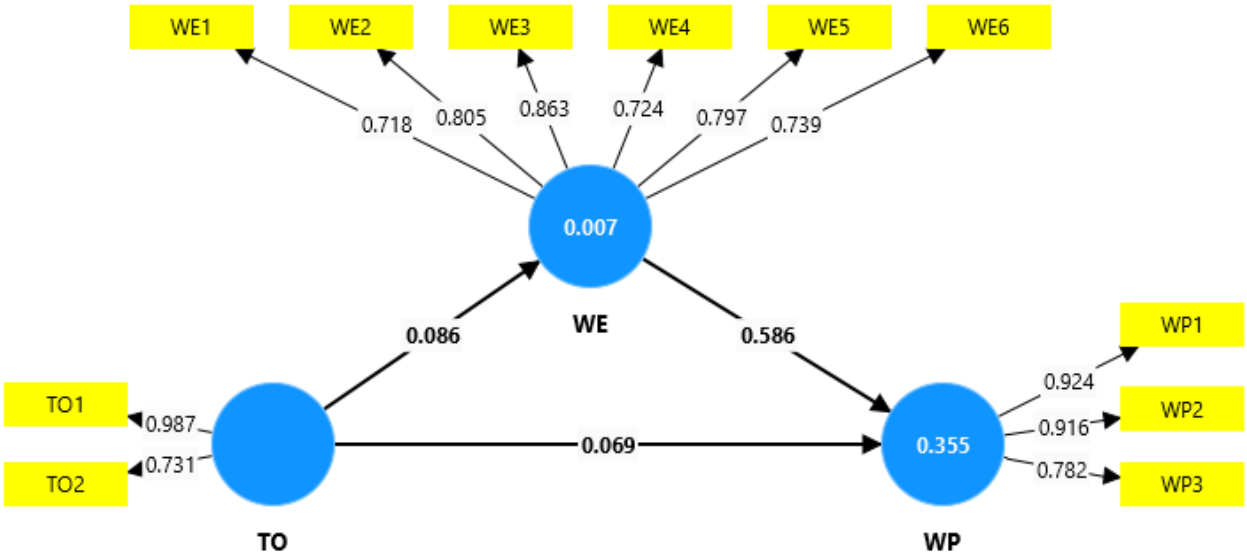
| Discriminant Validity (Fornell lacker) | | | | Discriminant Validity (HTMT) | | |
|---|---|---|---|---|---|---|
| | TO | WE | WP | TO | WE | WP |
| TO | 0,869 | | | | | |
| WE | 0,086 | 0,776 | | 0,104 | | |
| WP | 0,120 | 0,592 | 0,876 | 0,122 | 0,683 | |

Source : Research Data Analysis, 2024

Table 4.
Hypothesis Testing (Direct Effect)

| (Direct Effect) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Hypothesis | Path Coefficient | p-value | 95% Confidence Interval Path Coefficient | | f square/ Upsilon v | Inner VIF | R square | Q square |
| | | | Lower Limit | Upper Limit | | | | |
| TO→WE | 0.086 | 0.206 | - 0,109 | 0,199 | 0,008 | 1,000 | 0,007 | -0,001 |
| TO→ WP | 0.069 | 0.175 | -0,039 | 0,164 | 0,007 | 1,008 | 0,335 | 0,006 |
| WE→WP | 0.586 | 0.000 | 0,509 | 0,664 | 0,528 | 1,008 | | |
| (Indirect Effect) | | | | | | | | |
| TO→WE→ WP | 0.051 | 0.215 | -0.062 | 0.120 | 0.001 | - | - | - |

Source : Research Data Analysis, 2024




Source : Research Data Analysis, 2024

Figure 2. Bootstrapping

## CONCLUSION

Low techno-overload in SMEs in Semarang City can improve workforce performance. The higher work engagement and the lower techno- overload in the workforce of SMEs in Semarang City can improve workforce performance. The level of techno- overload in the workforce of Semarang City SMEs does not correlate with work performance. However, work engagement in the workforce of Semarang City SMEs is correlated with work performance. In addition, this study also shows that techno-overload changes the situation of the workforce to further improve workforce performance. Workers who can deal with the situation are less

likely to be affected by the negative impact of techno-overload on their performance. Techno-overload in the workforce of Semarang City SMEs does not affect the workforce's performance, but it has positive implications for their work.

This study has several limitations. First, the research sample was limited to the workforce of MSMEs in Semarang City, so the results may not be generalizable to a broader context. Second, the measurement of techno-overload, work engagement, and work performance may not fully cover all dimensions of these variables. Third, this study did not consider other variables that may affect the relationship between techno-overload and work performance.

For future research, it is recommended to include a wider and more diverse sample from various regions to increase the generalizability of the findings. In addition, future research could use different research methods, such as case studies or in-depth interviews, to gain deeper insights into the workforce's experiences with techno-overload. Research can also consider additional variables, such as techno-uncertainty, techno-insecurity, techno-complexity, and system breakdown.

## IMPLICATIONS

This research significantly contributes to the advancement of both theoretical understanding and practical applications concerning technostress. The phenomenon of technological overload has generated increasing attention. Theoretically, technological overload is confirmed as an influential framework and instruments are listed to facilitate researchers to conduct further research on the phenomenon of technological overload. The concept of technological overload can provide new problems for researchers to overcome and investigate with a new view to inspire a lot of research on technostress.

This research also offers valuable insights for professionals; the technological overload ad elements we have identified can serve as benchmarks for assessing the extent of overload experienced by employees. Such insights are especially beneficial for managers seeking deeper comprehension of individual work contexts, potentially aiding in task reorganization. Our research provides empirical evidence that the two coping mechanisms we have identified can notably enhance individual job satisfaction.

Recommendations for SMEs on managing Technology Overload include conducting specialized training programs for the workforce to focus on the effective use of technology, evaluating and optimizing the technology management system to ensure that employees are not burdened with unnecessary tasks and implementing user-friendly tools. Psychological support is also

needed such as counseling to help the workforce cope with stress caused by technology and rescheduling tasks to provide adequate breaks from technology use.

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